

FIRE NOTE

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COMMUNITY BUSHFIRE SAFETY ISSUES: FINDINGS FROM INTERVIEWS WITH RESIDENTS AFFECTED BY THE 2009 VICTORIAN BUSHFIRES

SUMMARY

Immediately following the 7 February 2009 Victorian bushfires, known as Black Saturday, the Bushfire CRC organised a multi-agency Task Force to investigate and report on three aspects of the fire: fire behaviour; building survivability and infrastructure; and human behaviour and community safety. This investigation involved interviews with more than 500 survivors.

This *Fire Note* reports analysis of 496 of these interview transcripts, which revealed generally low levels of planning and preparedness for a severe bushfire. Residents who expected a personal warning or assistance from agencies tended to be less prepared. Residents of urban/rural interface suburbs were mostly unaware of the threat posed by adjacent bush and grassland. There was generally a poor level of understanding of what leaving safely under bushfire threat entailed. The findings described in the final report provide a basis for fire and emergency service agencies to appraise their current community bushfire safety policies, priorities, programs and practises three and a half years after the Black Saturday fires.

ABOUT THIS PROJECT

This is a final report summary on the project *Decision making under stress: understanding community members' survival-related decision making during bushfires*, conducted as part of the Bushfire CRC *Communicating Risk* program.

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Jim and Glenn were members of the post-Black Saturday interview Task Force.



CONTEXT

The research questions for this project were: how had householders in fire-affected communities prepared for bushfires; and what did they do, and why, during the Victorian 7 February 2009 Black Saturday bushfires?

BACKGROUND

On 7 February 2009 Victoria experienced Australia's worst day of bushfires in recorded history. Extreme fire danger weather was predicted six days in advance. Warnings of the expected extreme fire danger were broadcast widely via electronic media, and reported extensively in daily newspapers during the preceding week. From mid-morning on 7 February, numerous fires flared across the state. As predicted, weather conditions were extreme – high temperatures (over 44 degrees Celsius), low relative humidity (less than 10%), and strong winds (over 100 kilometres per hour). Rainfall for the preceding 12 months was well below the annual average, following 10 years of drought conditions. The fire caused 173 fatalities; more than 2000 homes were destroyed; and several communities were devastated; resulting in severe economic, social, and environmental costs, amounting to at least \$4 billion (2009 Victorian Bushfires Royal Commission 2010).

Immediately following the bushfires, the Bushfire CRC organised a multi-agency Task Force to investigate the fires and report to the 2009 Victorian Bushfires Royal Commission. An important aspect of the Task Force's work was interviewing a large cross-section of survivors about their experiences. Overall, more than 500 interviews were conducted in locations that had been severely affected.

BUSHFIRE CRC RESEARCH

Interviews were conducted in eight major fire-complex areas: Beechworth, Bendigo, Bunyip, Churchill, Horsham, Kilmore East, Murrindindi and Narre Warren. Residents were interviewed at their properties (survived, damaged, or destroyed), most over the course of six weeks following the fires.

Approximately two-thirds of the interviews were conducted by research staff and students, or former students, from RMIT University and La Trobe University. The remainder were mostly conducted by interstate fire agency staff involved in community bushfire safety. Professor John Handmer (RMIT) and Damien Killalea (Tasmania Fire Service) coordinated the endeavour. Dr Joshua Whittaker (RMIT) managed the interview arrangements.

Because of the damage to local infrastructure and the large number of displaced residents it was not possible to recruit a random sample of survivors to interview. However, those interviewed represented a range of locations, property types, household compositions and outcomes. Interviews were conducted at properties where people were present on days when Task Force teams were in the area. Almost all those approached agreed to be interviewed; there were very few refusals and these were due mostly to residents not having the time to be interviewed when approached. Interviews were semi-structured in format and followed an interview guide which invited survivors to describe:

1. Their preparations for a bushfire and their bushfire plan prior to 7 February 2009.
2. Information and warnings received about the predicted fire danger weather and fires on the day.
3. What they did when they became aware of a fire threat and why: if they defended, what was it like? If they left: when, why? Where did they go?
4. Whether they would do anything differently about bushfire threat in the future and why.

Interviewers encouraged participants to provide a detailed account of their experiences. Most interviews lasted between 20 and 40 minutes. Interviews were recorded digitally, and transcribed and checked by a professional transcription service. An analysis and reporting group from RMIT and La Trobe universities undertook a qualitative analysis of 300 transcripts and reported findings to the royal commission (Whittaker *et al* 2009).

In September 2010 the Bushfire CRC commissioned an analysis of all the Task Force interview transcripts by a La Trobe University project team to identify any community bushfire safety issues not addressed sufficiently in the earlier report (Whittaker *et al* 2009). Rather than repeat the qualitative procedures used previously, the team used a quantitative procedure in which information was extracted from the transcripts using a 22-category interview content coding scheme. The information was compiled and analysed and the findings described in the report *Issues*



▲ Task Force members conducted more than 500 interviews in fire-affected areas.

END USER STATEMENT

There is much pressure on authorities to work effectively with communities to assist them in making good decisions about their safety in the face of bushfires. The heart of being able to do this is to have a deep understanding of how people actually behave and what appreciation they are likely to have of the risk they face. The information described in this *Fire Note* and associated reports is one of the useful insights that we have obtained. The findings in some cases confirm what we suspected and in others have produced new information which will be translated into re-crafted messages, programs and, most importantly, expectations during large bushfires. Sincere thanks to the La Trobe team, all of the interviewers and the hundreds of residents who participated for this addition to the knowledge needed to improve community safety.

– Naomi Brown,
Chief Executive Officer, AFAC

in Community Safety: Analyses of Interviews Conducted by the 2009 Victorian Bushfires Research Task Force.

RESEARCH OUTCOMES

A total of 496 transcripts were analysed (others could not be analysed because they were incomplete due to recording problems, or because they involved hearsay accounts from people not personally affected by the fires).

The broad findings of the 2009 report by Whittaker *et al* (2009) were confirmed:

- Fire agencies and local councils had been only modestly successful at

informing residents of bushfire-risk communities about effective planning and preparation to survive a bushfire.

- There was generally poor appreciation by residents of the risk associated with predicted extreme levels of fire danger weather.
- A significant number of residents adopted a ‘wait and see’ approach to the reported bushfire threat.

Major findings from the subsequent La Trobe University project team analysis included:

1. Very few of the 496 householders for which transcripts were analysed (10, 2%) had heeded recommendations by authorities to relocate to a safer location the day before.
2. Few residents who stayed and defended had a sound appreciation of what they would experience during a severe bushfire. The researchers concluded that preparations were not sufficient for the severe conditions in many instances: of 223 householders who stayed and defended, 44 (20%) had to abandon the attempt and survive as best they could under dire circumstances as the house burned. Failures of firefighting equipment, house structure integrity and human capabilities were frequent. Very few of those who had planned to stay and defend had given thought to an alternative survival plan if their defence endeavours failed.
3. Most residents who did not plan to stay and defend their home had failed to think-through or prepare to leave safely. Many of those interviewed described a period of uncertainty, indecision,

WHAT RESIDENTS DID COMPARED WITH THEIR STATED PLAN/INTENTION

Most (80%) of those who chose not to be present on their property on the day had planned to leave safely. The majority (39%) of those who left without attempting to defend had planned to leave, but 21% had originally intended to stay and defend, but changed their mind. Most (81%) of those who stayed and defended had planned to do so.

Action on the day	Plan: Leave safely	Plan: Stay and defend	Plan: Wait and see	Plan: No plan	Plan: Plan Unclear	(Total) %
Not present by decision	80% (8)	10% (1)	10% (1)	0% (0)	0% (0)	(10) 100%
Left during the day	39% (84)	21% (45)	10% (22)	17% (37)	13% (28)	(216) 100%
Stayed and defended	5% (10)	81% (181)	1% (3)	9% (21)	4% (8)	(223) 100%
Sheltered passively	13% (1)	25% (2)	0% (0)	37% (3)	25% (2)	(8) 100%
(Total)	(103)	(229)	(26)	(61)	(38)	457*

* The 39 residents who were not present on their property on the day by chance, rather by decision, have not been included.

and hasty last-minute preparations to leave – often complicated by the needs of pets and livestock. Many reported only committing to the act of leaving in response to a trigger event (i.e. smoke, embers, flames) or communications (from friends or family) that convinced them that the bushfire threat was both real and imminent. Few who left took with them food, drink, clothing, toiletries and medication to sustain them while away from their property for 24 hours or more.

Other findings of note include:

- Householders who reported expecting a personal warning or assistance from a fire agency were generally less prepared for surviving a bushfire.
- Residents of urban/rural interface suburbs were mostly unaware of the threat posed by adjacent bush or grassland.

HOW IS THE RESEARCH BEING USED?

The 2009 Victorian bushfires were a wake-up call for agencies to re-evaluate their approaches to community bushfire safety. The findings and recommendations of the 2009 Victorian Bushfires Royal Commission were studied closely by fire and emergency services, police, and all levels of government. Policies and practices have been revised. New initiatives have been developed. The findings described in the final report on the Task Force interviews provide a basis for fire and emergency services agencies to appraise their current community bushfire safety policies, priorities, programs and practices three and a half years after the Black Saturday fires.

AN UNEXPECTED THREAT

Residents in urban/rural interface suburbs were unaware of their bushfire threat:



It's just something that was so unexpected for everybody. You're living in a suburb and you just don't expect this to happen. I know we've got trees around us, but we've also got cleared land and we just didn't expect it. And that's part of the reason we weren't prepared for bushfire. That's just something we didn't think about.

– Narre Warren resident



The report was considered by participants in a 2012 AFAC workshop reviewing its position on bushfires and community safety.

An earlier analysis of selected Task Force interview transcripts formed the basis of a report for the Country Fire Authority (CFA) concerning survivors' use of informal places of last resort shelter on 7 February 2009. CFA incorporated the report (McLennan 2010) in their submission on last resort shelter to the royal commission.

A report on a detailed analysis of transcripts from survivors of the Murrindindi Fire examined factors of residents' decisions to stay and defend or leave under imminent bushfire threat (McLennan and Elliott 2011). The aim of the report was to provide a comprehensive account of the experiences of members of a particular community which came under attack on 7 February 2009 and to relate these experiences to survival-related decisions, actions, and outcomes.

Ten general lessons about decision making by community members under imminent bushfire threat emerged from the study. The full report, *Community Members' Decision Making Under The Stress of Imminent Bushfire*

Threat – Murrindindi Fire is available on the [Bushfire CRC website](#).

1. Lack of accurate, timely, specific, and personally-relevant information about the fire threat undermines sound survival-related decision making. Uncertainty is a major threat to residents' survival.
2. Communities influence decision making by individual members via shared, normative, beliefs about bushfire risk. If a majority of community members believe that their community is not at risk, most individuals will be psychologically unready to make sound survival-related decisions under imminent bushfire threat.
3. Advice and information from particular trusted 'others' will be a major determinant of an individual's decision making – the more so under conditions of uncertainty. Information and advice from close family members and from people perceived to have bushfire-related expertise (firefighters, other emergency services, police) will be extremely influential.



▲ Task Force members examining a house in Strathewen.

4. What others are observed to be doing is an important determinant of an individual's decision making. People are social beings and take their cues about what to do by noting what others are doing in a given situation – especially a situation characterised by uncertainty.
 5. Under imminent bushfire threat decision making and action is gendered. Men are more likely to stay and defend their property; women are more likely to leave – especially if they have strong feelings of responsibility for the physical or psychological wellbeing of other family members.
 6. Single-minded commitment to one bushfire plan may be a path to disaster – especially a plan to stay and defend. Better that any plan is conditional upon specific conditions being met before being implemented, and has fall-back options.
 7. All involved should be warned to expect and be ready for something really important going seriously wrong at the worst possible time, with potentially fatal consequences (the general literature on human factors aspects of safety in hazardous environments suggests that rehearsal and review of plans may offer some protection).
 8. Some individuals should not be in a situation where they are at risk of bushfire attack: people under 16, those aged 70 or more, those with disabilities or other impairments – physical, social, psychological.
 9. In *extremis*, an individual's ability to: (a) down-regulate negative emotions like fear and anxiety; (b) maintain an attentional focus on emerging threats from the environment; and (c) keep actions coupled tightly to surviving in a potentially lethal environment, may determine survival.
 10. For a variety of complex reasons, some individuals will choose to act in ways that jeopardise their safety, and the safety of others.
- In addition, 51 interviews conducted by Task Force researchers with residents affected by the Murrindindi Fire were analysed using a coding scheme to extract information about bushfire knowledge and preparedness; bushfire plans; information and warnings on the day of the fire; and decisions, actions, and outcomes by members of the affected community. The findings of the report are described in a paper published in the *International Journal of Wildland Fire* (McLennan *et al.* 2012).

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