My concerns relate to:

1. The number of lives and buildings lost in the fires of 2019/20 and the need to make them safer and more fire resistant.
2. The widespread calls for relaxed laws relating to hazard reductions by private landowners; especially those that include their ability to undertake burns on adjacent crown land and/or National Park.

As a volunteer fire fighter with the New South Wales Rural fire Service for 35 years I have experienced a large number of bush fires and have planned and carried out numerous hazard reductions. I have been a Sector Leader and Divisional Commander at fires in many areas of the State, including the Canberra fire of 2003 and the fires in the Blue Mountains of 1994, 1997 and 2001. As a Planning Officer I have helped develop strategies to control previous occurrences of the Gospers Mountains fire in NSW.

I was one of the first facilitators trained by the RFS in 1998 when they adopted the Community Fireguard program to help landowners develop individual fire plans and ensure that their properties were ready for fires.

From 2006 to 2019 I was an Authorised Fire Investigator with the RFS and attended over 900 fire scenes for that organisation and for the NSW Police Crime and Property (Arson Squad). In that time I helped identify 16 serial fire lighters and I believe deterred several more.

I hope that my experiences may add to your understanding of the issues.

As the current fire destroyed over 5,900 buildings (including 2,779 homes) and killed at least 34 people it is not surprising that people are clamouring for change. There is a strong contingent of respected fire researchers saying that the only thing that we can control is the fuel and that we must burn the forests, both near and remote from the towns and cities. so that there is insufficient ground fuel to allow fires to reach and stay in the forest canopy. It is this that produces the rain of embers that spread the current fires. They often cite traditional burning practices used by Aboriginal tribes, pre-European settlement. Many also want to allow grazing of animals in National Parks and allow selective logging in them as well.

I don't believe that an inquiry such as yours has the time or resources to fully evaluate these proposals. While I doubt that they really can be implemented or that they should, they cannot be ignored and experiments should be funded and conducted. Certainly, in my experience, highly labour intensive cool burns, similar to those used by Aboriginal groups, produce less damage to the tree canopy than most of the current RFS hazard reductions do. I regularly see these scorch the canopy and so after a few weeks the leaves fall and undo much of the reduction in ground fuel.

Without doubt in the 2019/20 fires, climate change and the years of drought provided conditions in which fire spread rapidly and were exceptionally difficult to control. Night time temperatures and humidities rarely fell low enough to allow back burning to be

effective on narrow control lines such as roads or tracks. The ignition areas were often so remote that it was difficult to keep the fires small.

Similar conditions occurred in Canberra in 2003. As a Sector Leader there my area of responsibility was at the foot of the Brindabellas (Two Sticks). We had four rural buildings to protect, two of which appeared to be undefendable. Just as in the present fires there had been three years of drought and the 14 kilometres of grazing land between us and the suburbs of Canberra had been eaten out. The only flammable thing on these paddocks was a considerable amount of dry sheep and other animal dung.

At our position there was initially no crown fire and it was coming down hill with a flame height of about one and a half metres. I thought that, when it reached the grassed areas around the buildings, it would be easy to put out. Unfortunately the fire developed a pyro cumulus cloud that turned into a single cell dry thunderstorm. The downdraught from this was measured by one of the crew at 148 kmph.

This turned the ground layer of dirt, leaf litter and dung into a fast flowing burning black laminar layer. All I could see of the fire fighters beside the adjacent property was their helmets. This layer, plus numerous sheets of corrugated iron from a pile waiting to be put on one of the houses, blew into Canberra. It appeared that this happened almost instantly.

While, through good preparation and excellent firefighting, we saved all the four properties in our sector, the 14 kilometres of cleared ground was not enough of a buffer for the suburbs of Canberra. Hazard reduction zones have limited value in catastrophic fires.

While most of what follows is well documented it is worth restating. In wildfires few buildings are ignited directly from flames in a fire front. Most properties have enough clear space between them and the flame zone to avoid this. It is the same for radiant heat. Ignitions mostly occur from the rain of embers.

In an extreme fire, such as the Canberra fire of 2003, the huge ember load carried by the wind hits the vertical surfaces of a building and will build up at the base of the walls. Assuming the building is well constructed, has been left closed and is tight, the fire will not immediately enter the building. The 10 to 15 minutes that it takes for the front to pass builds this fire at the base of the walls.

The ember piles may finally ignite the buildings cladding but where the building is penetrated it is, in most cases, by igniting the items left outside. These provide an additional fuel source and often include outdoor furniture, children's toys and PVC dog houses: as well as the log pile for the wood burning stove.

I have been amazed at the condition in which people leave their properties but also how difficult it is to really make a building tight. I have been to the same property twice to protect it from a running bush fire; both events years apart. On both occasions the residents locked all the doors and windows but left without closing the garage doors and it was full of flammable objects. In the first fire a small stable next to the house had caught

fire and if left would have burnt the house down. The stable had not been moved when the second fire occurred and it had also caught fire again.

At Oakville, in 2007, fire fighters found a property that appeared undamaged but when they went to see if anyone was at home, they saw that it was full of smoke and that the contents were about to flash over. I found that an ember(s) had enter a gap about 100mm long where the flashing between sheets of fibro had been broken. This was just under the eave. Otherwise there was no damage to any external surface.

We know how to make properties defendable, even from the intense fires of this season. The RFS through its community education programs distributes guides on constructing asset protection zones and maintaining the inner protective zone around the buildings. Newly constructed buildings have mandated features such a metal fire shutters and fire resistant sarking. The most effective buildings have sprinkler systems that provide a curtain of spray from the eaves. This targets the embers collecting at the base of the building.

I am surprised that the RFS FRNSW and governments are not doing more to promote sprinklers as they can overcome many of the deficiencies of existing buildings.

In California there is a push to mandate zoned internal sprinklers[1]. This is led by the California Fire Sprinkler Coalition and supported by the NFPA (National Fire Protection Association of America) and FEMA (Federal Emergency Management Agency, U.S. Department of Homeland Security). Even in a well designed and constructed building it is difficult to stop embers penetrating and sometimes smouldering inside walls for hours, before burning down the building. A properly designed zoned internal sprinkler system can extinguish these fires before they take hold.

Installing sprinklers systems adds to the cost of building/re-building but the NFPA says that in the USA "The national average for installing automatic fire sprinklers in new homes is $1.35 per sprinklered square foot. Putting that figure in perspective, people pay similar amounts for carpet upgrades, whirlpool baths, or granite countertops. Plus, sprinklers are similar to investing in a full-time firefighter that stands at the ready 24/7 to protect your loved ones and property." The average cost for an American home appeared to be about 6,000$ US. [2]

In Australia the cost of sprinklers may be offset by reductions in the cost of insuring homes in areas that have proved to be so fire prone. Governments may also consider giving rebates for either including them in the construction of new buildings or retrofitting existing ones. The rebate would reduce costs associated with fighting future fires and it may ultimately save governments and the public money in disaster relief.

In towns impacted by ember rain, it only takes one building to catch fire and with the modern trend for small block sizes, the fire spreads from house to house. A widespread sprinkler system in a housing estate, especially one on the fringe of a town, would be a great assistance to the fire agencies in limiting the spread of a fire.

There has been a great debate about the increase in extreme weather events and it is likely that, even if we take action to limit global warming to 2%, we will still have more fire events like last summer. I am constantly amazed at how many people want to rebuild the same sort of houses on the same sites as before.

The calls for greater and more extensive hazard reduction burning seems to have widespread appeal on social media; as does the "greenies are stopping hazard reduction" and "we need more Aboriginal cultural burning" . The latter ignores the fact that the totemic system in Aboriginal societies made people, by their birth, responsible for the protection of the various animals and plants in their territories. No burning could be done without the consent of the guardians of these creatures and plants ("Aboriginal greenies"). They would ensure that areas would be set aside for each life form's survival.

I believe that the benefits and limitations of hazard reduction have been canvassed well in the media. In particular the ABC Fact Check https://www.abc.net.au/news/2019-12-20/hazard-reduction-burns-bushfires/11817336. In my time helping to manage wild fires I have seen fires burn across land that was hazard reduced only two years before. It was burning slowly but at the time we were fully stretched and had no one to attack the fire. In any event the fire was so large that it burnt around that area anyway.

Hazard reduction will continue to play an important part and will help control fires around the peripheries of towns under some conditions. It will never be able to stop ember rains falling on the towns as they can come from forests 15 to 20 kilometres away.

What I believe that we can do in our large areas of wilderness/national parks is have more frequent cool burns along tracks to widen them with areas of low ground and shrub fuel loads. Many of these tracks exist and were part of Aboriginal trading routes, others will still have to be constructed. We need to have more opportunities to stop huge wild fires like the Gospers Mountain fire, from progressing and these areas of permanently low fuels may assist.

Nothing is going to stop a crowning and ridge surfing fire that is throwing embers 10 to 20 km ahead of it. As soon as conditions ease, fire fighters need opportunities to back burn and a track or road by themselves has proven to be not wide enough to succeed. The flames from the back burn quickly reach the tree canopy and embers cross the control line. Areas beside the tracks that can be burnt with low fuel loads and that can be supported with aerial drops from large aircraft will have some chance of success.

This burning will be labour intensive and will have to be done on an extremely ad hoc basis, by trained personnel. Perhaps government could train and employ some indigenous rangers to do the job and bring to the task the skills that some of the community still possess.

We live in a land where the vegetation is adapted to both spread and survive fire. Even the fire mosaic created by Aboriginal burning would not have made them immune from catastrophic wildfires under the extreme and prolonged conditions that we experience

today. We, however, want to live in far different accommodation and have land uses that involve large flammable buildings and equipment. We need to make them resistant to fire.

I am concerned by the push to give landowners more control over the hazard reduction burning on their land and even in adjacent crown land and national parks. My concern comes from years as a fire investigator and especially from the recent increase in what I see as reckless fire lighting by many landowners throughout the State of NSW. I believe that the issue is summed up by the article by journalist Joanne McCarthy in a recent edition of the Newcastle Herald. I have included this below.

This article is from the February 27 issue of the Newcastle Herald Digital Edition. To subscribe , visit https://www.newcastleherald.com.au/.

BY JOANNE MCCARTHY

ONLY 16 landowners have been convicted of illegal hazard reduction burn offences in NSW since 2009 despite problem landowner fires jumping from less than 350 in 2010 to nearly 3000 a year since 2017, fire and crime statistics data shows.

Only one person was successfully prosecuted in 2018 for escaped fires that NSW Rural Fire Services Commissioner Shane Fitzsimmons said posed a "very real and potentially deadly threat to the public" despite landowner escaped fires for permit and pile burns or hazard reduction climbing to more than 3000 in 2018 for the first time in a decade.

Not one person was convicted of a hazard reduction fire offence in 2012, Bureau of Crime Statistics data shows, despite the reported incidence of escaped landowner fires to emergency services jumping dramatically from 371 in 2011 to 1097 in 2012.

Only two people were convicted for lighting fires for land clearing without permits or authority in 2016, despite the annual escaped landowner fires reported to authorities jumping from 1514 in 2015 to 2565 in 2016.

The highest number of recorded hazard reduction fire offence convictions in a single year is three, in 2015 and 2019. The highest incidence of convictions was in 2010 and 2011, when two landowners were convicted each year for illegally lighting fires for land clearing, when there were only 338 and 371 escaped fire incidents.

The lack of convictions is despite years of warnings from the RFS and NSW Police to landowners in escaped fire hotspots across the state, including the Hunter, about the risk of fines and jail for serious escaped fire events.

The Bureau of Crime Statistics data shows only three of the 16 landowners convicted of lighting fires for land clearing without authority, permits or giving notice to neighbours was fined after their cases were heard in court. Only one person over the decade was given a supervised community sentence.

Media reports across the state since 2012 show the RFS issued fines , infringement notices and warning letters to landowners for lighting fires during Bush Fire Danger Periods without a permit, or without giving notice to neighbours, or for escaped hazard reduction burns.

In 2018 Mr Fitzsimmons said it was "extremely concerning " that hundreds of firefighters were forced to respond to 142 out of control hazard reduction burns lit by "irresponsible " property owners in a single July week across the state, followed by 48 illegal landowner fires over two days in August.

In August last year Clarence Environment Centre called for year-round fire permit requirements in NSW and other limits on landowner hazard reduction burns because of climate change-related more severe bushfire conditions, in a letter to NSW Police and Emergency Services Minister David Elliott.

"In the Clarence Valley, every year without fail, the RFS declares a set date for the end of their permit-free season and property owners rush to light up their properties in the nick of time before having to ask permission," centre vice president Patricia Edwards wrote.

"We are over being afraid of neighbours who light fires on a regular annual basis and let them run out of control. We are done with having to consider potential destruction of our properties, our wildlife, our lifestyles and even our homes by fires that someone else decides to light."

Mrs Edwards said she was angered, but not surprised, by the lack of prosecutions because of the toxic politics around climate change and hazard reduction, and politicians who blamed "greenies " and the National Parks and Wildlife Service for bushfires without acknowledging the extent of illegal landowner hazard reduction damage each year.

Former Hunter and Central Coast RFS volunteer fire investigator Rick Miller said the push by National Party politicians for greater freedom for landowners to do hazard reduction burns failed to acknowledge the current known and serious risks posed by careless and reckless landowners.

"If you're going to talk about doubling hazard reduction burns, as some of these politicians are, then you're going to have to get real about the amount of illegal burns that are already occurring without real penalty," Mr Miller said.

The RFS had been taking landowner escaped fires more seriously in recent years but in the past it was a sensitive issue, "partly because they depended on many of the landowners to be volunteer fire fighters" , Mr Miller said.

While investigating fires in many areas of the State I have seen landowners light fires with what appears to be no regard for their neighbours and with non-existent or the flimsiest of control lines. The current and past efforts of the RFS, FRNSW and the Police have been

ineffective in stopping this and change is needed. This will involve greater effort by the agencies and their leadership, particularly the RFS. I believe they have the laws but have lacked the commitment to enforce them. Ten years of warning and little action has done nothing but increase the number of escaped landowner burns. We cannot have more escaped fires.

Many of the people who build in remote rural areas are there to escape poverty in the city. Some live in campsites and come to notice only when their fires escape, others are in caravans and demountable buildings. Many are in old farm buildings and huts. The provision of more "affordable" housing may help some of these people move but it is unlikely to completely solve the problem. Other people build shacks in remote property as holiday getaways. These groups are unlikely to want to meet tougher building standards and should be exempt on the condition that their buildings will not be defended. In areas where buildings are close together, such as on the fringes of towns or where insurance against fire is sought, then I believe mandatory building design should include internal and external sprinklers. Governments should assist with rebates as a way of reducing the long term cost of disaster relief.

We need to adapt to the changing climate and the more intense and prolonged fire seasons that it has created.

Richard (Rick Miller)
01/03/2020

Sources
1. These URLs will help broaden the information relating to home sprinklers.
https://www.fema.gov/media-library-data/20130726-1728-25045-1351/home_builders_guide_to_construction_in_wildfire_zones.pdf
https://www.nfpa.org/Public-Education/Staying-safe/Safety-equipment/Home-fire-sprinklers/Fire-Sprinkler-Initiative/Benefits-of-home-fire-sprinklers

2. This URL provides information on the cost of installing sprinklers in the USA. There is a downloadable pamphlet giving detailed costings.
https://www.nfpa.org/Public-Education/Staying-safe/Safety-equipment/Home-fire-sprinklers/Fire-Sprinkler-Initiative/Cost-of-home-fire-sprinklers