



LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON JUSTICE AND COMMUNITY SERVICES
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Submission Cover Sheet

Review of ACT emergency services
responses to the 2019-20 bushfire season

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Ginninderra Falls Association

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Review of ACT emergency services responses to the 2019-20 bushfire season

The Committee will canvass the matters arising in 2019-20 with the emergency services agencies and **is also asking for community views on all factors relating to the ACT's susceptibility to fire and how the impact of bushfire was and is to be mitigated.**

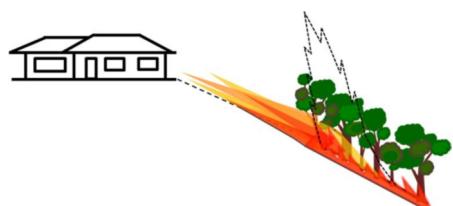
Introduction

The Ginninderra Falls Association (GFA) was formed in 2012 with a vision to create a national park encompassing the ACT-NSW area around the Murrumbidgee River and Ginninderra Creek gorges. GFA wishes to raise an important matter that is highly pertinent to the mitigation of the impact of bushfire. The 2003 and 2019-20 bushfires exemplified the form of dynamic, extreme bushfire that is becoming more common with climate change. Parts of the ACT, particularly the western fringe and mountainous areas are more susceptible to this form of fire. An example from 2003 was the pyro-tornado that tore a path near Mount Arawang in the suburb of Kambah. Whilst the effects of ordinary fires spread by radiant heat can be minimised to some extent by controlled burns and improved building standards, these are not effective in the case of dynamic fires spread by embers.

With the expected increase in frequency and severity of these extreme bushfires, it is incumbent upon government to identify vulnerable locations and assess their likely exposure to devastating bushfires. Such areas should be placed in a zone prohibiting residential development. The precautionary principle should prevail to protect lives, of both potential residents and their inevitable defenders – emergency services personnel.

Ordinary fire behaviour

The more common type of fire can be started in any dry area by a range of factors. The fire then tends to burn along the ground through vegetation in accordance with wind direction. It spreads by radiant heat action, such that the heat of the air around burning areas will ignite neighbouring areas. It tends to have a relatively short fire front as it moves with the wind. Traditional fire management approaches have been based on this behaviour, including the McArthur Forest Fire Danger Index which McArthur advocated for use only on slopes below 20 degrees. Since 2003, however, much research has been performed on the more dynamic fire behaviour exhibited at that time and increasingly since then.



Uphill fire behaviour



Downhill dynamic fire behaviour

Dynamic fire behaviour

This less common form of fire occurs where there are slopes greater than 20-24 degrees. On lesser slopes, a fire's plume will rise into the air but, when slopes become sufficiently steep, the flames and plume can both attach to the terrain surface. This leads to greater preheating of fuels ahead of the fire, resulting in the fire spreading more rapidly. It also produces a larger area of active flame from which heat is released into the atmosphere, a process known as eruptive fire behaviour. Under these conditions, the interaction of wind, terrain and fire can cause generation of significant fire whirls on lee-facing slopes, which carry the fire sideways instead of with the wind direction (known as vorticity-driven lateral spread) creating a very long fire front. This is a complicated procedure and can result in many spot fires which can then coalesce to create a massive fire with such force that it can result in a fire storm (pyrocumulonimbus) showering embers over a vast area.

Controlling fires

Ordinary fires are the typical Australian fire type which, traditionally, we have had to learn to live with. Dynamic fire behaviour, however, is not so easy to live with. It is, therefore, important to identify those areas subject to such extreme conditions that they are best avoided.

Rugged terrain is particularly prone to dynamic fire behaviour, depending on wind strength and orientation of hillslope. It is also where such fires are difficult to fight and fuel reduction is difficult to achieve. Such fires usually cannot be controlled until they leave the rugged terrain area.

Over recent decades, as droughts become more severe, there has been a rapid increase in the incidence of pyrocumulonimbus storms, leading to more uncontrollable bushfires. The incidence of pyrocumulonimbus events coincides with the occurrence of extreme dryness of vegetation. Under extreme conditions, hazard reduction burning is of diminishing effectiveness in slowing fires. There is some indication that extensive areas of very young fuels (1-2 years old) might reduce the intensity of extreme fires in some cases but will not prevent the fire from spreading further. The window of time suitable for prescribed burning in each year, however, is narrowing because of warming climate.

Urban areas and fires

Canberra is surrounded by mountainous country, notably the Brindabella Range, where lightning strikes routinely start fires. It is cut by the Molonglo River and bounded on the north-west by the Murrumbidgee River, both of which include gorges with very steep slopes in many sections. When a fire in the relevant conditions hits the steep slopes of the gorges, it becomes dynamic, with eruptive behaviour as it accelerates uphill, and a tendency to spread sideways along the ridgeline instead of following the direction of the wind, thus becoming more disastrous than an ordinary fire and being more difficult to control. Such conditions can result in embers being driven up to five kilometres, i.e. well into any residential area, with catastrophic results.

Strategic land use planning is needed

With continued population growth, there is pressure to develop more and more land for dense housing. Over the past two decades, areas close to the rivers and ranges and previously excluded from residential use, have been rezoned to permit residential development, presumably on the premise that the original rationale for the zoning is no longer relevant. The desirability of this action has been considered in several preceding inquiries:

1. *Natural Disasters in Australia: Reforming mitigation, relief and recovery arrangements* (August 2002), a report to the Council of Australian Governments by a high level officials' group¹ which recommended that:
... all levels of government agree to a comprehensive five-year package of twelve reform commitments to reform the way Australia manages natural disasters and achieve safer, more sustainable communities and regions in economic, social and environmental terms (including) this commitment:

4. take action to ensure more effective statutory State, Territory and Local Government land use planning, development and building control regimes that systematically identify natural hazards and include measures to reduce the risk of damage from these natural hazards.
2. The House of Representatives Select Committee on the Recent Australian Bushfires in *A Nation Charred: Inquiry into the Recent Australian Bushfires* (October 2003)² in which, the Australian Government supported Recommendation 48:

The Committee recommends that state and territory governments be required to regularly perform risk assessments to the land within their jurisdictions to ensure that bushfire prone areas are accurately identified and can be appropriately managed. This should include possibly prohibiting, or at least limiting, reticulated development in these areas. If building is effectively prohibited on land previously zoned for residential or commercial building, state and territory governments, in conjunction with local councils, should adequately compensate the affected landholders.

3. In April 2004, the Council of Australian Governments' (COAG) report, *National Inquiry on Bushfire Mitigation and Management* found:

Finding 6.1 The Inquiry supports the view, expressed in *Natural Disasters in Australia*, that land use planning that takes into account natural hazard risks is the single most important mitigation measure for preventing future disaster losses (including from bushfires) in areas of new development. Planning and development controls must be effective, to ensure that inappropriate developments do not occur.

4. Likewise, in February 2011, the Council of Australian Governments endorsed the report, *National Strategy for Disaster Resilience*,³ which declared that:

"Pressures for urban development to extend into areas of higher risk from natural disasters compounds the problem." AND
"Locating new or expanding existing settlements and infrastructure in areas exposed to unreasonable risk is irresponsible."

It is not obvious that much effort has been devoted to identifying and rezoning areas exposed to unreasonable risk to ensure that inappropriate developments do not occur. The pressure for development always seems to outweigh other concerns.

Conclusion

GFA believes there is sufficient research available to identify, confidently, the necessary best-practice distance from steep slopes to ensure residents are not subject to the worst effects of catastrophic bushfires. The ACT Government should make decisions based on strategic land-use planning that ensures houses are not built in areas of extreme fire hazard, thus exposing residents and ACT firefighters to unreasonable risk. Doing so would leave a poor legacy, creating an unnecessary burden on future governments, as well as the affected residents. There is also the question of whether houses in an area subject to dynamic fire behaviour will be insurable in the future; if not, this will be a major problem for a future government and for ACT residents.

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¹ Council of Australian Governments, 2004, *Natural disasters in Australia: reforming mitigation, relief and recovery arrangements*, Department of Transport and Regional Services, Canberra.

² Commonwealth of Australia, 2003, *A nation charred: report on the inquiry into bushfires*. House of Representatives Select Committee into the recent Australian bushfires, The Parliament of the Commonwealth of Australia, Canberra.

³ Council of Australian Governments, 2011, *National Strategy for Disaster Resilience - Building the resilience of our nation to disaster*, Public release date 7 December 2009.