



**Victorian 2009 Bushfire
Research Response**

Final Report

October 2009

**Research Results from February 7th Victorian Fires
Report on:**

Human Behaviour & Community Safety

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The field interviewers were drawn from agencies and groups across Australia, including from: Terramatrix; the Tasmania Fire Service; NSW Rural Fire Service; SA Country Fire Service; Country Fire Authority; Department of Sustainability and Environment (DSE); CSIRO; and RMIT and La Trobe Universities. The 'Human Behaviour' team worked collaboratively and productively with the 'Building and Planning Issues' team, led by Justin Leonard of CSIRO. Our sincere thanks are due to all who worked in our teams or who collaborated with us, in particular to Dr Sarah McCaffrey who joined us from the US Forest Service and provided valuable advice at the critical, early stage.

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Executive Summary

On Saturday 7th February, 2009, Victoria experienced the worst bushfires in Australia's recorded history. A total of 173 people lost their lives and more than 2000 homes were destroyed, in addition to substantial economic and environmental impacts.

In response to these events, the Bushfire CRC established a Research Task Force to undertake research for the fire and land management sector and the fire research community in Australia and internationally. The Research Task Force covers three key areas:

- Fire Behaviour
- Human Behaviour and Community Safety Issues
- Building (Infrastructure) and Planning Issues

This is the first report of the 'Human Behaviour and Community Safety Issues' team. It presents findings from a qualitative analysis of 301 interviews with residents who were affected by the February 7th bushfires. An earlier, interim report presented findings from an analysis of 201 interviews. Findings from the analysis of all 600 interviews will be presented in a future report, alongside quantitative findings from a mail survey of bushfire-affected households.

This report updates the research findings presented in the Interim Report. It presents findings related to: residents' planning and preparedness for the February 7th bushfires; the information and warnings they received; their intended and actual responses; and other emerging issues and themes. **The findings presented in this report have not changed substantially from the Interim Report.** Additional examples and evidence have been provided from each of the major fire complexes to strengthen findings. A significant addition to the report is a more thorough discussion of the factors influencing residents' levels of planning and preparedness. A future report will more fully examine the nature of people's responses to the February 7th bushfires and the factors and behaviours that contributed to their impact.

Key findings presented in this report include:

Planning and Preparedness

- Many residents were not prepared for the severity of the February 7th bushfires.
- Many interviewees living in more suburban locations had not planned or prepared for bushfires because they did not consider themselves at risk.
- A considerable amount of last-minute planning and preparation took place on the day.
- There are many examples of 'weak links' in people's planning and preparation that affected their ability to implement their fire plan.

Information and Warnings

- Agencies such as the CFA and local councils had been only modestly successful in informing members of at-risk communities about effective preparation and planning for bushfires.
- Predictions in the preceding week were that Saturday 7th February was to be a day of unprecedented fire danger. There was only modest awareness of the implications of this in the community.
- The lack of timely information about developing threats to St Andrews, Strathewen, Kinglake, Kinglake West, Narbethong and Marysville may have contributed to many people being surprised by the sudden impact of the fire.
- Environmental cues such as smoke were important in alerting people to developing threats and in many instances prompted an active search for more information or a decision to leave or initiate defence.

Intentions and Actions

- Half of the households represented in the interview sample reported at least one household member whose intention was to stay and defend. The perceived success of the 'stay and defend' strategy in past bushfires appears to have influenced people's intentions to stay and defend.
- A quarter of households in the interview sample reported at least one household member whose intention was to leave during a bushfire. Beliefs about the survivability of houses and their safety as a refuge during bushfires were paramount.
- A significant number of residents intended to wait and see what the bushfires were like before deciding whether to stay or go. These residents wanted to stay and defend their homes and properties, but were not fully committed or confident in their ability to do so in all conditions.
- Approximately 10% of interviewees had not previously considered how they would respond to a bushfire. These residents typically lived in more suburban locations and did not consider themselves to be at risk from bushfires.
- Less than half (approx. 45%) of the households in the interview sample reported that a household member stayed to defend. Some of those who intended to stay and defend left because of the severe conditions.
- More than half (approx. 55%) of the households in the interview sample reported that a household member left because of the fires. There appear to have been many late evacuations.
- A very small number of interviewees sheltered passively throughout the fire.
- Some of those who stayed to defend may have exposed themselves to considerable danger by moving around fire-affected areas.

Emerging Issues and Themes

- It appears that many residents endeavoured to return to their properties as soon as possible after the main fire danger has passed. There are many reasons for wanting to return, but the desire to check on the status of and defend property appears to be an important driver of behaviour.
- Many community members regarded public buildings, ovals and emergency services facilities as safe places of refuge during a bushfire. There is some evidence of support for purpose-built community shelters in which residents can take shelter during a bushfire.
- Some of those who stayed to defend their homes and properties reported a range of factors that influenced their capacity to defend. These included heat exhaustion, dehydration, breathing difficulties, and eye irritation. A range of pre-existing medical conditions, such as asthma and arthritis, also inhibited some people's capacity to defend.
- Anecdotal evidence suggests that many of those who sheltered passively inside their homes may have done so in bathrooms.

1. Introduction

On Saturday 7th February, 2009, Victoria experienced the worst bushfires in Australia's recorded history. A total of 173 people lost their lives and more than 2000 homes were destroyed, in addition to substantial economic and environmental impacts.

In response to these events, the Bushfire CRC established a Research Task Force to undertake research for the fire and land management sector and the fire research community in Australia and internationally. It was agreed that the research would cover three key areas:

- Fire Behaviour
- Human Behaviour and Community Safety Issues
- Building (Infrastructure) and Planning Issues

The Task Force is led by a team of experienced bushfire researchers from Australia, New Zealand and the USA. These researchers, supported by a large number of trained field staff from fire agencies throughout Australia, gathered and collated as much information as was possible in a time-critical period to support the process of learning lessons from the fires. The research undertaken as part of this initiative aims to develop an understanding of:

- The fire behaviour exhibited across the major Victorian fire complexes on February 7th, 2009;
- The human behavioural factors that influenced patterns of life and property loss or survival during the fires;
- The building and land-use planning factors that influenced patterns of life and property loss/survival during the fires; and
- How these factors combined to influence patterns of life and property loss/survival.

All aspects of the research consider the question: 'Was the impact of the fires of 7th February consistent with established knowledge or was this the result of previously unidentified behaviours or factors?' Owing to the scale of the events and the limited time-frame, this was not a forensic investigation of any individual event, occurrence, location or structure, but rather a consideration of the patterns evident as a result of these events.

This is the first report of the 'Human Behaviour and Community Safety Issues' team (hereafter referred to as the 'Human Behaviour' team). It presents findings from a qualitative analysis of interviews with residents who were affected by the February 7th bushfires. Approximately one-half of the completed interviews were analysed for this report. The remaining interviews will be analysed and incorporated into the second and final report, which will integrate findings from the qualitative and quantitative components of the research (see 'Methodology' below).

At the time of writing, Victoria Police had not yet released details of fatalities experienced during the fires. Until that material becomes available, we are unable to

comment on fatalities in the context of human behaviour and community safety issues.

The following sections outline the purpose and limitations of the research and the methods that were used to conduct it. The report then turns to the qualitative findings, which are organised around the following key issues in human behaviour and community safety: Planning and Preparedness; Information and Warnings; Intentions and Actions; and Emerging Issues and Themes.

2. Purpose and Limitations

This is the first report of the post-fire research into human behaviour and community safety issues during the February 7th bushfires. It is important to recognise that any results or statements in the report are indicative and preliminary. This is the case for three reasons:

- Owing to the limited time-frame, only about one-half of the completed interviews were analysed for this report. The remaining interviews will be analysed later in 2009 and will be incorporated into the final report.
- No fatality data were available from Victoria Police. Consequently, the report does not comment on fatalities in the context of human behaviour and community safety issues.
- The first report presents only the findings of the *qualitative* research. Quantitative research findings will be integrated with qualitative findings in a future report.

3. Methodology

The research was designed with distinct qualitative and quantitative components. This report presents findings from an analysis of the qualitative data. There are two major components to this post-fire research:

3.1.1 Semi-structured Interviews (Qualitative)

Semi-structured interviews with residents affected by the February 7th bushfires form the main qualitative component of the research. The sample covers the major fire complexes and is broadly representative of what happened in different communities and locations. Approximately 600 interviews had been completed when the analysis began.

Interviewing is a fundamental method of data collection in social research. There are, however, a number of different approaches to interviewing. The most common form of interview involves individual, face-to-face verbal interchange; however, interviews may take the form of group interchange or telephone surveys. *Structured* interviews aim to gather precise, codeable data to explain social phenomena within pre-established categories. An example of a structured interview is a verbally administered questionnaire in which interviewees respond to an ordered set of questions with a fixed range of responses. Structured interviews produce data and results that can be easily aggregated and quantified, but tend to obscure the complexity of the phenomena under investigation and the diversity of people's

thoughts and experiences. *Unstructured* interviews, in contrast, aim to understand phenomena without imposing *a priori* categorisations that limit the field of inquiry (Fontana and Frey 2005). These interviews entail open-ended questions and interviewees are given considerable freedom to shape their responses and the course of the interview. In *semi-structured* interviews, researchers ask open-ended questions to explore a few general topics, allowing interviewees to frame and structure their responses (Rubin and Rubin 2005). This method of data collection is guided by the principle that ‘the participant’s perspective on the phenomena of interest should unfold as the participant views it... not as the researcher views it’ (Marshall and Rossman 2006, p. 101). The main advantage of this approach is that it alerts the researchers to issues that participants believe are most important. It can therefore help researchers to identify issues and lines of questioning not previously considered. Given the Task Force’s aim of ascertaining whether the impact of the fires was a result of previously unidentified behaviours or factors, semi-structured interviewing was selected as the primary data collection method for the first stage of the research.

A few days after the February 7th bushfires, members of the Human Behaviour team separately drafted a series of interview questions relating to community safety issues. These questions were reviewed through discussions with other fire researchers at a meeting at the Bushfire CRC offices on Wednesday 11th February. A combined list of interview questions was produced and reviewed by Owen Gooding of the CFA. The final list of questions can be found in the ‘Interviewer Guidelines’ presented in Appendix 1. These questions align well with a later set developed by the Post-fire Project stakeholders.

Field teams were coordinated by the Bushfire CRC and comprised personnel from fire and land-management agencies, Terramatrix, RMIT’s Centre for Risk & Community Safety, and La Trobe University’s School of Psychological Science. RMIT staff took a lead role in training researchers and managing the research process.

Field research teams usually consisted of one Human Behaviour and two Building and Planning Issues researchers. The Human Behaviour researchers interviewed residents about their preparedness for and responses to the fires, while the Building and Planning Issues researchers assessed the impact of the fires on buildings and property. There were very few instances where residents declined to be interviewed, and almost all gave researchers permission to contact them in the event of follow-up research.

Owing to the damage caused by the bushfires and the large numbers of people who were displaced, it was not possible to construct a random interview sample. By necessity, interviews were conducted at properties where there were residents present. Nevertheless, the interview sample covers a range of different locations, communities and fire intensities, as well as different outcomes in terms of human behaviour and community safety.

3.1.2 Mail Survey of Affected Households (Quantitative)

The second stage of the research involves a mail survey of households in bushfire-affected communities. A survey has been prepared, based on previous post-fire surveys and research needs arising from the 2009 fires. The survey addresses the human behaviour and community safety issues addressed in the semi-structured interviews. Survey results will be presented in a future report.

3.2 Ethics and Fieldwork Risks

Ethics approval for the research was obtained from RMIT University's Human Research Ethics Committee. The interviews were conducted and data were managed in accordance with the Committee's requirements. The main ethical issues facing research were: (1) the need to engage sensitively with research participants, who may have suffered trauma as a result of their experiences; and (2) the need to ensure that researchers were coping with the psychological and emotional demands of interviewing survivors. All of the fieldwork teams were briefed on these issues and received a specialist briefing from the Australian Traumatic Stress Institute. Interviewers also carried material to provide to interviewees on the various counselling services available to them.

Residents were assured that their contributions to the research would be anonymous. Participants will not be named in any of the reports emanating from the research. Furthermore, names have been removed from interviews in the database, which are labelled by street address. Only the principal researchers and Bushfire CRC management have access to the database.

As many of the areas were still regarded as active fire grounds during the interviewing process, interviewers were required to have completed basic fire ground training before going into the field, wore full personal protective equipment and were supervised by experienced fire service personnel.

3.3 Data Collection and Analysis

Interviews were digitally recorded with the permission of interviewees and later transcribed. The qualitative data analysis software *NVivo 8* was used to manage the large volume of data and to assist the analysis. The analysis was coordinated by RMIT University's Centre for Risk & Community Safety. As noted above, use of the dataset is subject to privacy and ethical considerations.

Analysis began with the development of a coding framework to organise and sort the data. The framework was developed through discussions among the Human Behaviour team, with input from the Building and Planning Issues team, Fire Behaviour team and relevant stakeholders. It is based on the research questions set out in the Project Plan and the interview questions detailed in the Interviewer Guidelines. The framework sets out the categories of information into which segments of interview text could be grouped to enable closer analysis and comparison. This process of grouping qualitative data into categories is known as 'coding'. In the *NVivo 8* program, categories are referred to as 'nodes'. Using *NVivo*, researchers read through the interview transcripts, highlights segments of text that relate to particular issues or themes (e.g. Warnings), and then 'drag' the highlighted text into the appropriate node. Information on particular issues and themes can then be viewed as a whole, enabling closer analysis of emerging issues and trends.

Owing to the timeframe for this Report, it was not possible to read and analyse all of the interview transcripts. The analysis detailed in this report is based on 301, or roughly one-half, of the interview transcripts. To help ensure consistency, each member of the Human Behaviour team was given responsibility for undertaking the final stage of the analysis and write-up of findings for each of the major categories.

These included: Planning and Preparedness; Information and Warnings; Intentions and Actions; and Emerging Issues. The remainder of the interviews will be analysed and results will be incorporated in a future report.

Please note that the findings presented below are primarily *qualitative*. For reasons discussed above, the interview data does not provide a solid foundation for drawing quantitative findings. Where possible, researchers have attempted to provide readers with approximate numbers or proportions; however, these should be regarded as indicative and may differ from the quantitative findings that emerge from the mail survey. This report is intended to provide *qualitative insights* the human behaviour and community safety issues arising from the February 7th bushfires.

4. Findings

4.1 Planning and Preparedness

This section examines levels of planning and preparedness across the fire-affected communities on February 7th, 2009. In this report, 'planning' refers to people's fire plans, options, and intended responses associated with bushfire threat, while 'preparedness' encompasses the physical preparation of houses and other measures taken to reduce the impact of bushfires. (Psychological preparedness is covered in the sections on Planning and Preparedness On Saturday 7th February 2009)

Levels of preparation for the February 7th fires varied enormously, both in terms of the physical preparedness of properties and the planning undertaken by householders. Analysis of the interviews suggests that many residents planned and prepared for 'normal' bushfire conditions and were not adequately prepared for the extreme conditions of February 7th. This was particularly evident in interviews with residents from Marysville, St Andrews, Strathewen, Steels Creek, and Kinglake. There are many examples of good planning and preparedness in the interviews. Equally, there are examples of poor or non-existent planning and preparedness. The decisions people made prior to February 7th and on the day offer valuable insights into their prior knowledge and expectations of bushfires.

There are also many illustrations of 'weak links' in people's planning and preparedness that impact on their ability to implement their plan during a bushfire. These examples demonstrated the need for planning for multiple possibilities and for considering situations outside their realm of experience. This is particularly evident in situations where people intended to: (a) leave early, but had to stay with their homes during the bushfire because it was too dangerous to evacuate; or (b) defend, but had to abandon their house because of the intensity of the fire and/or failure of defensive endeavours.

Physical Preparedness of Properties

Physical Preparations Prior to February 7th 2009

In many cases, interviewees had carried out some vegetation management on their properties prior to February 7th. For some, this was very extensive:

We cleared up all our vegetation with a bulldozer and grader we've got, cleared around our sheds, cleaned up anything that was burnable near the house; anything that was inflammable was moved. And a lot of it I buried in the dirt to make sure it wouldn't blow around again. And the fact that we've got big gaps between, 100-and-something metres between us and the nearest scrub was a big help.

– Marysville

For others, it was more a case of managing the fuel loads rather than clearing a large break between the bush and their property:

My preparation was simple. The previous week before I'd raked and put everything down the creek, all the leaves and that. The house was pretty clean.

– Flowerdale

An indication of a high level of planning and preparedness was the installation of copper sprinkling systems on roofs:

I put the sprinkler system on the roof and around the house to withstand a huge fire – all copper. The pump was – I made sure that was under the house so I could get to it easily, and away from the fire. I made sure I had at least 70,000 litres of water to feed off; concrete tanks.

– Strathewen

There were also examples of other sorts of specific fire-protection systems such as radiant heat shields for windows:

And I've got some sprinklers on the roof and ones at, you know, various places around the perimeter. I had the windows covered up with cement sheet, which I'd pre-cut and drilled a couple of years ago, so they were all – but I'd had them on the windows for a couple of weeks prior to the fire coming. I'd had nothing on the verandas.

– Strathewen

A dedicated water source for fire-fighting often accompanied setups with sprinkler systems:

I had five tanks altogether. I had two 22,000 litre tanks that were up the top of the hill, that were actually higher than the house, and they were my fire tanks. They were full, and the plan was always if I got stuck, I could just turn the tap on at the house and it would run the sprinklers on the house.

– Strathewen

However, this degree of preparation was the exception, not the rule. In many more instances, preparations undertaken prior to February 7th were less comprehensive. In some cases, preparedness was limited and not directly associated to bushfires:

But I hadn't taken any measures or anything. I mean, all I did was basically keep the grass cut all the time... Not because of bushfire reasons, only because I just wanted it neat.

– Flowerdale

There were isolated examples of long-term planning for bushfires, where residents had factored in the fire risk to the building of their properties:

We gave some consideration to siting the house in the right place, and then it is surrounded by a green garden and then paved areas, a patio to the back and veranda to the front, well on each side. Then it was built of stone. We had then an appropriate fire-fighting kit and emergency watering systems and all that sort of stuff.

– Marysville

Many interviewees living in more suburban locations had not planned or prepared for bushfires because they did not consider themselves at risk:

Interviewer: So other than the wetting down – so had there been any other preparations for a fire?

Interviewee: No. We're not actually what you'd call in forest country... It's not as though you're in the Grampians or something like that, in the bush. We're not in the bush in that manner.

– Horsham

Interviewer: Did you think that there was any possibility of a fire happening in that area?

Interviewee: No, I didn't. I'll tell you what. We've lived there for nearly seven years, and I saw the grass tall all the time. They mowed it or slashed it once or twice a year. The only thing that bothered me with the grass was snakes, not fire.

– Narre Warren South

In terms of preparedness prior to February 7th, interviewees tend to fall into one of three broad categories: (1) those who had built fire-preparedness into their daily lives; (2) those who had some measures in place to implement if the need arose; and (3) those who had undertaken minimal or no preparation and were often unaware of the fire risk. Interviewees in the latter category were more likely to occupy residential properties in towns or on urban–rural fringes than to live on farming properties.

Physical Preparations on February 7th 2009

Many interviewees took action to prepare their house and property owing to the weather conditions experienced on February 7th. Some began preparing early in the morning:

Early – probably from 9 o'clock onwards, I started to just clean up leaves and just move things from around the house away from the

house, and trim back sort of low shrubs that are growing near the house. Yeah, just keeping leaves and debris away from the base of trees so that the fire wouldn't travel up the trees... Plugged the gutters, filled them with water; just wet it down around the perimeter of the house, and under the house, with the garden hose. I put a steel shutter on one window – that's all I had time to do.

– Strathewen

For others, a lack of awareness or early warning about a threatening fire meant they started their preparation much later in the day:

As soon as we smelled it, we jumped out of the pool and ran around, and I put Mum and Dad in the car and told them to take the kids... I ran around and put all the sprinklers on, because we've got sprinklers on the boundaries. [My husband] filled up the baby pool with water and some buckets and I come inside and put towels all at the doorways and stuff like that.

– Flowerdale

The speed of the fire caught some people out, impacting on their level of preparedness on the day:

We ended up with one or two buckets of water inside the house. You know, we should have had like, you know, one on every bore. We didn't even have wet towels underneath doors, on the bottom of doors. You know, my bushfire kit, which was in a bag, was all burnt up, you know. We got caught out.

– Kinglake

In some cases people undertook work in anticipation as they knew it was a bad fire day or because of other influencing factors:

We knew it was going to be a fire ban, and my husband was in hospital so I decided to stay home that day, and we were prepared outside with buckets and mops and I had buckets of water and everything inside and towels along the fence.

– Clonbinane

A number of those who planned to stay and defend did encounter problems that impacted on their preparedness. A loss of water pressure caught some people out:

We did try to fill the spouting up earlier in the afternoon. It was – it would have taken five hours... to fill the spouting with the amount of water pressure we had.

– Bendigo

In other cases, the loss of power impacted on what preparation people were able to do immediately before the fire arrived:

So we got everything we filled that we could. And then the power started going ... so we had no water. So then we were just basically waiting.

– Kinglake West

Personal protective equipment formed part of the preparedness for many people. The extent to which clothing conformed to recommendations varied:

We had a big box of clothing and all the gear and the equipment. That day we all had our long clothes on. We had the gloves and the goggles and the protective head/neck things.

– Koornalla

In summary, physical preparedness of properties took on a greater sense of urgency on February 7th, with many people reporting that they undertook 'last-minute' work to prepare their homes on the day of the fire. This was often regardless of whether people were planning to stay and defend or to leave. For some, this was a pre-planned and rehearsed set of tasks, while for many more it was quite haphazard and reactive to the situation they were confronted with. Common preparations included raking up leaves close to the house (this had been a particular problem with the extremely dry conditions over the summer), filling containers with water, blocking gutters, laying out of garden hoses and wetting down the outside of buildings. Sprinklers varied from copper systems on rooftops and under eaves in a limited number of cases through to more commonly garden systems and poly piping. Other innovations included radiant heat shields for windows and pumps in a few instances.

Planning Undertaken by Householders

Planning Prior to February 7th 2009

As indicated previously, there were great differences among fire plans described by interviewees in terms of comprehensiveness and appropriateness for a severe bushfire. Some fire plans were well-established and associated with considerable preparation over a long period of time:

Interviewee: We have a fire plan here which we have developed over the years and we think we have a pretty adequate defence against wildfire here. We have a buffer zone around the home and a defensible property, our whole defence was predicated on ember attack, because we have got a bit of a buffer zone around the home.

Interviewer: About how far would you say it's cleared to?

Interviewee: That's the closest, which is about 100 metres. So, we've got at least 100-metre buffer around the home area with grazed paddocks.

– Jindivik

Other fire plans were more focused on preparing to defend on the day of a fire:

Look, we actually cleaned out all the gutters, we had the backpacks filled. We had buckets with water and nappies on the end of sticks and things. We have got a fire pump up with a 5,000-gallon cement tank. And basically, we, around the outside this bit is fairly cleared so we knew that, hopefully if it was going to land on the house, we could have defended it. We were in the process of putting something under the actual eaves to dampen down the deck.

– St Andrews

Some 'plans' could be described as minimal, at best:

If I was going to get into trouble, I was going to get on the tractor and drive straight through the barbwire fence, there's a big dam at the bottom of our place, that's where I was going. I anticipated – this is what I thought in my brain what my plan was, if the wind's blowing at 80 or 90 or 100 clicks an hour, the fire's going to be past pretty fast. So if I can stand the radiant heat for that 10 seconds or 20 seconds, I can get down to the dam and throw a towel over my head so I don't get smoke inhalation.

– Labertouche

For some interviewees, the events of Saturday 7th February revealed major shortcomings in their fire plan:

Interviewer: Did you have fire plan, what to do in the event of a fire?

Interviewee: Well, see, I thought I did, but as it turned out, I totally didn't. I think in this situation, hindsight is a great thing. And I've talked to my friend in depth since – because they ended up – they live out at Bullen and they ended up – her husband came home from the DSE fire room, because their property was at risk. So I talked to her afterwards about what their fire plan was, and I realised that what we had done was very minimal compared to what people who know about fires actually do.

– Labertouche

In general, residents on farming properties were much more likely to describe a detailed fire plan than were residents of residential properties in townships (e.g. Horsham) or on urban–rural fringes (e.g. Narre Warren). Time and cost were identified by some interviewees as significant barriers to planning and preparing:

I didn't have a fire plan... I didn't have water tanks... That was always a project that I put off for another weekend.

– Marysville

There is a fine line, you know. You spend money on diesels, which will run longer, but instead of 1,000 bucks they are 5,000 bucks a motor. We had four motors. I think three or four burnt out. We knew of the risk of using poly pipe just for that last bit. All the pipes are pretty much underground. We knew the risk and – but once again there is only so much you can do, you know.

– Koornalla

A critical element of planning was making a decision to stay and defend or leave early. These decisions are discussed in the 'Intentions' section of this report.

In summary, some people undertook detailed planning for possible impact of a bushfire. In a few instances, interviewees reported being quite sure of their intention without having formulated it into a (written) plan. What constituted a 'plan' varied considerably among interviewees and was usually closely related to their level of physical preparedness. Past experience of fires, and interviewees' general bushfire awareness and their recognition of warnings of high fire danger appear to have impacted on their planning both longer term, and in the immediate build-up to February 7th.

Planning on February 7th 2009

Some people's plans changed on the day owing to the circumstances they found themselves in. Therefore, they were planning for different eventualities:

If I was on my own, I would have stayed, but because I had my kids and dogs and all that, I said 'No, we'll get out'.

– Flowerdale

For others, there were no plans in place:

All this talk about putting our fire plan into action, well, to be quite truthful, we didn't have one.

– Marysville

A 'wait and see' strategy is exemplified in the following, where the interviewee considered a contingency plan in the event that the couple were unable to save their house:

I had the car loaded with a few things, like the insurance policy, and we were – that was our last resort. Had the house caught to an extent that I couldn't put it out, I was going to go as far as the front gate. You see it's a fairly long driveway and it's fairly open, and that's as far as I was going. I wasn't going on the road.

– Kinglake

There was a belief by some that even though there was a fire in the area, it was unlikely to affect them. Therefore they left, but only as a precaution, expecting to return to a home still standing:

Even when the fire was up along that ridge there, like coming – it wasn't over the hill, but it was just coming over, you know, you could see the smoke and the heat and that, I really thought it's not going to get us. You know, it won't come here; it will cut off, do you know what I mean? So we didn't grab really anything. We just grabbed a couple of photos thinking we're going to come back to our house.

– Strathewen

In some places, even those who stayed and defended and were successful in protecting their home felt that it tested their resources to the limit:

I'd never been in a fire like that before, so I didn't know what it was going to be like, but it certainly tested all my preparation, I'd say that. It was very ferocious for a long time.

– Strathewen

Several interviewees who had successfully defended their home spoke of the need for both physical and psychological preparation to deal with the kinds of conditions encountered on Saturday 7th February:

I carried thousands of buckets of water, and this is like – I'm really fit and I know, because I'm a black belt and I have done all my black belt gradings and stuff like that, and I know what it takes to be fit. And I know that it takes – you have got to be very level-headed, and you have got to be very conservative in your energy and you have got to be consistent nonstop. You just keep going, don't run; don't do anything silly.

– Strathewen

Past experience of bushfires appears to have often been a prompt for some people to prepare more thoroughly:

I knew where the fire was coming into and we prepared everything here. If you have a look around, you'll notice I've got a firefighting pump in the carport and 500 gallons of water that's not used for anything else because I've had this happen to me twice before in another location, and it was only the wife and I, and between us we had 151 years experience.

– Kinglake

Several barriers to effective planning and preparedness are evident from the interview data. These include complacency, which is encapsulated in the following statements:

Much of what I've just sort of said. Have your fire plan and that. But a lot of people probably didn't carry it out. And, as everyone knows, it's CFA has a meeting each year and sort of advise them on what to do. But whether people do it or not is another thing. But, no-one was ready for this fire. It was too quick. It was on them. That's where all the trouble started: people trying to get out at the last minute. That's where I reckon it... All I know is that two or three people were killed in cars that were just trying to get out at the last minute, which was a real no-no, as we know.

– Callignee

And, like, the lead-up to it, there was no real – we knew we would have a lot of heat, and we knew everything was very dry. And, you know, like, we'd become complacent. That's all I can say. You know, we had become complacent to it. We just think that we're – you know, you just can't imagine that horrid day where those high winds and the high heat, it was just out of this world... You know, how could you have planned for that? There's just no way, you know.

– Wandong

Clearly, a considerable amount of last-minute planning and preparing took place on the day, as people reacted to the outbreak of bushfires. For some, the trigger for implementing their fire plan was the fact that Saturday was a day of total fire ban. For others, it was the first sign of smoke. A range of factors influenced the implementation of fire plans, options and intended responses. Issues included whether the occupants were home at the time, and who was present. A common trend was for the husband to stay and defend and for the wife, children and pets to leave. Contingency plans appear to have been considered by some but certainly not all people. The extreme nature of the fires appears to have tested the extent of people's planning and preparedness. An important aspect of this was psychological preparedness, which influenced people's capacity to cope with the fires and their ability to plan and think clearly.

The analyses suggested important geographical differences in levels of planning and preparedness. Differences were particularly apparent between residents of (a) Kinglake, Churchill, Bendigo, Horsham, and Narre Warren; and (b) other fire-affected areas, such as St Andrews, Strathewen, Steels Creek, and Jindivik. The fire-affected areas in (a) were (mostly) relatively suburban in character – albeit in rural settings, and, generally speaking, interviewees described a lower level of planning and preparedness. Many of these residents expressed surprise that they came under threat from bushfires. In contrast, properties in areas listed in (b) mostly adjoined, or were surrounded by, forest or bushland and, in broad terms, interviewees indicated a greater awareness of bushfire risk. Comparable differences were also apparent between the planning and preparedness of residents in the main streets of Marysville and Kinglake and those on the outer perimeter, whose properties adjoined forest and bushland.

For some interviewees, the link between preparation for bushfire and house survivability appeared anything but clear-cut:

After this fire, we have seen so many houses sitting right in the bush, right up to the door and the house is still there, and the fire's gone all around and you think, well, there's no logic to fire... It is totally indiscriminate. You can do everything you feel like we should be doing, or you can do nothing at all, and at the end of the day, the fire is going to tell you which one worked, but did it work? You never know.

– Marysville

4.2 Information and Warnings

Information Received Before the Fires in Relation to Preparation for Bushfire Risk

A substantial minority (about 1 in 3) of interviewees said they had received information about how to prepare for bushfires prior to the 2008/09 fire season. In about two thirds of those cases, information came from some notionally authoritative source. The source mentioned most frequently was some form of CFA-organised community bushfire safety program:

I felt reasonably well prepared. I mean, we've been to CFA fire-prevention meetings and – and I know in a meeting we went to a number of years ago they basically emphasised that you should clean up your property for – of debris and leaves. And anything less – anything less than the size of your small finger, that was the rule of thumb they gave, was – is what catches fire most easily and burns the hottest.

– Callignee

Almost all interviewees who mentioned attending CFA fire preparation meetings were positive about the information provided:

I suppose with these regular meetings, it's probably a good thing, you know, for the community. I think that's – if you've got to learn something new, that's the place to learn it, because otherwise you're not – you know, where are you going to get your advice really from? I mean they've had a few meetings during the year, about preparations and so forth like that. I think most of us had taken the preparations.

– Labertouche

Several interviewees commented positively on the contribution of Community Fireguard groups and phone trees:

Interviewer: And you had a plan of what you were going to do?

Interviewee: Yes, we actually had a neighborhood plan. The phone tree and all that sort of business.

Interviewer: And have you done that on your own or is that with the CFA?

Interviewee: ... Yes, with the Fire Brigade and all that. So we had quite a few meetings here and that, and bits and pieces of that meeting did work for us.

– Pheasant Creek

A small number of interviewees mentioned that they had accessed other CFA materials about preparing for bushfire:

Interviewer: Have you been to any CFA meetings or looked on the Internet or read any of the brochures about what to do to prepare?

Interviewee: If there's a fire? Yes, we have. My husband went to the CFA meetings – he's a member of the CFA. So he went to those and my son's also a member. We had booklets that said what to do, how to prepare the ground and your roof and everything.

– Mudgegonga

Interviewer: Had you been to any of the CFA meetings or read literature or looked at the website about fires?

Interviewee: I had looked at the website, I had read some literature. Again, I didn't really have a strong fire plan because my fire plan was to evacuate.

– Barwidgee Creek

While the accounts were mostly positive, a small number of critical comments were made about CFA advice on bushfire preparation:

I was very concerned when I came out of that fire that I was still hearing daily recommendations by the CFA that if you see fires, stay in your house. If I had stayed in my house, I can tell you I wouldn't be speaking out of this microphone, but all my neighbours obviously wouldn't be speaking out of this microphone. But yes, that's a strong [wrong?] recommendation. I felt like ringing the ABC the next day and saying 'How can you recommend people staying in their house if they see fire?' because the houses aren't survivable in this heat. That was the main concern I have.

– Kinglake

A number of interviewees stated that they were, or had previously been, CFA volunteers or employees of DSE. They attributed the knowledge of fire behaviour and fire safety upon which they drew before and during Saturday 7th February to their training and experience:

Interviewer: I notice you've also got your CFA hat on. A former member of CFA or current member?

Interviewee: I'm a life member... I've been an officer in the [name removed] fire brigade for years... I was the group officer for about six years. I've been to a great many fires, so I knew what to expect.

– Kinglake

Some interviewees reported that they sought and obtained information and advice informally from individual CFA volunteers:

And I even had my niece, knew one of the volunteers just starting to do his volunteering fire-fighting. He was fantastic and he said 'Look, you are pretty safe where you are'.

– Pheasant Creek

Some of interviewees indicated that they were aware of community fire preparation programs, but chose not to participate in these:

Interviewee: The people in this neighbourhood had actually set up their own little fire meetings. And everyone was worried about it this year, because there was so much fuel around and it was so hot. And I never went to any of their meetings.

Interviewer: Did your husband go?

Interviewee: No, no... He's not into it. He just thinks half of them just want to see a fire.

– Callignee

A very small number of interviewees said that they had not received any information about fire preparation and/or did not know that such information was available.

In summary, it appears that agencies such as the CFA and local councils had been only modestly successful in informing members of at-risk communities about effective preparation and planning for bushfires. The overall impression created by the interview data is that uptake of available community bushfire preparation and planning information by residents: (a) varied greatly between individuals and across communities; (b) was partial and *ad hoc*, and (c) was likely to be out of date. Very few interviewees referred specifically to material about preparing for bushfires from the CFA website, nor to any of the publications listed on that site.¹ Perhaps a final comment from a CFA volunteer is informative:

Apathy's got a lot to do with it. We had a fire, like before the summer started, that's with the CFA, we had a – an awareness program running. And we had three people show up – you know, for the whole community!

– Koornalla

¹ Note: Owing to the semi-structured nature of the interviews (see 'Methodology'), not all interviewees were specifically asked whether they had used CFA materials when preparing for bushfires. Findings about the extent to which CFA materials were used will be drawn from the results of the mail-out survey of affected households.

Warnings People Received: Source, Form, Effectiveness

Prior to Saturday 7th February 2009

A minority (about 1 in 5) of those interviewed spoke of some level of awareness of heightened risk of fire predicted for Saturday 7th February (however, not all interviewees were asked specifically about this). Of these, almost all associated higher risk of fire with forecasts of extreme fire danger weather reported by the media:

On the – on the radio, they were saying it was going to be a terrible day, that – the Saturday. And on the television. And, you know, we take those that, you know, they're not spewing – spewing off.

– Kinglake

Mostly, the impact of the reports was a raised general level of concern:

No, but really the week leading up to that when we heard it was going to be, you know, another 45-degree day, and they did say that the winds were going to be, you know, pretty bad. Yeah, we were worried. We were worried the previous week as well. Anything over 35 degrees.

– Kinglake

Only a few of those interviewed indicated that the forecasts and warnings resulted in any changed behaviour prior to Saturday:

Now Wednesday the report comes through: Saturday is going to be horrendous. I panic. Talk says that people weren't warned. That's utter rubbish, as I said, Thursday morning I was already not panicking, but I was fully aware of what Saturday may be like and I was doing a lot of preparation work ready for Saturday. I've never brought my dogs to the shop in the past, I always thought I'll go home and get them. But that Saturday because of the weather forecast, I was fully aware of what could happen. For anybody who says they weren't warned, I'm sorry, but bullshit. The warning was more than adequate.

– Narbethong

A few interviewees acknowledged that they took little notice of the warnings because previous warnings had repeatedly come to nothing:

Interviewer: But did you hear the warnings the week before, like the Wednesday and the Thursday prior: that Saturday potentially was going to be a bad day?

Interviewee: We heard that, but then, you know, you are getting used to hearing those sort of things, aren't you? Like you know, total fire bans and all that. We don't leave, because [it's not practical] if you leave every time it says a total fire ban...

– Pheasant Creek

Some interviewees reported that while they were informed about the predicted high fire danger through radio and TV, they did not think that this was relevant because they did not believe they resided in an at-risk area:

Interviewer: In the news there was total fire ban and, of course, it was stinking hot the time before. Was there any inclination or any thought on your behalf that you should monitor the news or anything else for fires in this area?

Interviewee: No, absolutely not. I was just ...

Interviewer: So you didn't think about it?

Interviewee: No, I didn't really think about it. I mean, I thought about it, not for ourselves, but to the point of other people, 'cause I know people that live in fire-danger areas but certainly didn't think a fire would come through here.

– Narre Warren South

Others reported awareness of heightened risk, without this awareness leading to any particular actions:

Interviewer: Take us back to the Friday, the day before, when presumably you became aware of the severe weather warning predictions.

Interviewee: Yes, all right. Well, we were aware of the warnings but I must say, we were either very dense or somehow the message wasn't sufficiently concerning to make us change our usual fire plan.

– Strathewen

A few of those interviewed reported a general sense of complacency among fellow residents in the face of the warnings issued earlier in the week:

There was enough information on the wireless warning everybody that it was going to be bad on the Saturday, the wind's going to be strong, and all that. The big trouble is, even my wife was saying – she works in the op shops and things in town, and knows a lot of the locals – and said to them, 'Have you cleaned the leaves out of your gutters and done anything for the Saturday? They're warning it's going to be a very bad day'. And they all said, 'Oh, no, Marysville will never burn'. That was their attitude, you know, 'Marysville will never burn'.

– Marysville

A few admitted that they simply took no notice of the warnings:

Well, we did get information a few weeks prior that it was going to be a really bad fire season, okay. And we are guilty to it, we weren't prepared for it. We didn't actually take any notice of it to be honest...

– Marysville

A small minority reported that they were unaware of the predicted danger:

...but if I'd known it was going to be bad, I would have filled that tank up with dam water... But we didn't realise it was going to be that bad. I did some silly things. I never listened to ABC radio... which was very efficient.

– Clonbinane

Interviewees in the Labertouche–Jindivik area were very positive about the advice provided by CFA and DSE in the days before February 7th (a fire had been burning in the nearby Bunyip State Forest for some time, so the risk posed by the predicted weather conditions was well-known):

The day before Black Saturday, there were community meetings at Labertouche and Jindivick. We went to the Jindivick one where it was outlined most dramatically by the CFA exactly what would happen on the Saturday. I have got a little map there I just looked at the other day, which they gave us the day before – I have got the date on it – telling us exactly. They said this fire has been contained but it will break out tomorrow in the morning and it will head this way and it will encompass this area, and that's exactly what it did on the day. I've never witnessed such an accurate portent of what was going to happen as the CFA guy told us.

– Jindivik

In summary, it appears that overall, there was not a high level of community awareness of the level of risk implied by predictions in the preceding week that Saturday 7th February was to be a day of extreme fire danger. Very few interpreted the predicted conditions to mean an exceptionally high level of fire risk. The most frequent outcome of the early predictions and warnings was to raise general, non-specific, concern about the possibility of fire, and to probably promote a 'wait and see on the day' response. Only a small minority of residents of at-risk communities appear to have interpreted the warnings as having implications for their personal safety and the security of their property resulting in either early action to prepare their property for defence, or a decision to be elsewhere. Perhaps a final quote from a survivor summarises the situation prior to Saturday 7th February:

...everyone's saying that there was no warning, and there wasn't [on the day], but everyone was warning for two days prior about how filthy the conditions were and saying that it could be worse than Ash Wednesday, and it was!

– Bendigo

On Saturday 7th February 2009

Most of those interviewed (about 4 in 5) made reference to communications, warnings, and information on the day of the fire. Many used multiple modes of communication:

And by this stage, the clouds were really getting more intense and bigger and higher. I put my – the radio station on – on 774. And I put the computer on. And I was just refreshing on the DSE website and the CFA website to see what was happening. And the whole time we – we had presumed that the fire was in Kilmore East. I rang a girlfriend in Kilmore East, and it was just behind her – in front of her. So it was going away from them.... And that was all fine. And then we just kept watching, and then about 4.30, I got a phone call from my friend who's a park ranger, and she told me to get out.

– Kinglake West

Most interviewees reported having the radio on (generally 774, a few mentioned 3AW). Very few made reference to specific, useful information being broadcast. For a small number, warnings broadcast in the morning contributed to a decision to leave early. The major contribution of 774 broadcasts seemed to be one of raising general awareness of fire risk, possibly resulting in increased vigilance:

Anyway, not quite sure of times but mid-afternoon or late afternoon, I was listening to the radio and heard there was a fire at Beechworth, so I alerted my husband and within about 5 or 10 minutes they had ember alerts and they had a very thorough coverage on the ABC radio, so they warned that there were ember alerts at Mudgegonga, Barwidgee Creek, Carrolls Road, Rosewhite.

– Rosewhite

However, for others, especially later in the day when fire activity was rapidly increasing, the lack of timely information about developing threats to St Andrews, Strathewen, Kinglake, Kinglake West, Steels Creek, Narbethong, Marysville, Horsham, Narre Warren, and Flowerdale may have contributed to many people being surprised by the sudden impact of the fire. Because these communities were not identified as being under threat, many residents appear to have assumed that they were unlikely to be threatened. There were several negative evaluations of the information broadcast:

Well, the main thing was that if you listened to 774, there was absolutely no warning at all. I mean, we had some warning because we were up high, we could see it. I think at one stage they said the fire is getting to Happy Valley, you know, down towards Strathewen but there was no mention... I mean [this is] not a criticism but... No-one up here knew, basically. We had been told that there was a southerly change coming through but we didn't know how big the fire front was.

– Pheasant Creek

Many interviewees sought information from the CFA and DSE websites, very few phoned the Bushfire Information Line. There were no positive references to the websites. There were several negative evaluations of both websites:

Yeah, I went to the CFA website and I also went to... I think it was the DSE website, but the DSE one was so bloody slow, but they were probably, I reckon, three hours behind in their information, but I could see where it's creeping.

– Kinglake

Most interviewees mentioned making and receiving telephone calls (both fixed-line and mobile) concerning developing fire threats. Most were from or to family members. Generally, warnings from family members were taken very seriously and had considerable influence over subsequent decisions. The few references to community phone trees were mostly positive:

Well, we got a Fireguard warning, okay... 'Instigate your bushfire plan, instigate the fire plan'.

– Kinglake

However, a few interviewees commented that their phone tree began to break down on Saturday as residents evacuated:

Interviewee: The smoke suddenly would seem to flare up a bit closer. So we got on the tree and said, well, look you have got to make the decision whether you stay or go. That is what people did.

Interviewer: Yes. So you started, the tree started, from here?

Interviewee: The tree started from here, yes. It is always difficult, the phone tree, because people – you know, people have already left.

Interviewer: Yes. So they can't pass on a message.

Interviewee: All the next one can do is leave a message and hope and go on to the next one. But the ones that could be contacted were contacted, yes.

– Jindivik

For many of those interviewed in the Bendigo, Flowerdale, Horsham and Marysville communities, verbal warnings provided directly by police, and CFA and SES volunteers were very important in enabling some residents to evacuate safely:

Then as far as I can remember, a police officer came up the driveway and said that we needed to get out now or to stay and fight because it was coming straight down the road and it will come straight over us.

– Mudgegonga

Several interviewees stated flatly that they received no warnings:

Interviewee: See, that was the thing. No-one had any warning at all.

Interviewer: So you didn't hear anything on the radio?

Interviewee: No, no.

– Kinglake

Not all residents in fire-prone communities spend total fire ban days avidly seeking information about possible fire threats:

We had no idea the fire was coming, so we were in the swimming pool having a glass of wine. But, you know, we had no warning. There was no – like two years ago when there was a fire, there was a lot of communication. But we didn't know this was coming.

– Pheasant Creek

By way of a final observation, no interviewees explicitly mentioned text messages as a source of warning information before the fire impacted, although a small number mentioned using text messaging as a means of communicating with family and friends after the fire had passed through.

Environmental Cues of Fire on Saturday 7th February 2009

The majority of those interviewed (about 3 in 5) reported noting environmental cues alerting them to the presence of fires on Saturday 7th February. Not surprisingly, the most frequently reported environmental cue was smoke:

About lunchtime – 12–12.30 – the wind changed and swung around to the west. And we could see the smoke coming back towards our property. So, once we saw the smoke, we knew it was time to make a decision.

– Bendigo

For many of those interviewed who lived in locations that they did not believe were at risk of fire, environmental cues provided the first indication of imminent fire threat:

Interviewee: Right. I was home there by myself and I was watching TV at the particular time and the sun was out and then all of a sudden it sort of came dark and I went outside and, yes, there was a lot of smoke coming through that area over there.

Interviewer: From across the golf course?

Interviewee: Across the golf course, yes.

– Horsham

For most interviewees, awareness of smoke made a positive contribution to survival in that it increased vigilance, often precipitating active efforts to obtain more information about the nature of the threat. However, in some instances, smoke cues were misleading and distracted survivors from the real threat:

Interviewer: Right okay. Now, what I want to check with you next. You've mentioned – the only visual – well, the only warnings that you had that the fire was imminent was, you know, smoke and then the sound.

Interviewee: Yes, but the fire came from a totally different direction to the smoke.

– St Andrews

Somewhat fewer people nominated seeing flames as a cue to likely imminent threat:

I looked through the back yard of me trees, which I've got a gap 400–500 metres of grassland which I'd just baled, and I saw it – I could see the orange flicker between the trees, and I went – 'Oh, that's not good.' So I just got my missus and me little boy. I said, 'Get in the car. Get the heck out.'

– Kinglake

A number of interviewees reported that both smoke *and* flames signaled imminent fire impact:

Yeah, obviously we just kept an eye on everything. So when we kept looking at the hills, you could see the smoke that was getting whiter rather than... and there was more smoke and there was more smoke and the wind was getting stronger. In the end, the wind was bending the trees over, it was so strong. All of a sudden, up over the hill comes this fire.

– Labertouche

A small number of those interviewed identified embers as a cue to the likely seriousness of the emerging threat:

I saw some smoke to the north-west, quite some distance away. From that fire, there was a thin ribbon of smoke in the sky which came directly over the top of here, so I knew it was headed for here. I figured I probably had another hour at least, two hours. By then dead embers were falling on Narbethong. Yes, black embers, it was just raining them.

– Narbethong

A few interviewees reported that the sound of the approaching fire was the first indication of imminent threat:

You could see in the distance, a glow and smoke but you couldn't really tell which way it was coming or whatever. This was about midnight or thereabouts. We're just looking around and trying to see what was going on and what or if we had to do. Then a massive roar came and then flames came, flames came over the ridge.

– Barwidgee

In summary, for many of those interviewed, environmental cues as to the threat of fire (smoke, flames, embers, sound) served a useful function in alerting them to a developing threat, and, in many instances, prompting an active search for more information, or a decision to take active steps to evacuate or to initiate defence. These environmental cues took on special significance in the reported absence of specific warnings via the media and agency websites about imminent threat to many of the affected communities. However, environmental cues, especially remote cues such as smoke, are ambiguous and are likely to add to uncertainty in the absence of accurate, specific, and timely information for residents about developing fire threats. By way of concluding, vigilance by residents for environmental cues on total fire ban days cannot always be relied upon:

And we actually got a DVD that we wanted... We just decided to have one of those really ridiculous days where, you know, lay back and watch a DVD. And so we'd pulled all the blinds.... And then the house stays nice... you know, has a better chance of keeping a reasonable temperature. So we had pulled all the blinds, and we had the air conditioner on in there and we had this DVD blaring really loudly.

– Hazelwood

4.3 Intentions and Actions

This section of the report discusses findings about residents' intended and actual responses to the February 7th bushfires.

Intentions

Analysis of the interviews revealed considerable variation in residents' intended responses to the February 7th bushfires. A broad range of factors influenced residents' intentions, including:

- Age
- Physical capacity, health and mobility
- Responsibility for children, the elderly and others who require assistance to safely respond
- Responsibility for pets and livestock
- Perceptions of preparedness and house survival
- Location of property
- Location of household members during bushfire

Nevertheless, the analysis revealed that most residents intended to: (a) stay and defend their house and property from bushfire; (b) leave or stay away from their house or property during a bushfire; or (c) wait to see what happened before deciding whether to stay and defend or leave. A very small number of interviewees had not previously considered how they would respond to a bushfire.

Intention to Stay and Defend

A significant proportion (approx. 1 in 2) of the households represented in the interview sample reported at least one household member whose intention was to stay and defend. Many of these interviewees claimed they had never considered leaving and were fully committed to staying and defending their homes and property. The research identified a range of reasons why people intended to stay and defend.

A fundamental reason for staying to defend homes and property from bushfires was the belief that (a) well-prepared houses can be successfully protected from bushfires, and (b) that well-prepared houses can provide safe refuge for occupants during the main passage of a fire front.

It [leaving] didn't even enter my mind... It was a subconscious thing that we obviously knew that it was too dangerous to go and the sole objective was to save the house, because that was going to save us and save this building.

– Narbethong

That was the plan [to stay and defend]. If I didn't get back – if there was no-one here – this house would be on the ground, I guarantee it... It had to be defended to be saved.

– Strathewen

The perceived success of the 'stay and defend' strategy in past bushfires, particularly the 1983 Ash Wednesday fires, also appears to have influenced people's intentions to stay and defend their homes and property:

We were never going to get out because, as I say, we had it [bushfire] twice before and I knew it was defendable.

– Kinglake

I was up here in 1982 [sic] as a kid and, you know, people stayed and fought for their houses and it made the difference.

– Flowerdale

We had been told that in the Ash Wednesday fires, a lot of people were killed because they left too late. We were always confident that we could be in the house long enough that when we went back outside the fire would be past. The house could burn down, but we'd be out in the open.

– St Andrews

Awareness of the dangers of late evacuation also influenced people's intentions to stay and defend:

I came with a view that if there was a bushfire day, I had better be here to defend it, and going wasn't an option once it happened. Even if I had got sort of nervous... If I had got in more trouble, going wasn't an option either, you know, because the road was [not safe].

– Flowerdale

I think we always felt safer up here than [to] hop in the car and try driving through whatever.

– Pheasant Creek

That decision was made years ago for the very fact that the road either way is not a good option. Going down the spur in a bushfire would [be dangerous]... and going that way we figured the road would be busy, and trees falling.

– Narbethong

In addition to commitments to protecting human life and houses, other factors that influenced residents' intentions to stay and defend included: the desire to protect irreplaceable property such as family heirlooms, memorabilia and collectables; responsibilities for pets and livestock that could not be moved from the fires' path; and the perceived impracticality of leaving on all days of high fire risk.

Analysis of the interviews suggests that while many residents intended to stay and defend their homes and property from the bushfires prior to February 7th, some made a decision on the day. Since staying to defend one's house and property requires significant planning and preparation over time (CFA 2004), those who decided on the day to stay and defend are less likely to have been prepared to safely and successfully do so.

Intention to Leave

A smaller proportion (approx. 1 in 4) of the households represented in the interview sample reported at least one household member whose intention was to leave during a bushfire. Analysis of the interviews identified a number of factors that influenced people's intentions to leave their homes and properties when bushfires threaten. Again, beliefs about the survivability of houses and their safety as a refuge during bushfires were paramount. Interviewees identified a range of reasons why their homes were not defensible, including: poor preparation; lack of equipment; proximity to unmanaged fuels; a lack of knowledge and experience of bushfires; and the number and physical limitations of household members.

The feeling I had was I've never been confronted with such a situation. So I wouldn't know what to do. So I take my lead off him [husband]. If he says it's dangerous, we have to go, we'll go... Because in the '83 bushfires, his cousin and her daughter perished in them fires, so he doesn't need second telling to go when there's a fire. And being his birthday that weekend, turning 72, he wouldn't have been able to defend anyway... So, it's not worth losing your life over a damned house.

– Callignee

When you live in a heavily forested area, if you have a bushfire... you're not going to get away from the radiant heat. You can come back later on and put the spot fires out... but in a big bushfire like that, you would never survive. Looking back over the property over a number of years, we've had some very extensive fire damage from the '39 fires, so you could see how big a fire it had been in the past. So our plan was to go, never to stay.

– Kinglake West

Around my house, I probably had a couple too many big gum trees. They weren't right against the house, but they were one of the reasons why I was never going to stay, because I always used to worry that they would drop things in the driveway or... drop bits on the house.

– Strathewen

A number of interviews revealed a more general perception that staying to defend houses from bushfires is an unsafe strategy for most people. It was clear that some residents were not confident that their house could provide safe refuge during the passage of a bushfire:

It's been pushed all the time in the last number of years – you know, stay and defend your home or get out early. Well, it's probably good advice, but only to people that have the equipment and the knowledge. A lot of people think their home is going to be safe, you know, 'Stay in your home, lock all this, do all that, cover the windows... And then after the fire front, come out and put out spot fires'. Well, how do you do that when you're fried to a crisp?

– Flowerdale

Even if I was going to stay here for the rest of my life, it is a decision of 'Why fight?'... Everything is insured, so why are you going to risk your life? That's the way I see it. My life is too valuable for material things.

– Koornalla

Responsibilities for children, the elderly and other vulnerable household members also influenced residents' intentions to leave when threatened by bushfire. These responsibilities were the primary reason for variations in intended response within households. In some cases, all members of the household planned to leave. Typically, however, women left with children and elderly household members, while men stayed behind to defend the house and property.

Our plan was: I leave with the kids and he stays and fights...

– Flowerdale

We weren't intending to stay with the three kids [being here]. It probably wouldn't worry me if I stayed. But I didn't want to get in an argument, so we thought we'd leave.

– Kinglake West

They were gone first thing that morning, even before the fire – because we knew it was going to be a hot day. She normally goes into town to her mother's, takes the kids straight away.

– Callignee

Analysis of the interviews suggests that while many residents formed an intention to leave prior to the February 7th bushfires, some made a decision on the day. Again, this suggests a low level of planning and preparation, which increases the likelihood of late and dangerous evacuations (see Tibbits *et al.* 2008).

Intention to 'Wait and See'

Analysis of the interviews suggests that a significant number of residents intended to wait and see what the bushfires were like before deciding whether to stay and defend or leave. This was the case in approximately 10% of the households in the interview sample. These residents wanted to stay and defend their homes and properties, but were not fully committed or confident in their ability to do so in all conditions.

We had a fire plan, but... it was always going to be depending on what sort of fire.

– Koornalla

If we were told that it would get serious and that we should leave, like, we were told to evacuate, then we would.

– Kinglake

The fire plan was always that if it wasn't windy I would stay and everyone else would go. I would stay and fight. If there was any wind at all, I'd go as well.

– Koornalla

If it got to a point where it was dangerous, we would have been out. We wouldn't have stayed.

– Wandong

The problem with waiting to see what a bushfire is like before deciding whether to stay or go is that it greatly increases the risk of late and dangerous evacuations. Once a fire has reached or is visible from a person's home or property, the opportunity for safe evacuation is likely to have passed.

No Intended Response

Approximately 10% of interviewees had not previously considered how they would respond to a bushfire. These residents typically lived in more 'suburban' locations and did not consider themselves to be at risk from bushfires. In Narre Warren, for example, 10 of the 13 interviewees had not previously considered how they would respond to a bushfire:

I'm not going to sit here and bullshit. I didn't have a plan. You didn't expect it... Had I been living in a bush situation, of course, like hundreds of people I would have had to put into place some sort of plan. No matter how minor it is, there would be some sort of plan. But in the suburbs, the only thing that worried me was that [my wife] might let a bowl of fat cook over on the thing and it might ignite. That's about it in the suburbs.

– Narre Warren South

We've never had a fire plan. We thought we did... If the house caught on fire, we had a plan: go out whatever door you can, wherever the fire isn't. But outside of the property, you didn't think about it. It's just one of those things. You're living in a suburban area – you don't think the whole street's going to catch fire.

– Narre Warren South

The only fire plan we have is lighting the one in the winter, mate! Yeah, the old story I suppose: like, you think you're pretty right here. You know, we've got roads nearly all the way around us except for out the back, and there's a dam out the back and it would block anything sort of coming this way, which it did pretty well...

– Horsham

Didn't really plan for it. The smoke rolled in. Like I said, I'd filled up the kids' pool just in case. I never got to the stage as some people... filled up the gutters – I didn't really get to do any of that. I didn't think it was going to happen.

– Flowerdale

Some interviews did not believe they had the knowledge or skills to adequately plan and prepare for bushfires and thus had not considered how they might respond:

I couldn't comprehend how a bushfire works and, being from suburbia, I just didn't think much of it.

– Flowerdale

I didn't know what to do as far as a fire plan goes... because I'm not an expert of bushfires.

– Kinglake

Disagreement over Intended Responses

Analysis of the interviews revealed a number of cases where members of a household disagreed over their intended responses to the bushfires. A number of women reported that their intention for everyone in the household to leave conflicted with their male partner's intention:

Interviewee: My plan was to get the hell out – don't stay and defend the house 'cause it's going to go up. I knew... I thought it would go up.

Interviewer: And had you talked about that with your husband?

Interviewee: Yeah, and we'd had a few arguments about it. No, no, he'd stay, he'd defend, 'We'd be able to grab buckets quick enough, we'd be able to do this...' But we haven't got tanks. The water would stop. He talked about getting a fire pump, but we never did. So I think that if it wasn't for us having to leave around 4:00... maybe he would have done something dicky and stayed. I think I would have been screaming at him, 'cause I knew it wasn't fire ready. So that was our plan... Even though we haven't got insurance, you don't risk your life. You don't need to see something horrific.

– Marysville

Similarly, when asked whether she had a fire plan, an interviewee began to explain that her family intended to leave if threatened by a bushfire:

Female Interviewee: Not written, but if we could leave with the animals, we would. But if there was any doubt that we couldn't get out, we weren't going. We didn't want to stay, but we've got [animals to care for]...

Male Interviewee: No. My plan was to stay, by myself. And they were going to go. That happened last time. They all went and they wanted me to go, but I said: 'I'm staying, because I want to keep the house'.

– St Andrews

Another interviewee explained that her household's plan had always been to leave if threatened by bushfire. They left their Marysville home for the perceived safety of the local golf course, which then came under threat:

[My husband] didn't want to leave; he wanted to stay and fight with the community. [My daughter] was frantic and wanted to leave. [My son] was sort of in between those. Then he was getting frantic and he said: 'I want to leave'. We were all on our mobile phones – you should have seen us... The cloud of smoke finally descended on us and so we were in it, in the ash and I couldn't get [my husband] to leave. I thought, well, what do I do? I walked out the clubhouse and an SES man came... He said: 'You need to go. You need to get out because if you stay behind, there will be nobody left to save you'. I said: 'Well what about the road to Alexandra?' He said: 'That's where you go'. 'I heard it's locked.' 'No, it's open.' I ran out and said to [name deleted] 'The SES have told us to leave. Put the hose down and let's go', and finally he did.

– Marysville

Actions

This section of the report provides an overview of the actions taken by residents during the February 7th bushfires. It does not draw conclusions about the number of residents undertaking particular actions (e.g. staying to defend or leaving early) but rather aims to provide insights into the range of responses to the February 7th fires.

Stay and Defend Throughout Fire

Less than half (approx. 45%) of the households represented in the interview sample reported that at least one household member stayed to defend. Analysis suggests that the majority of these residents stayed with their homes throughout the fire and successfully prevented losses of life and property. In most cases, these residents had made a decision to stay and defend prior to February 7th and had taken steps to plan and prepare their response. On the whole, they were committed to staying and actively defending their homes and property throughout the fire and were aware of the dangers of late evacuation:

I know now that it doesn't matter where you are. If you're prepared and you take into account the circumstances – the location, got your garden right, the fire assessment set up, assess the risk – you can stay and defend. And in most cases, you're probably safer if you're prepared staying and defending than you are trying to get out.

– Flowerdale

I'm happy that we stayed... Our purpose, I think, was to put out those spot fires and stuff, because if we hadn't been here for that, I dare say the house would have gone.

– Jeeralang

Despite successes such as these, interviewees described a range of difficulties they encountered when staying to defend their homes and properties from the fires. The physical and mental demands of staying to defend were particularly apparent, with many interviewees describing their attempts to defend in the extreme heat, wind and smoke:

The smoke was that thick you knew not to overexert yourself, because you'd never get your breath back. So it was just: walk as quickly as you could and do what you could...

– Flowerdale

I just stood there and I thought: 'Shit'. All of a sudden, you know, I couldn't breathe, and the smoke was everywhere... I had overalls on and I also had this kerchief. And I just pulled that all up and just breathed into my clothes... jammed my glasses closer to my face and pulled my hat down. I put the hose over my head because I was so hot.

– Hazelwood South

The wind was that bloody strong when I tried to come back from over there, it frightened the hell out of me because, you know, I was getting blown backwards. But somebody else I was talking to actually got blown over, and they were crawling in the wind. So it was really, that was the problem – the wind was so bloody vicious, it was impossible to do anything.

– Marysville

Extreme heat in the week leading up to February 7th also appears to have affected some people's capacity to stay and defend. A woman from Koornalla, for example, explained how her husband was treated for heat exhaustion after successfully defending their home from the fires:

My husband had done a lot of work in the power station that preceding week, because of the problems there, and he had been called in to do overtime so much he was already really tired. So then, you know, working in the hot afternoon sun doing all this extra stuff around the house... So he was treated for heat exhaustion. He couldn't speak and he didn't know who I was. He was really agitated and all that, but thank goodness, he was alright because I thought he had just had a breakdown or something. It was very frightening to see.

– Koornalla

Some interviewees also experienced difficulties staying to defend owing to equipment failure and loss of power and water pressure. A number of interviewees reported losing water pressure after generators and pumps failed or burned. Others experienced considerable difficulties when garden hoses and poly pipes burned or melted from radiant heat. In the following examples, the residents were well enough prepared to continue to actively defend their homes:

As the fire approached, I came into the house. When I thought it was safe, I went out and tried the hose, but there was no water pressure. So I had three buckets of water and two mops and was going along beating the flames out with the mops... Well, looking back now, we should have had better facilities to fight the fire... Without water you can't really do much, can you?

– Bendigo

Once the front went through, the wind was still blowing. So we just got out with our – realised that our pumps and hoses and everything had melted – and we just used metal buckets with a mop. And my husband had a knapsack. He just did circles of the house and just kept putting out flames and everything that was burning.

– Hazelwood South

Where residents were not physically or psychologically prepared to adapt to circumstances such as these, *ad hoc* decision-making led some to attempt late evacuations or seek shelter from the fire.

An emerging finding from the research is that many of those who stayed to defend their home and property moved around fire-affected areas during the bushfire. The primary reason for moving around affected areas include: to check on the location of fires; to take others to a place of perceived safety; to seek refuge during the main passage of the fire front; and to defend other houses or properties. People who move around impacted areas during a bushfire may expose themselves to the same dangers as those who evacuate late.

[My wife] was here at our house and I'd stayed over at my parents' place. Any time I had in between, we'd sort of meet up quickly and 'How you going? What's it up to? How you faring?'... After putting out what I could – I don't remember a great deal of all the putting out – I remember going, you know, patrolling me parents' house, going around and jumping fences and checking the neighbours and seeing what I could do there.

– Flowerdale

Once I got that safe, I went to drive out to see if the brigade wanted any help with other people and so on. But the police had the road blocked just down here, which I was a little bit annoyed about. I know they've got their job, but I was a little bit annoyed at that, because they'd let me out, but they wouldn't let me back in.

– Koornalla

Leaving Early and Late

A significant number of residents left their homes and properties owing to the bushfires. More than half (approx. 60%) of the households represented in the interview sample reported that at least one household member left because of the fires. Some had decided prior to February 7th that they could not defend their homes and that their safest option was to leave well before the fire arrived in their area. Others decided to wait and see what the bushfire was like before deciding whether to stay or go. Not surprisingly, the research has compiled examples of residents who left safely and those who encountered danger:

We woke up – it must have been about 10 o'clock, I'm not sure – and I could smell smoke. We went to see our neighbours sometime between 10 and when we left. We saw them twice. The police were on the road. The CFA had driven past. We were pretty scared, so we just nicked off.

– Wandong

All the embers were coming down and it went black all of a sudden. It just went completely black. You couldn't see two feet in front of you and we just said 'Get in the cars and go'. We just threw the dogs, the two cats, the kids, myself [in the car] and we took off down the road... [name deleted] was down the bottom end, talking to the guy wondering whether we had to go. He told us there is a CFA in Kinglake. So we got down there and we could see cars behind us blowing up on the way down. There were three or four cars on our corner that didn't make it. It was following us down... all the fires were sort of on either side – it came that fast.

– Kinglake

Those residents who left early enough to avoid encountering danger associated with the passage of a bushfire – such as flames, heavy smoke and fallen trees – were triggered to leave by a range of factors. These included: extreme weather conditions; learning that fires had started; hearing radio announcements to activate fire plans; smelling or seeing distant smoke; being told to leave; and judging that the bushfires were too extreme to stay and defend.

I left on the Friday afternoon, knowing that the Saturday would be extremely hot weather.

– Strathewen

[This road] is so narrow that the fire brigade have complained many, many times because, if you all had to get out in a hurry, it'd be difficult getting everybody out. And so, I thought, 'No, I'm getting out while I can'.

– Heathcote Junction

We actually intended to stay... It was extremely hard to work out there because it was so hot – it was 48. And the wind practically flattened us... And we thought 'Well, if there is a fire, it will be something we couldn't control'... The decision to go early was because this road is a bad road to drive out on. I want to be driving in clear air and no smoke.

– Koornalla

Residents attempting late evacuations encountered a range of dangers associated with the bushfires. These included flames, heavy ember attack, thick smoke, strong winds, airborne debris, fallen trees and heavy traffic. Reasons for late evacuations included: seeing flames and smoke nearby; being told to leave; seeing others leave; losing confidence in the ability to stay and defend; and failure of attempts to defend.

I looked at it and I thought 'No way – not with the gear I've got. No way. Let's get out of here'. So I said to my neighbour, 'Right, let's go. Let's get out of here. Get in the cars... Grab whatever you want as quickly as you can and let's go'. At that point, I resigned myself to the fact that I was leaving my house and I would never see it again.

– Hazelwood South

We are lucky that we survived. You know, the house is still standing. That was by luck. We decided to move out because from here you can see the fire. Because we are right at the top of the hill and you could see the fire racing at the bottom.

– Jeeralang

I always got told that we'd have three tankers in the street... and you'd have plenty of warning... But none of that happened. Or the police would come around and tell us to evacuate. I think it really caught everybody by surprise... I think we got out 10 minutes before the mad dash, you know, so I mean, we were lucky that way.

– Flowerdale

The problem of late evacuations during the February 7th bushfires will be examined in greater depth in the final report. It can be noted, however, that many of those who attempted late evacuations were aware of the dangers of such a strategy. As the following quote illustrates, people don't always act in a rational manner in high-pressure situations:

You hear so much about 'Don't get in your car and drive' and all that sort of stuff – I can now understand why people do it having been through that. I completely agree with 'Don't get in your car and drive away'. But my first instinct, the first thing I did, was jump in my car to drive back over here. I was very adamant that we should be in the car... but my first instinct was just to get away from the fire... I can now completely understand why, you know... you see it on the news and you think 'Idiots. Why did they get in their car?' It might be that people aren't educated or, you know, have no idea at all. I at least, in that regard, knew what I should or shouldn't do. But still, that flight instinct took over and I just wanted to get away.

– Jeeralang

Of course, a major reason for late evacuations was the failure of attempts to defend homes and property:

Once the house had caught, I was blocking off room by room in order to stay long enough for the fire front to go through. At one point, the house started to fill with smoke. I realised if I didn't get out at that point, I was going to die. Because the three back walls were going to come down and I was just going to die... My car was untouched and I took a punt. I knew that it was a dumb idea getting

in the car. But I didn't have any options... I drove down to St Andrews and there were about ten trees in the way. The first tree I got over. A second tree was on a very sharp bend down there and I tried to drive round it and the car skidded down the bank. I sat there for five minutes, wheels spinning, and I was getting out to try and see what traction I'd got on my car wheels... And suddenly the car got traction and popped onto the road. After that point, I just drove...

– St Andrews

Sheltering

The interviews reveal that some residents sought shelter to protect themselves from the bushfire. Residents who stayed to defend their homes often sought shelter during the main passage of the fire front and then returned outside to continue active defence. Others sought shelter once defence became untenable:

I had all intentions of staying... I made a couple of blues. The blues on the day were simply trying to put the house out when it had gone... Kept fighting it... All of a sudden, I forgot the two girls were inside... The worst part about it was the toxins from the house... It just took so long to burn... two hours to burn... We were stuck behind those concrete tanks with the fire pump, just squirting ourselves and the pump... two girls on one side and two guys on the other.

– Kinglake

A very small number of interviewees sheltered passively throughout the bushfire. Passive sheltering was evident in 12 of the households represented in the interview sample. As the following quote suggests, the actions of those who sheltered passively were largely reactive to the situation:

We only knew when a friend in Marysville here rang and said 'Don't you know there's a fire bearing down upon you?' There was no smoke... We had no option but to stay because it was too late... Then, the next minute we know the main fire front is coming, the roaring and banging and thundering. The radiant heat from that was setting fire to the weatherboards on the back of the house and breaking windows... So we opened the front door and went to charge out and at the same time the whole lounge room caught alight... Then we got outside and I said to [my daughter], 'We've got to lie down on the ground'. We lay down on the ground in the front, it was near the fence, it was relatively cool there and then I said, 'No, we can't stay here, when the house really goes up, it's going to be too hot'. So we got over the fence and came down to the main road there. Then I stood in the middle of the road – I thought if someone comes he'll stop or run over me. Anyway, nothing came because the road was closed. In the end I heard a 'Beep, beep, beep'. So we walked down and there is a fire truck there and they gave us a lift back to Narbethong.

– Marysville

4.4 Emerging Issues and Themes

While the primary concerns of the report are: (a) Planning and Preparedness; (b) Information and Warnings; and (c) Intentions and Actions; several other important topics were raised by interviewees and were coded in the data as 'Emerging Issues and Themes'. Analysis identified four emerging issues and themes:

1. Difficulties returning to homes and properties
2. Use of fire refuges and shelters ('bunkers')
3. Factors influencing physical capabilities to respond
4. A tendency for some residents to shelter passively in bathrooms

Difficulties Returning to Homes and Properties

Some residents (approximately 1 in 8) who had left fire-affected areas for safer locations (such as Yea, Whittlesea, Yarra Glen and the outer northern Melbourne suburbs) reported difficulties in trying to return to their properties after the passage of the fire. Many attempted to return to their properties on Sunday 8th and Monday 9th February, but in many cases were turned away at police roadblocks.

The reasons interviewees gave for attempting to return to properties fell into one of three categories:

- (a) Wanting to protect property from fire
- (b) Checking on the condition of loved ones, pets or property
- (c) Concerns about looting.

It is widely accepted that ember attack after the main fire front has passed is responsible for much property loss (see Blanchi and Leonard 2008). The most commonly cited reason for wanting to return as soon as possible after the fire front had passed was to defend properties from such attack:

I went past the police and said 'Look, I'm, you know, I'm going to find my family at Yea. I knew they got there, and I've got to go back because I've still got mopping up, there's still bits and pieces all over the place that are alight and everything'.

– Flowerdale

Some residents who were able to return to their homes assisted neighbours to deal with the continuing threat posed by embers:

It jumped the train line and just came back up here to see. And then it was still there. We couldn't believe it. And then we just basically – all the fire, all the trees and that still had red embers and stuff, so we just went around to all the neighbours with buckets and we just were tipping out any fire we could sort of find.

– Wandong

Others talked about providing general community assistance after the fire:

When we came back in, we picked up quite a few or three or four civilians, an old guy. I believe he would have died from dehydration if we had not come back in. He was laying on the ground here... just

from pure exhaustion. His hair was burnt. So I think it is critical to come back in straightaway after that fire front has passed, absolutely critical.

– Flowerdale

The second most commonly cited reason for wanting to return was to check on the welfare of loved ones who stayed to defend, pets locked up in sheds or homes, or to simply check to see whether homes were destroyed or still standing:

We tried to get back up on the Sunday, because I have eight horses. And we weren't allowed to... We got up on Monday morning... I think we tried probably about 10–12 times to get up.

– Kinglake West

The third most commonly cited reason for wanting to return was concerns about looting:

When did we come back? I think it was two or three days later we came back, because of the looters.

– Flowerdale

One interviewee reported fleeing the fire at the last minute and upon returning some time later, discovering that two vehicles had been stolen:

I left me car out the open, me truck out in the open. And two days later, when I was allowed to get back in here to see it, everything [was] gone.

– St Andrews

Of the interviewees who made attempts to return to properties and were stopped by official roadblocks, a majority spoke about being able to circumvent the roadblocks, by either: (a) talking authorities into letting them through; or (b) finding an alternative route through (either by vehicle or on foot):

Interviewer: So you had no physical or no contact with anybody?

Interviewee: No, until my wife turned up on the Sunday... And she had to sneak in. She came through the back way...

– Clonbinane

Of the interviewees who ignored or circumvented the official roadblocks to return to their properties, approximately one quarter of this sample mentioned experiencing danger while navigating to their homes:

And probably about 4 o'clock, he couldn't stand it any longer and he said, 'No, I've got to go.' And so they both left, the two fellas, and they came here. They got through the roadblock because a fire truck went through and the police car took off after the fire truck. So my husband took off and followed on their tail all the way. And they drove over burning branches and power lines and the whole lot. You know, he said, 'Well, they went over them in front, so it can't be, you know, too bad'.

– Wandong

Only a minority of interviewees who encountered official roadblocks reported abiding by the exclusion order:

Not [until] a few days later... I can't even remember the day. Could not pick up the personal cars for three days. They wouldn't let us in, which is fair enough in a way. I mean people did... [but] people died around us.

– Koornalla

There were several instances where interviewees needed to leave town to replenish or purchase extra firefighting supplies and were either unable to do so for fear of not being able to return, or did leave and were not allowed back in.

I went to pick it up... the brand new fire pump and everything – because we had the 2,000 gallons of water over there – but I wasn't allowed back in to fight it.

– Wandong

In summary, it appears that many residents endeavoured to return to their properties as soon as possible after the main fire danger has passed. There are multiple reasons for residents wanting to return, but the desire to check on the status of and defend property appears to be an important driver of behaviour. With respect to official roadblocks, almost twice as many people interviewed circumvented official roadblocks as abided by them. Many risked subsequent danger in order to return to their properties. The need to leave town to replenish firefighting equipment, fuel or water for ongoing protection of property in the aftermath of a fire also appears to be an important issue.

Use of Fire Refuges and Shelters ('Bunkers')

The use of fire refuges and shelters emerged as an important issue. The interviews shed light on how refuges and shelters were used on February 7th, as well as more general community attitudes towards refuges and shelters. The two most frequently mentioned topics were attitudes towards potential places of community refuge, and the intent to build personal shelters for future fires.

With respect to attitudes towards community refuges, football ovals and other public buildings such as recreation centres were often thought of as safe refuge points:

I said to the kids 'Follow me straight to the rec. centre down in Flowerdale', which I thought was the safest place in Flowerdale which, as it turned out, it was. But then the CFA bloke come and told us to get out and go to Yea, which I thought was the wrong thing to do. You know, I told him 'No', I said 'It's safe here'. He said 'No, this could go'. Well, maybe it could have, but we still had the football ground to go on, I had plenty of wet towels, there was heaps of water there, you know, out of the big tank, but yeah, that was the safest place.

– Flowerdale

Several Marysville residents interviewed were particularly critical of the lack of a designated place of safety for residents to shelter:

So there was no designated safe area in the town. People went to the football ground, yes, because that was all they knew. But there was nothing designated, nothing organised.

– Marysville

In Kinglake and Kinglake West, a number of interviewees reported evacuating to local CFA fire stations (sheds) in the belief that these would be well defended.

One interviewee highlighted deficiencies with the level of fire protection of public buildings that suggests a greater potential for loss of life if the fire had occurred mid-week:

As far as helping the community, I think they could probably make a better effort with their public buildings, like the recreation centre up there hasn't got any outside fire protection, but it was all right. There was no damage done to it. But you've got the community centre down here and the kindergarten, which both got burnt – virtually burnt down, or damaged anyway. They've got fire hydrants, but no proper protection, no outside sprinklers or anything that someone could turn on, walk away and leave, or something... Our problem up here is all our public buildings are too spread out. They're not in the town... So they're pretty hard to defend.

– Kinglake

A small number of interviewees supported the construction of bunkers in especially fire-prone areas:

I think the idea is just let everyone have a bunker. If you live in this zone, you have got to have a bunker, and some sort of bunker can be sorted out.

– Strathewen

A number of these interviewees talked about their intentions to build personal fire shelters ('bunkers') as part of their future fire plans. Intentions were equally divided as to whether the refuges would be built above or below ground.

A small number of interviewees described using personal shelters during the passing of the fire front:

With an enormous roar it came, and we thought we'd just have to dive under the house. We've got a bunker area there, but it stopped at the foot of our driveway. An easterly stopped it, an easterly change initially. We were outside pretty well all the time. We weren't uncomfortable because of the continual spray from the sprinklers kept us reasonably cool, although it was bloody hot. There is a cool spot. We do have a downstairs area, which is a brick wall, and that's our cool spot and that's our ultimate bolt hole. If the fire front had actually passed over us, that's where we would have gone.

– Jindivik

These personal shelters ranged from well-constructed, above-ground, concrete bunkers with fire-rated doors, to everyday cellars. In one case of sheltering in a cellar, decreasing levels of oxygen became a threat to well-being:

[My friend] said that because he was at his son's place and they went into the cellar and he reckons probably another couple of minutes and they would have run out of air.

– Kinglake

A proprietor of a store in Narbethong described how an underground storeroom provided refuge for approximately 30 people and 20 pets as the fire front passed.

Interviewer: How large would you say the bunker is?

Interviewee: ... maybe 20 deep, I don't know, big. It used to be a small supermarket.

Interviewer: How prepared did you feel in the bunker, or how safe did you feel?

Interviewee: Felt very safe.

– Narbethong

In summary, there appears to be evidence that many community members regard public buildings, ovals and emergency services facilities as safe places of refuge during a bushfire. There is some evidence of support for purpose-built community shelters in which residents can take shelter during a bushfire. Several of those interviewed reported that they were considering building personal shelters or 'bunkers' to protect them from bushfires.

I'm going to build a bunker, a fire bunker, where that little woodshed was. Going to sink that at, you know, several feet, and I'm just going to build one, you know. Might make it easier for finding me body next time, but I'm going to – I'm gonna definitely build a bunker.

– Kinglake

Factors Influencing Physical Capabilities to Respond

The majority of comments about factors influencing physical capabilities focused on physical exhaustion. People talked about the intensity and extended duration of the physical effort required to defend their home. Only a few interviewees had taken this into account before the fire:

We did a drill thing: 'I'll do the water, you get them, you do the running' and then we swapped... I just concentrated on the buckets. The girls swapped what they were doing. One would transport, the other would run, and they had turns so that they had their energy.

– Pheasant Creek

An individual attempting to defend a house alone may be more vulnerable:

The veranda caught fire, and I resorted to the old shovelling dirt. And I reckon two of us probably still could have done it. But, eventually, I was knackered and it won.

– Kinglake

Reasons provided for physical collapse included: heat exhaustion, lack of hydration, hypoxia (lack of oxygen), smoke, and toxic fumes. Some interviewees reported suffering from effects such as nausea and light-headedness.

Aside from physical exhaustion, the two most commonly cited physical complaints were breathing difficulties and stinging eyes. The majority of interviewees complaining of breathing difficulties cited excessive smoke as the cause. The majority of interviewees did not mention having access to any type of protective face mask. Most used improvised 'masks' such as wet towels. While some interviewees mentioned using masks, these tended to be off-the-shelf workshop dust masks, not smoke masks used by fire agencies.

The smoke was the thing, you know. We should have had masks, basically.

– St Andrews

Impaired vision (reported as stinging eyes) was also frequently reported. Of the interviewees complaining of eye problems, none were using goggles:

I was wearing goggles, but I had handed goggles to David and he said, he just raced off and didn't put them on and he had very, very bad eyes and I think goggles are absolutely vital.

– Narbethong

The final category of reported physical difficulties comprised existing medical conditions or difficulties that restricted active defence: migraines, asthma, being wheelchair-bound, or other difficulties with mobility such as arthritis.

Tendency for Residents to Shelter Passively in Bathrooms

Anecdotal evidence suggests that many of those who sheltered passively inside their homes may have done so in bathrooms. The limited evidence came from one interviewee who was a member of a local CFA brigade and who took part in searches of burned homes for survivors immediately after the fire:

[My son] came up the drive and he came in and he's 'Dad, Dad, Dad, we found [deceased] and [deceased]'. They were in the bathroom exactly as per the CFA guidelines. Probably filled the bath, well, they may not have filled the bath because there wasn't any bloody water, and she wouldn't have, she wouldn't had time to fill it, I don't think, before the water stopped. They were in the bathroom which has had only one small external window which she would not have been able to get out of, and you know, it was in the back of the house and so the whole house would have been on fire.

– Marysville

And:

Going in the bathroom, I found 17 bodies in the first two days, 14 of whom I knew personally. Why? Because they were all in the bloody bathroom and the bloody bathroom hasn't got an external door, the bloody bathroom hasn't got a big enough window to get out of...

– Marysville

It is understood no fire agency in Australia advocates sheltering in bathrooms as a safe and appropriate response while sheltering in homes. Three possible reasons for people sheltering inside bathrooms were hypothesised by the research team: (a) widespread belief (largely from cyclone disasters) that the bathroom is the most structurally sound room in the house; (b) bathrooms are typically a source of water, and part of preparing for a bushfire is to fill the bath with water; and (c) beliefs that filled bathtubs provide a safe place to shelter:

[We] had all the proper gear. We had the kids in the bathroom, had all the windows sealed, with wet towels around the house... [We] Filled the bath because that's where the children were going to stay, in the bathroom, with the dogs.

– Kinglake West

Of course, bathrooms typically do not permit easy escape once the house begins to burn.

5. Conclusions

This report has documented the findings of qualitative research into human behaviour and community safety issues during the bushfires of February 7th, 2009. Findings relating to residents' planning and preparedness for the bushfires, information and warnings, intentions and actions, and emerging issues and themes have been presented. The second report will more fully examine the nature of people's responses to the February 7th bushfires and the factors and behaviours contributing to their impact. It will also examine the alignment of the results with existing research.

To summarise, the key findings of the qualitative analysis of interviews suggest that:

Planning and Preparedness

- Many residents were not prepared for the severity of the February 7th bushfires.
- Many interviewees living in more suburban locations had not planned or prepared for bushfires because they did not consider themselves at risk.
- A considerable amount of last-minute planning and preparation took place on the day.
- There are many examples of 'weak links' in people's planning and preparation that affected their ability to implement their fire plan.

Information and Warnings

- Agencies such as the CFA and local councils had been only modestly successful in informing members of at-risk communities about effective preparation and planning for bushfires.
- Predictions in the preceding week were that Saturday 7th February was to be a day of unprecedented fire danger. There was only modest awareness of the implications of this in the community.
- The lack of timely information about developing threats to St Andrews, Strathewen, Kinglake, Kinglake West, Narbethong and Marysville may have contributed to many people being surprised by the sudden impact of the fire.
- Environmental cues such as smoke were important in alerting people to developing threats and in many instances prompted an active search for more information or a decision to leave or initiate defence.

Intentions and Actions

- Half of the households represented in the interview sample reported at least one household member whose intention was to stay and defend. The perceived success of the 'stay and defend' strategy in past bushfires appears to have influenced people's intentions to stay and defend.
- A quarter of households in the interview sample reported at least one household member whose intention was to leave during a bushfire. Beliefs about the survivability of houses and their safety as a refuge during bushfires were paramount.
- A significant number of residents intended to wait and see what the bushfires were like before deciding whether to stay or go. These residents wanted to stay and defend their homes and properties, but were not fully committed or confident in their ability to do so in all conditions.
- Approximately 10% of interviewees had not previously considered how they would respond to a bushfire. These residents typically lived in more 'suburban' locations and did not consider themselves to be at risk from bushfires.
- Less than half (approx. 45%) of the households in the interview sample reported that a household member stayed to defend. Some of those who intended to stay and defend left because of the severe conditions.
- More than half (approx. 55%) of the households in the interview sample reported that a household member left because of the fires. There appear to have been many late evacuations.
- A very small number of interviewees sheltered passively throughout the fire.
- Some of those who stayed to defend may have exposed themselves to considerable danger by moving around fire-affected areas.

Emerging Issues and Themes

- It appears that many residents endeavour to return to their properties as soon as possible after the main fire danger has passed. There are many reasons for wanting to return, but the desire to check on the status of and defend property appears to be an important driver of behaviour.
- Many community members regard public buildings, ovals and emergency services facilities as safe places of refuge during a bushfire. There is some evidence of support for purpose-built community shelters in which residents can take shelter during a bushfire.
- Some of those who stayed to defend their homes and properties reported a range of factors that influenced their capacity to defend. These included heat exhaustion, dehydration, breathing difficulties, and eye irritation. A range of pre-existing medical conditions, such as asthma and arthritis, also inhibited some people's capacity to defend.
- Anecdotal evidence suggests that many of those who sheltered passively inside their homes may have done so in bathrooms.

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Appendix 1. Interviewer Guidelines

Note: these are a guide only. The participant is likely to answer many of the questions without being prompted.

Before the interview

- Introduce self
- Introduce research
- Provide the ethics statement.
- Stress independence from agencies and government
- Explain purpose
- Confidentiality
- Contact details
- Further research
- Obtain consent
- If consent is obtained proceed with the interview

Interview questions and prompts

Starting question

- Tell me what happened to you during the fire...

During the discussion prompt for:

Preparation

- How did you prepare? (timeframe)
- How well-prepared did you feel?
- Did you have a plan? Had you made a decision to stay or leave?

Information and Warnings

- When and how did you first become aware about the fire?
- When did you realise fire would impact your property?
- Did you receive a warning? Where from? When? How long before the fire arrived?
- Where did you get the information from during the fire? (formal and informal)

Response

- What did you do (stay, protect property, shelter in place, wait and see, leave early, leave late)? Why?
- What did other household members do? Why?
- Who was there? What were they doing?
- Did you get any help? Did you help anyone? Did you see anyone else?
- What did you do after the fire front passed? (e.g. stay, return)

Leaving

- When did you leave?

- Do you think you left early enough?
- What was your trigger for leaving?
- Where did you go?
- How did you get there?
- When did you return?

Future

- Is there anything you would do differently?
- What could help the wider community respond to bushfires?

Thank participant