



# COMMUNITY UNDERSTANDING AND AWARENESS OF BUSHFIRE SAFETY: JANUARY 2013 BUSHFIRES

RESEARCH FOR NEW SOUTH WALES RURAL FIRE SERVICE

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Photo: The Coonabarabran fire approaches the Siding Spring Observatory.

Illustration: A child's drawing of the Coonabarabran fire, used with permission.

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## EXECUTIVE SUMMARY

January 2013 was the most challenging bushfire season in New South Wales (NSW) for almost a decade, with temperature records broken and some of the worst fire danger conditions ever experienced in many locations. By the end of the fire season in March, more than 6,000 bush and grass fires had been reported, burning 1.4 million hectares, with 62 homes, 50,000 head of livestock and 10,170 km of fencing destroyed.<sup>1</sup> At the height of the season, on 8<sup>th</sup> January, 'Catastrophic' fire danger ratings were experienced across large parts of the state including the Illawarra/Shoalhaven, southern Ranges and parts of the Riverina. This was the first time Catastrophic warnings were issued to large centres in forested areas.

To maximise the lessons learnt from these events, the NSW Rural Fire Service (NSW RFS) engaged the Bushfire Cooperative Research Centre (Bushfire CRC) to undertake a community-focused research project. The aim of this project was to provide the NSW RFS with an understanding of community bushfire preparedness and responses to warning messages in three NSW areas that had been identified as being particularly impacted by fires in January 2013: the Wambelong fire near Coonabarabran, the Cobbler Road fire near Yass and the Deans Gap fire in the Shoalhaven area. During February and March 2013, Bushfire CRC researchers went into these communities and conducted interviews with many members of the community.

The following data collection methods were used in this project:

- Semi-structured community interviews (n = 238) conducted in the three communities: Coonabarabran (n = 83), Yass (n = 75) and Shoalhaven (n = 80).
- An Interview Content Summary (ICS) checklist<sup>2</sup> completed during the interview by a co-interviewer note-taker,
- An on-line (panel) survey (n = 975) conducted by an independent market research company.

This report describes the main findings from the research project in relation to the key themes identified as being of interest to the NSW RFS:

- Bushfire knowledge, planning and preparation
- Understanding of existing official bushfire information
- Understanding of, responses to and perceived usefulness of the bushfire warnings immediately prior to and on the day of the fire
- Experiences and behaviours of people affected by the fires
- Why relatively few dwellings (and no lives) were lost.

Across the three study areas, the major findings were:

- Many people had a basic plan for what to do when threatened by a bushfire, but few had documented it or used the NSW RFS Bush Fire Survival Plan kit to document their response.
- Most interviewees felt well prepared and had prepared their family much more than their home and property, although over half had cleared space around their home.
- Interviewees, once they received information or warnings, often sought more detailed, localised or updated information, such as from local RFS sources, friends and neighbours and from media.
- As the fires spread, the naming of fires based on their starting point did not reflect their current location, leading to some misperceptions of fire position for some people.
- While telephone alerts are now the preferred method of warning for many in the community, many interviewees were unable to receive messages due to a pre-existing lack

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<sup>1</sup> [http://www.rfs.nsw.gov.au/file\\_system/attachments/State08/Attachment\\_20130403\\_04D06DD6.pdf](http://www.rfs.nsw.gov.au/file_system/attachments/State08/Attachment_20130403_04D06DD6.pdf)

<sup>2</sup> A copy of the ICS is provided in Appendix 1.

of mobile phone coverage in the affected areas and this contributed to their delayed decision-making.

- Few residents understood the implications of the different fire danger levels on their safety, and actions to take at each, apart from Catastrophic.



## GENERAL INTRODUCTION

During January 2013, areas around Coonabarabran, Yass and Shoalhaven were impacted by large fires. Major impacts of these fires occurred on Tuesday 13<sup>th</sup> January and Tuesday 8<sup>th</sup> January for Coonabarabran and Yass respectively, and from Tuesday 8<sup>th</sup> January for Shoalhaven. It was generally perceived by NSW RFS personnel that these fires had the potential to have done even more damage if extensive suppression activities – such as the use of aircraft – had not been undertaken, weather conditions had not abated, and the communities had not responded appropriately. Given this, the NSW RFS requested the Bushfire CRC to: (a) coordinate a joint field research Task Force to interview a sample of respondents in each of the three communities affected by the fires; and (b) commission an on-line panel survey of a representative sample of residents of the three fire-affected locations.

The aim of the research program (face-to-face interviews and on-line panel survey) was to provide NSW RFS with an understanding of (a) community bushfire preparedness for bushfire, and (b) how residents in the three affected locations responded to bushfire threat warnings.

The following describes the general approach for each of these survey methodologies. This is followed by a brief description of each of the fire events that were nominated for investigation. The main body of the report (Part 1 and Part 2) provides the detailed findings from the interviews and the panel survey.

### *Community Interviews*

A semi-structured interview method was used. In this approach, residents potentially affected by the fires were asked a series of open-ended questions about topics believed by the research management team to cover important issues related to residents' individual experiences of the bushfires. One advantage of this approach is that it allows residents to 'tell their story' and thus bring to light issues that may not have been considered important initially. A disadvantage is that some topics considered important by researchers may not be discussed in detail because they are not considered important by residents. In this study, we specifically found that despite prompting, few of those interviewed described in detail their recollections of bushfire threat warnings, or discussed their preferred methods of receiving warnings.

Data gathering via semi-structured interviews is time-consuming: a post-bushfire research interview session often takes an hour or more — with introductions, explanations, interruptions, follow-up questions, concluding, thanks and farewells. In rural areas, much time was spent driving and often a property was unoccupied when the researchers visited. Recruitment of participants was thus opportunistic (who was present when a property was visited during the time available in the field). Because of time constraints, researchers tended to concentrate their efforts initially by interviewing residents in the worst-affected areas at the expense of obtaining information from residents more distant from the fire scar area. Residents whose homes were destroyed in the Coonabarabran area were under-represented because few were on their destroyed property when visited except where prior arrangements had been made.

The semi-structured interviews employed are a form of qualitative research. They generated information and issues seen as relevant by those residents who were interviewed. They do not provide reliable information about the extent to which any given issue was common across the community as a whole.

A total of 238 interviews were conducted: Coonabarabran – 18<sup>th</sup> to 21<sup>st</sup> February; Yass – 19<sup>th</sup> to 21<sup>st</sup> March, and Shoalhaven – 4<sup>th</sup> to 6<sup>th</sup> April 2013. Interview contents were summarised using a content summary checklist (ICS) to note responses to key issues and this enabled rapid analysis of findings.

It should be noted that there was some minor variation in the ICS used in the different study areas. Thirty-one interviews were subsequently transcribed and analysed for content and themes by the authors. The transcribed interviews were selected to cover: (a) all three study areas; (b) a range of property types; and (c) a variety of responses to warnings.

The interview Task Force consisted of:

- Members of the NSW RFS, including members of the Community Engagement, Corporate Communications and Public Liaison areas,
- Bushfire CRC researchers from a range of universities,
- Bushfire CRC management and support staff.

Details of the findings from these interviews are discussed in Part 1 of this report.

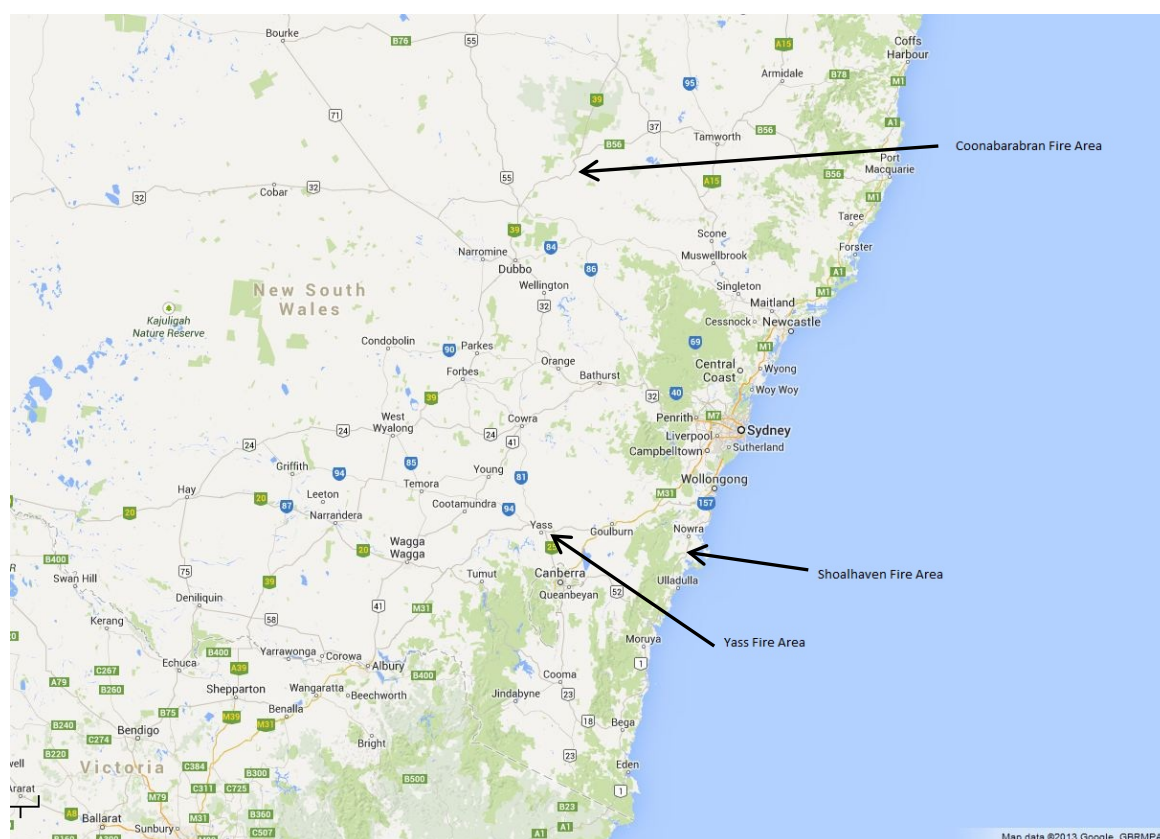
### *On-line Panel Survey*

The on-line panel survey is described in detail in Part 2 of this report. The survey was quantitative in nature. The findings can be generalised to the community from which the panellists is drawn. Whereas the area targeted for community interviews was selected based on proximity to a bushfire-impacted area, on line panellists were sampled 'blind' to their experiences with the fire. As a result, only a small proportion of homes in the area from which the panellists were drawn might be described as being directly impacted by the fire events addressed in this research response. This means that a smaller percentage of panellists were able describe experiences associated with high levels of threat compared with interview participants.

A total of 975 panellists from the three fire-affected areas: 538 from the Shoalhaven area, 376 from the Yass area, and 61 from the Coonabarabran area – responded to the on-line survey. This is reflective of the current relative populations of the study areas.

## 2013 BUSHFIRE EVENTS INVESTIGATED

The NSW Rural Fire Service identified three bushfire events for investigation: the Wambelong fire near Coonabarabran, the Cobbler Road fire near Yass, and the Deans Gap fire near Shoalhaven. Figure 1 shows these locations. The following sections summarise the details of these events using information provided in pre-deployment briefings given to each of the task forces. Information was also confirmed with the NSW RFS documentation of Learning Lessons Interactive Field Trip, Region South, 13 March 2013.



**Figure 1 NSW fire areas**

Source: Google Maps (accessed 24/7/2013)

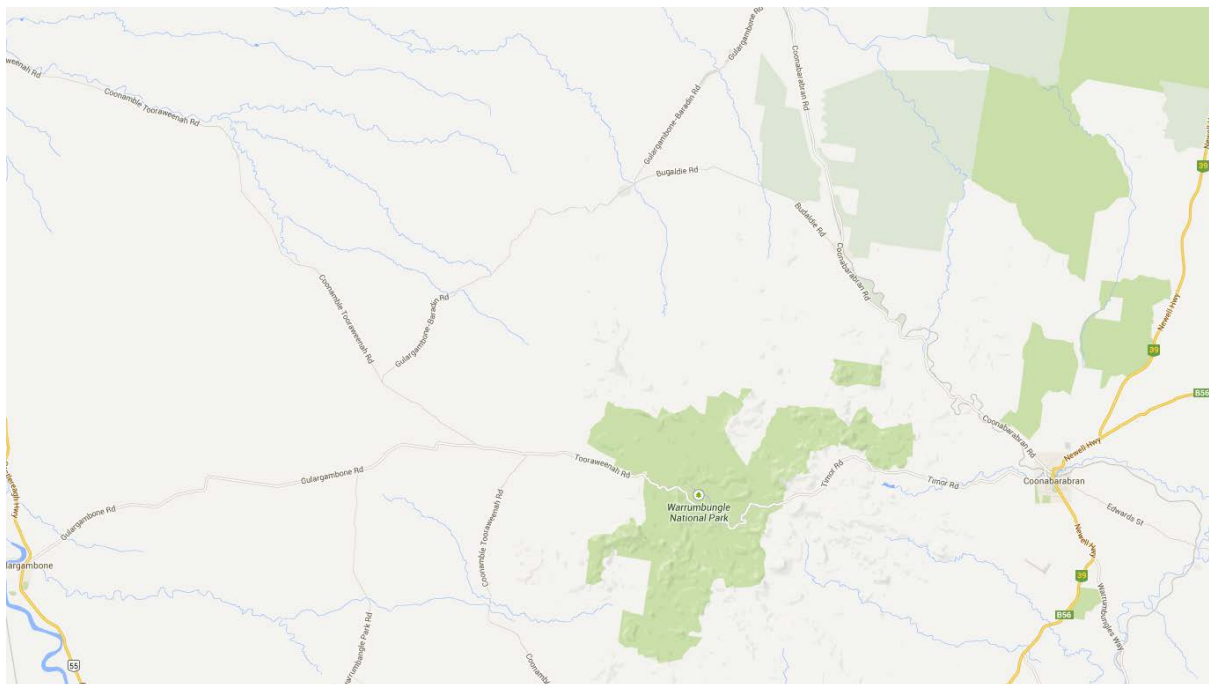
### *Coonabarabran – The Wambelong Fire*

The Warrumbungle Shire, which includes the town of Coonabarabran (population 3,175), is a rural residential area 341 km north–northwest of NSW’s capital city of Sydney. The landscape ranges from extensive plains to mountainous peaks of extinct volcanoes in the Warrumbungle National Park, west of Coonabarabran. The dominant trees are white gums (*Eucalyptus rossii*) and narrow-leaved ironbark (*Eucalyptus creba*). House construction varies greatly and ranges from mud brick through timber construction to modern brick-veneer structures.

The Coonabarabran region had experienced very dry conditions for several years. In the memory of the residents, there had not been a significant bushfire threat to Coonabarabran and environs from the national park. The Wambelong fire (Figure 2) was detected on Saturday 12<sup>th</sup> January 2013 in the Warrumbungle National Park. The fire broke containment lines on the afternoon of Sunday 13<sup>th</sup> January 2013. Sunday 13<sup>th</sup> January had been declared a day of Total Fire Ban and a day of Extreme

fire danger weather was predicted. On the Sunday, strong winds pushed the fire in a generally northerly direction.

Owing to the threat posed by the fire, multiple warnings were issued to local communities, such as through doorknocks, websites, telephone alerts and media. The fire travelled in a generally north–north easterly direction, threatening homes in the John Renshaw Parkway area (also known as the Timor Road area) to the west of Coonabarabran. More than 30 homes were destroyed in this initial phase. The fire threatened the Siding Springs Observatory and several outbuildings were destroyed or damaged. The fire continued in this generally N-NE direction and destroyed several homes on or near Morrisses Road in the Yearinan Station area. A later wind change pushed the fire in a more north–north westerly direction toward the Guinema Road area west of Bugaldie and several homes were destroyed. The fire crossed the Baradine–Coonabarabran Road into the Murrumbidgee National Park south of Bugaldie on the night of 13 January and was contained several days later. A total of 53 homes were destroyed; not all of these were occupied. Several other homes were damaged. There were some stock losses and considerable lengths of fencing were destroyed.



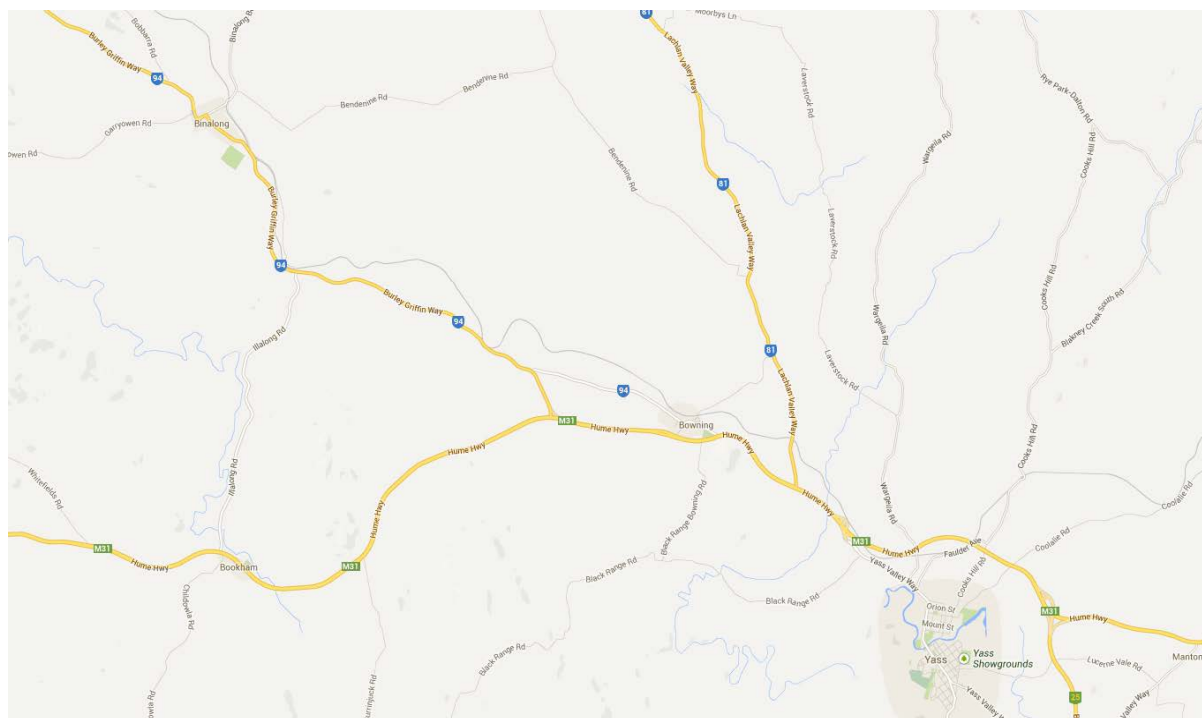
**Figure 2 Coonabarabran study area**

Source: Google Maps (accessed 24/7/2013)

## Yass – The Cobbler Road Fire

The Yass shire is located about 280 km southwest of Sydney; Yass Valley has a population of 13,135 and the township of Yass (pop. 2011: 5,591) is 59 km northwest of Canberra. The Yass Valley has a diverse landscape, characterised by grassland plains, hills and valleys, and includes the Brindabella Ranges. Within its boundaries, there are one National Park, five Nature Reserves and one State Conservation Area. Vegetation is predominantly wet and dry sclerophyll forests, and box and ironbark woodlands. It has been extensively cleared for agriculture.

Over the previous 12 months (i.e. the 2012 calendar year), the Yass region had experienced rainfall well below the annual average. The most recent previous serious bushfire threat was in January 2003 from the bushfire that destroyed homes in Canberra (to the south). On the evening of Monday 7<sup>th</sup> January 2013, warnings were issued (telephone, SMS, radio and TV news) that the next day – Tuesday 8<sup>th</sup> January – would be a day of Catastrophic fire danger for most of the State including the Yass area. At approximately 1600 hours, a fire was reported near Cobbler Road, Jugiong, 62 km west of Yass (Figure 3). It travelled rapidly in a mostly easterly direction, burning through grassland and patches of open eucalypt woodland. An unsuccessful attempt was made to halt the fire at Burrinjuck Road. At ~1930 hours, it was judged that the Murrumbateman community (~30 km north of Canberra and ~20 km south of the Yass township) was likely to come under threat. The fire was, however, halted at the Yass River, about 10 km west of Yass. Aircraft made a significant contribution to containing the fire. About 50 properties were in or near the fire-scar area. While several homes on rural properties were threatened, none were destroyed. However, stock losses (mostly sheep) numbered in the thousands. No evacuation orders were issued by authorities, but it is known that many Murrumbateman respondents relocated horses to an equine evacuation facility established previously in the ACT.



**Figure 3 Yass study area**

Source: Google Maps (accessed 24/7/2013)

## *Shoalhaven Area – The Deans Gap Fire*

The City of Shoalhaven (pop. 2011 census: 92,912) lies within the south eastern coastal region of New South Wales. It is approximately 200 km south of Sydney and consists of a number of hamlets and towns. The area covers approximately 160 km along the coastline, including 109 beaches, as well as pristine natural Australian bushland. The Shoalhaven area is home to numerous species of native Australian flora and fauna.

In December 2012, the Shoalhaven area received appreciably less rainfall than the December average. Many respondents in the area had been impacted previously by a major bushfire in the 2001–2002 fire season that destroyed homes. On the afternoon of Monday 7<sup>th</sup> January 2013, a fire was reported in the vicinity of Deans Gap, 98 km south–southwest of Wollongong, and a short distance from the Morton National Park (Figure 4). Subsequent investigation showed the report was not accurate in relation to the location of the fire; the true location was to the west of the small town of Wandandian. The cause of the fire was not known with certainty, but human agency was suspected. Significant suppression operations were initiated to contain the fire including the use of aircraft on the afternoon of 7<sup>th</sup> January and ground resources overnight.

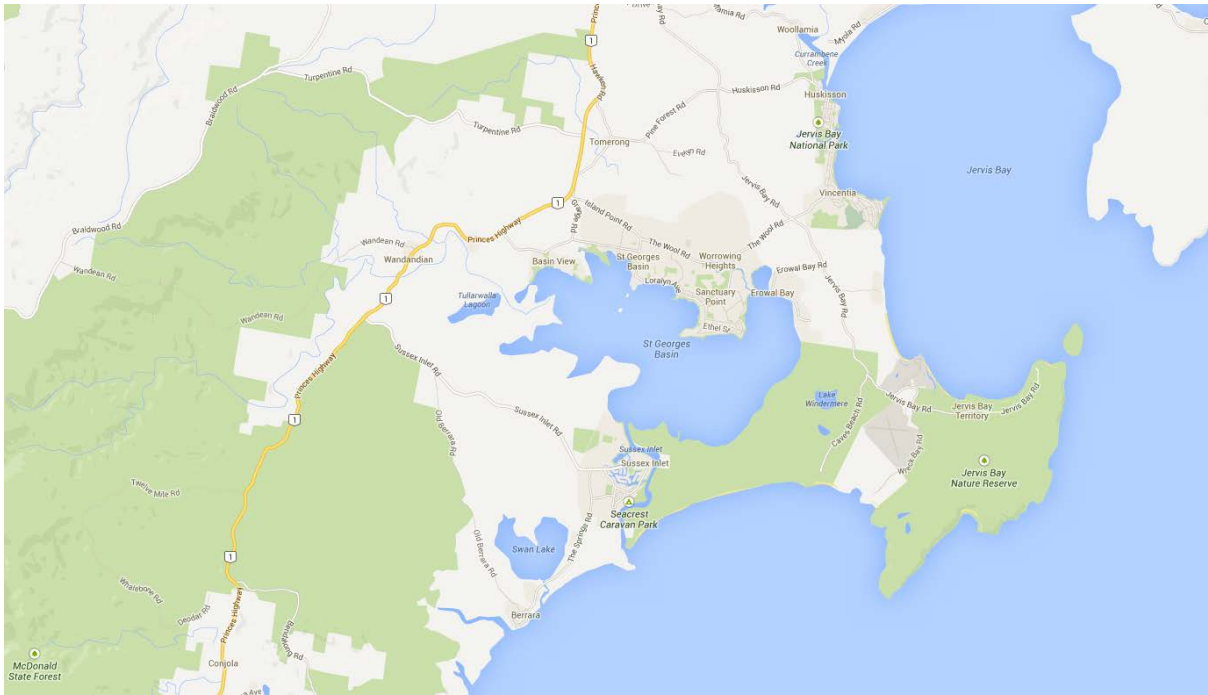
The Bureau of Meteorology determined that Tuesday 8<sup>th</sup> January would be a day of Catastrophic fire danger across areas including the Shoalhaven, and warnings were sent to people in the areas, including by telephone and SMS. The fire was contained on the night of Monday 7<sup>th</sup>. At midday on Tuesday 8<sup>th</sup> January, the fire jumped the containment line and travelled in a south easterly direction towards Sussex Inlet. At 1540 hours, an emergency telephone and SMS warning was issued to residents of Jerrawangala, and just after 1700 hours, in the evening, the fire threatened properties west of the Princes Highway. Four hours later, the fire crossed the Princes Highway and NSW RFS used social media to warn residents that Sussex Inlet Road was closed. On Wednesday 9<sup>th</sup> January, fire activity decreased as weather conditions moderated. The fire burned uncontained in inaccessible terrain. At 0200 hours on 9<sup>th</sup> January, unofficial social media communications and news media reported that Sussex Inlet and Wandandian might have to be evacuated. The Incident Management Team at Shoalhaven Fire Control Centre reported that these claims were not accurate and NSW RFS used social media to counter the claims. While no evacuation orders were issued, many residents self-evacuated and many tourists left camping grounds. Relief centres were established at Bomaderry (north) and Ulladulla (south). National Parks and Wildlife Service closed parks and ordered visitors to evacuate, which caused a degree of confusion among some local residents.<sup>3</sup>

The fire burned for a further 9 days. On Friday 18<sup>th</sup> January, fire danger increased to Extreme, the fire travelled in a north easterly direction, threatening communities around the St Georges Basin, and an emergency alert was sent to residents. However, in the following days, the weather abated, the fire was contained and no properties were destroyed by the fire.

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<sup>3</sup> Interview with Morton National Park authorities.





**Figure 4 Shoalhaven study area**  
Source: Google Maps (accessed 24/7/2013)

## PART 1 COMMUNITY SURVEY

### COMMUNITY SURVEY METHODOLOGY

#### *Research Task Force*

To undertake the community interviews, the Bushfire CRC put together a field research Task Force comprising Bushfire CRC researchers and NSW RFS Community Engagement members. This task force was managed and coordinated by Bushfire CRC management staff. Field teams were made up of one researcher and one NSW RFS member.

The taskforce established a home base close to each of the fire-affected areas at a NSW RFS facility at Yass and Shoalhaven and at a hotel in Coonabarabran, where the field teams met for an initial training and familiarisation session before field deployments and debriefings at the beginning and end of each day. Prior to commencing data collection, field teams were provided with a comprehensive training session covering interview processes, including participants' rights, details of the questions being asked and why, interviewer responsibilities and obligations, and health and safety matters. The research team was also briefed by a local NSW RFS officer on the details of the fire and was provided with an understanding of issues the community had faced because of the fire. All members of the Task Force were dressed in identifying apparel as appropriate (Bushfire CRC and NSW RFS) and all wore name tags and were provided with appropriate safety equipment. Each team carried a mobile phone and teams operating in more isolated areas had access to NSW RFS radios.

#### *Materials and Procedure*

Each of the study areas included farming, rural residential and township areas. The study areas encompassed properties directly affected by the fire and those considered to be 'under threat' at various stages. While the survey did not provide a stratified sample, field teams covered each of these sub-areas to ensure a cross-section of residents was interviewed. In addition, a number of small-business owners and tourism operators were included as the opportunity presented itself. Field teams were assigned to designated areas with detailed maps (where available). This ensured thorough coverage and no overlap.

Prior to deployment, a semi-structured interview protocol<sup>4</sup> was developed by the authors in consultation with senior staff from the NSW RFS. Additionally, a summary checklist of the interview content (the ICS) was designed and a printed version of this was completed initially during the interviews by a NSW RFS member while the Bushfire CRC researcher conducted the interviews. Following each interview, the ICS was reviewed and a consensus agreed upon by both researchers. At the end of each day, the information content from each ICS was loaded into the ISurvey© program, enabling a timely summary of the interview. The protocol and the ICS were amended slightly across deployments to reflect local issues but the structure remained constant.

Each field team was given a supply of ICS interview summaries, a set of *General Notes for Interviewers* as well as the *Bushfire CRC Post-Fire Interview Guide, Participant Information Statements* and *Consent Forms*.<sup>5</sup> Prior to commencing data collection, maps of the area, showing the

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<sup>4</sup> A copy of the interview protocol can be found in Appendix 1. Prior to deployment census data was reviewed to identify any significant non-English speaking communities in the area (and hence the potential need for translation of materials or multilingual interviewers. The census data did not indicate the need for this approach and no non-English speaking residents were encountered during any of the deployments.

<sup>5</sup> Copies of these can be found in Appendix 1.



fire scar and locations of properties to be visited were given to each field team.<sup>6</sup> Several copies of an information flyer<sup>7</sup> particular to the area were also given to the field teams for interested community members or to leave at properties where the respondents were not home. Each field team was also equipped with: a digital recorder, a laboratory note book and their choice of snacks and water; lunch was also provided.

Before commencing a formal interview, respondents were given a *Participant Information Statement*,<sup>8</sup> which advised them of the purpose of the study and that participation was voluntary, and they were assured that their responses would be confidential and anonymous. Moreover, they were advised that they could terminate the interview at any time if they wished, and could subsequently request their interview not be included in the study, after which they were asked to read and sign the consent form.<sup>9</sup> Where it seemed appropriate, the participants were advised that, if they so desired, the NSW RFS member would be willing to exit the interview if that would enable the resident to speak more freely.<sup>10</sup> At the end of the interview, a *Resource for Psychological Help and Recovery* handout<sup>11</sup> describing the support services available to fire-affected households was given to the participant.

Most participants were interviewed on their properties; however, a small number (n = 4) were interviewed at the taskforce base or by phone. Where a home was undamaged, a door-knock approach was used, and where properties had been damaged or destroyed or where the residents were not on the property, a flyer was left, informing them that a field team had visited and allowing the resident the opportunity of talking to the field team. When a resident was at home but not available, an alternative time for an interview was offered.

For Coonabarabran and Yass deployments, interviews were conducted during weekdays mainly between 1000 and 1700 hours; some interviews were conducted at later times at the request of respondents. In Shoalhaven, one of the interview days was a Saturday. Field teams drove to locations and visited residences on foot.

Over all three communities, rejections of the requests for an interview were rare.<sup>12</sup> However, on the Saturday in Shoalhaven, more requests for interviews were declined. The post-deployment debrief noted some of the people approached on the Saturday indicated they were busy with family weekend activities and, possibly because of the nature of the community as a fishing and recreation centre, more properties were unattended.<sup>13</sup> Over the three communities, two participants declined to be recorded; however, they allowed the field team to take handwritten notes of the interview.

During the interviews respondents were asked about:

- their awareness of bushfire risk;
- preparation for and knowledge of bushfire behaviour;

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<sup>6</sup> For the Coonabarabran field teams, the maps also indicated whether the property had been destroyed.

<sup>7</sup> Included in Appendix 1.

<sup>8</sup> Included in Appendix 1

<sup>9</sup> Included in Appendix 1.

<sup>10</sup> No requests for NSW RFS members to not be present during an interview were made; however, researchers report the offer was received favourably and regarded as evidence of the seriousness with which the research was being conducted.

<sup>11</sup> Included in Appendix 1.

<sup>12</sup> As this was not a quantitative study, details of properties where there was no one at home or where a resident declined to be interviewed were not recorded.

<sup>13</sup> For these reasons, any future similar research by the Bushfire CRC will be conducted during weekdays.

- awareness of official and informal warnings generally and immediately prior to and during the fire;
- their responses to the warnings and their perceived usefulness.

Additionally, respondents were asked about their individual experiences of the fire event and their opinions about the impact of the fire on their property. Interviewers were encouraged to vary the interview protocol topic order if necessary to enable respondents to 'tell their story'.

### *Data Entry and Analysis*

At the end of each interviewing day, each team reviewed their ICS to ensure completeness. Interview teams also identified those residents whose accounts provided particularly interesting responses (typical or atypical, good or poor understandings). All field interviews were used in the analysis but these specific interviews were flagged for particular attention and were those that the authors chose to listen to or have transcribed.

At the end of each interview day, ICS recording sheets were collected and information entered by a Bushfire CRC administrative assistant into ISurvey® software using the iPad®. Frequency charts were produced for each of the key questions and themes. An Excel data set (de-identified) is provided as part of the completion of this research project, enabling future, more detailed analysis as required<sup>14</sup>.

Thirty-one of the 238 interviews were transcribed by Digital Transcripts, a Melbourne-based transcription service; these comprised 13% of the interviews. A further 115 interviews were listened to by the third author and pertinent comments transcribed. Using the NSW RFS research brief and aims of the data collection as a guide, themes and issues as well as specific matters relevant to each community were identified and categorised.

The analysis was iterative, in that themes that were dominant in the ICS were then checked in the recorded and transcribed interviews. Similarly, the responses from the on-line panel survey were reviewed to illuminate themes and sub-themes in the ICS. In this way, a picture developed as the analysis moved back and forwards among the three data sets.

As the survey method encouraged respondents to tell their story in response to prompts from the interviewer, there were some items included in the ICS that the respondents may not have provided commentary on. This is commonly known as the 'missing values' problem and, in line with reporting in studies such as this, these non-responses have not been counted in the analysis. The exception to this approach is where there were very few responses provided to a particular prompt; the main area in which this occurred was with respect to the quality of warnings. This is specifically noted in the text.

The sample size across the three community surveys was sufficient for most statistical analysis purposes. However, it should be noted this is an opportunistic rather than representative sample and results should be validated against other knowledge before they are generalised to the communities and beyond.

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<sup>14</sup> It should be noted there were minor variations in the ICS, and hence the data collated, for each of the study area as the preliminary analysis revealed the value of clarification or additional information. The impact of these differences has been minimal but many be seen in the different treatment of the category of 'other' or 'missing values' for some data items.

## Ethics

This research project was approved by the La Trobe University Human Ethics Committee (reference LTU UHEC 13/008). Owing to the nature of the research task and the desire to interview respondents in a timely manner, a request was made to the Chair of the Committee for out-of-session approval. This was granted within 48 hours of the request being made based on the importance of the work and the public good done by the Bushfire CRC in similar interview-based post-bushfire field research studies.<sup>15 16</sup>

The following sections present primarily numerical information provided by the interviewees, augmented where appropriate by extracts from the transcripts and interviews. The number and letter at the end of each extract is the code identifier for the interview (*C*, Coonabarabran; *Y*, Yass; *S*, Shoalhaven).<sup>17</sup>

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<sup>15</sup> On this occasion, it was specifically noted that such work has previously been conducted for fire agencies in South Australia (2006), Victoria (2009), Western Australia (2011) and Tasmania (2013). In each instance, a university human research ethics committee has approved the study. Some 1,300 bushfire-affected respondents have been interviewed and there have been no complaints or reports of adverse incidents. Such approvals are unusual and not given lightly and future exercises should establish a process through which ethics approval can be sought in a less time-constrained manner.

<sup>16</sup> Two weeks (14 days) is generally thought to be the minimum time for such requests. A standard ethics approval process can take 6–12 weeks or longer.

<sup>17</sup> For example [*C:14*]: '*C*' denotes Coonabarabran and '*14*' denotes the number of the interview.

## RESULTS

### *Respondent Demographics*

Two hundred and thirty-eight interviews were conducted with 320 people interviewed, representing 163 men and 156 women and 238 households – 76 interviews involved two participants, and five interviews involved three or more participants (Table 1).

**Table 1 Interviewee demographics**

Area	Responses	Percentage interviews (n = 238)
Coonabarabran	83	35%
Yass	75	31%
Shoalhaven	80	34%
	<b>238</b>	<b>100%</b>

Gender	Responses	Percentage interviews (n = 238)
Male	86	36%
Female	72	30%
Multiple persons interviewed together	80	34%
	<b>238</b>	<b>100%</b>

Age	Interviewees	Percentage interviewees (n = 320)
18–40 years	42	13%
41–50 years	66	21%
51–60 years	68	21%
61–70 years	93	29%
70+ years	51	16%
	<b>320</b>	<b>100%</b>

Property type	Responses	Percentage interviews (n = 238)
Bushland–urban interface home	56	24%
Lifestyle rural	72	30%
Farm or other large rural	98	41%
Other (e.g. commercial property)	12	5%
	<b>238</b>	<b>100%</b>

The section looks at some of the key independent variables – that is, those variables that would not change as a result of the event (fire) that was being investigated. Key independent variables considered were: previous experience with bushfire, involvement with NSW RFS, insurance cover (discussed in a later section), the presence or absence of dependents and pet ownership (Table 2). Each of these has been previously identified as having an influence on responses to bushfire warnings. Other independent variables explored included perceptions of the community and of bushfire risk.

**Table 2 Key demographic variables**

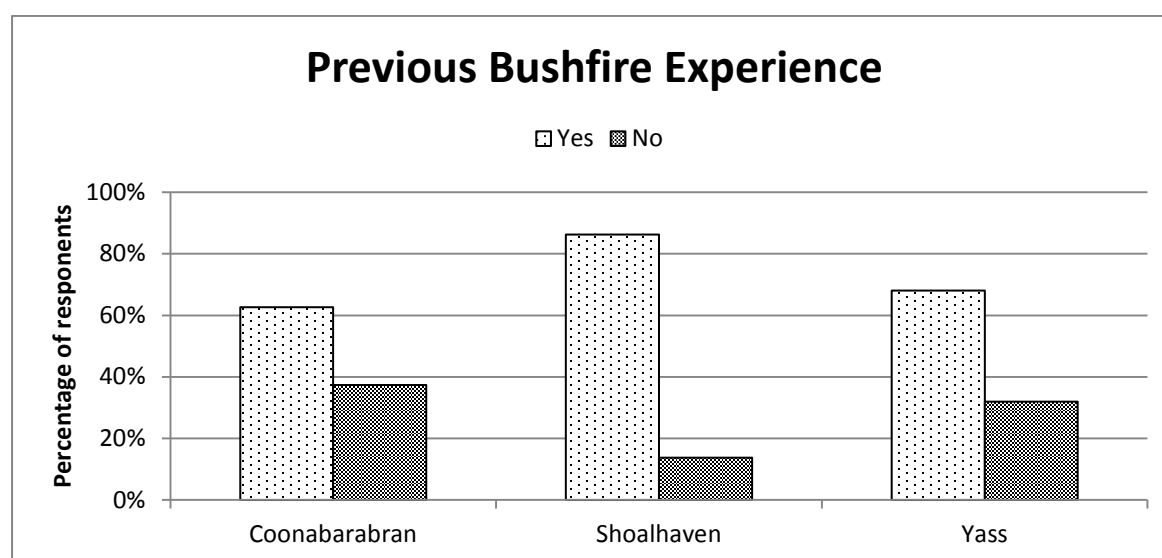
Key demographic variables	Responses	Percentage interviews (n = 238)
Members of RFS or strong familiar relationship with RFS	89	37%
Previous experience with bushfire	165	69%
Households with dependents	87	37%
Households with no dependents	151	63%
Households with pets	165	69%

### Experience with Previous Bushfires

The majority (69%) of the community respondents had some experience with past bushfires, which may or may not have been in the study area. In Shoalhaven, 79% cited the 2001 fires, and in Yass, the 2003 Canberra fire had been experienced by 60% of those interviewed (Figure 5). A similar proportion of interviewees in Coonabarabran had experienced a bushfire of some kind. However, this was not from one single major fire event. Previous fire experience reportedly influenced what individuals decided to do, for example:

*I mean, I've seen what fires can do... So if in doubt we go, because I've seen too many of them and I can see what they can do, and how fast they can come. [S:07]*

*I was told by people who had grown up on this property who are now in their 80s there had never ever been a fire here and we thought that was pretty good. I now think I should have realised that we were due for a 100-year fire. [C:23]*



**Figure 5 Previous bushfire experience**

### NSW RFS Affiliation

Many respondents (37%) indicated they were involved in some way with the NSW RFS, either as a current or past member or through a family association; the Yass study area had the highest involvement, with half of all people interviewed having some NSW RFS involvement (Figure 6). One explanation of this high level of NSW RFS affiliation could be that the Task Force interviewed a disproportionate number (relative to the general NSW population) of rural landowners, who were

more likely to have NSW RFS association. In contrast, approximately three-quarters of respondents from the Shoalhaven area (77%) had no involvement with the NSW RFS.

These differences may reflect the differences between the communities: in Yass, it was typical to find families that had been ‘on the land’ for generations (and reported being very connected to their community), whereas in Shoalhaven, many people were relatively new to the area.

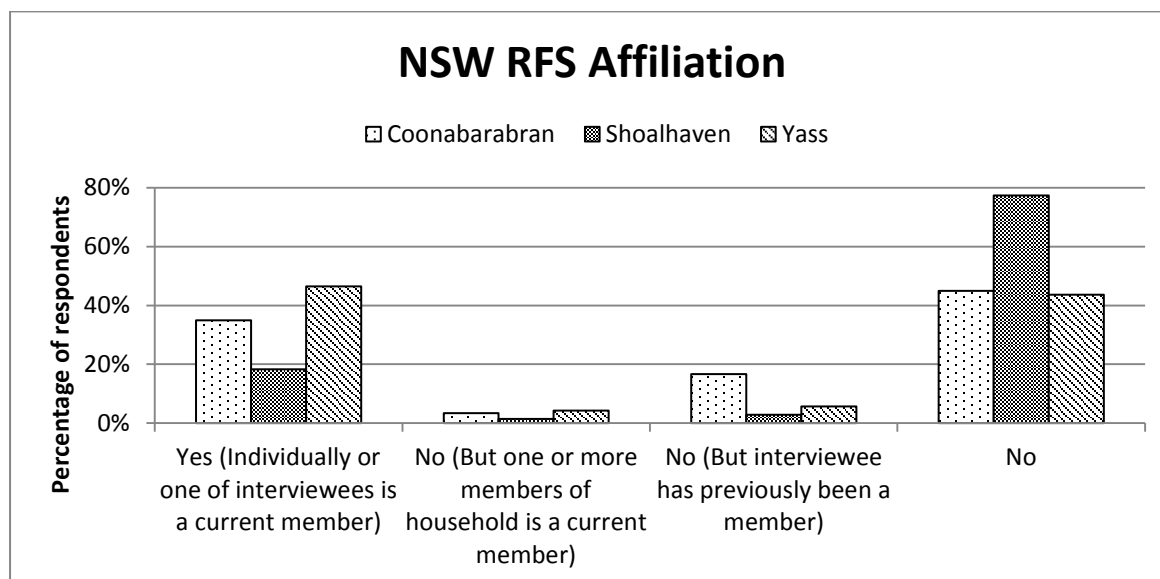


Figure 6 NSW RFS affiliation by study area

### Responsibility for Dependents

Approximately one-third of respondents had dependents (37%) (Table 3). Of these, the majority were children, equally divided between those under 12 and over 13. Very few indicated they had responsibility for disabled or elderly persons; however, it should be noted that 16% of respondents were themselves over 70 years old. The presence of children influenced individuals’ plans. For example:

*We’ve got three small children, our plan is to get up and go. [C:03]*

Table 3 Responsibility for dependents

Dependents	Responses	Percentage interviews (n = 238)
Multiple children over/under 12 years old	12	5.0%
Disabled/elderly	12	5.0%
None	151	63.4%
13 years old and over	30	12.6%
Under 12 years old	32	13.4%
Yes but not specified	1	0.4%
	<b>238</b>	<b>100%</b>

## Responsibility for Pets and other Animals

Over two-thirds (69%) of the interviewees owned pets or animals (Figure 7). This is important to note as recent research following Hurricane Katrina shows that decision-making is influenced by inclusion of pets in survival strategies and the availability of accommodation for pets in official evacuation plans.<sup>18</sup> It is interesting to note from the interviews that in the more rural areas, the concept of 'pets' extended beyond the commonly identified dogs, cats and goldfish; indeed, for some, the dogs were considered working animals while a small lamb or a goat kept close to the home was considered a pet. In the same vein, for some households, the working horses were included in evacuation plans with no distinction made by the householder between these farm animals and family pets.

Many respondents talked about the plans they had made for their pets or animals in the event of a fire and the problems they experienced on this occasion:

*Animals are a big issue, a lot of the older folks have got animals and they have nowhere to take them. Naturally, they wouldn't let them inside the clubs so they were outside the clubs with their animals, in shocking heat trying to keep them cool. [S:01]*

*Nobody could really tell me what to do with the chooks, even the vets didn't know what to do with the chooks. [Y:02]*

*He said if we had nowhere we could use one of his units because there was no-one in it. So we were actually very lucky but we just had this problem with the dogs. Dogs might not be important to everybody but they were to me, I couldn't have lived with them just being left in the night. [C:23]*

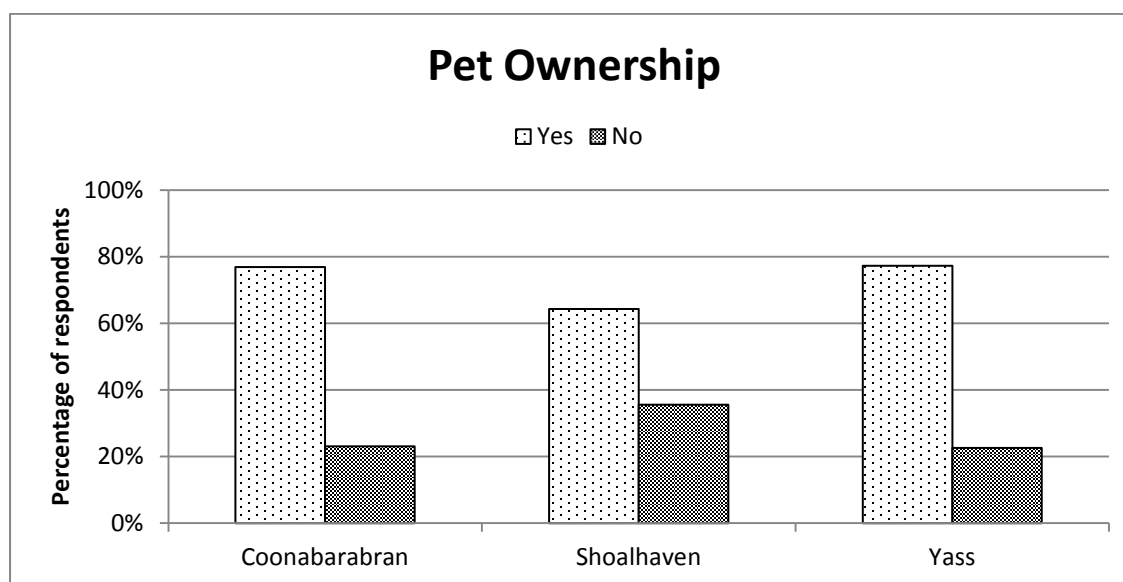


Figure 7 Pet ownership

<sup>18</sup> Available at Fritz Institute (2006). *Hurricane Katrina: Perceptions of the Affected*, from [http://www.fritzinstitute.org/PDFs/findings/HurricaneKatrina\\_Perceptions.pdf](http://www.fritzinstitute.org/PDFs/findings/HurricaneKatrina_Perceptions.pdf)

## Sense of Community

Almost all respondents (94%) felt connected to their community or at least knew their neighbours (Figure 8). Only 6% felt there was not much interaction between people and most of these also indicated that there was some form of positive engagement (i.e. they also said people helped each other or knew their neighbours).

*I know a lot of the town, and everybody just seems to care about each other. That was one of the reasons we chose to live here. [C:15]*

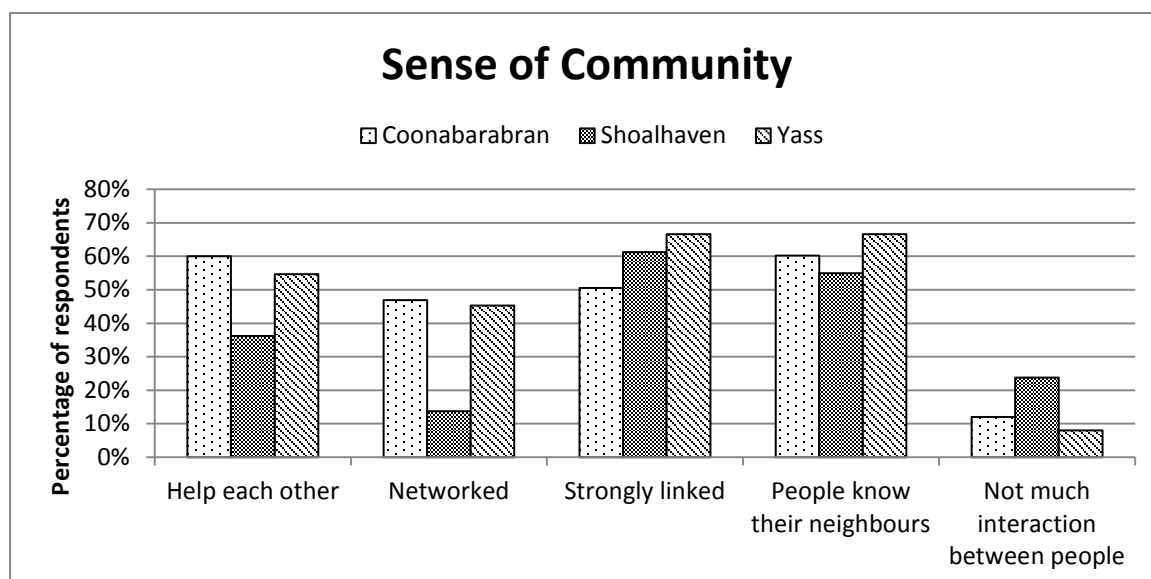
*Friendly, nosey, which is fine, country people are ... willing to help. [S:02]*

Across the three study areas, 60% of respondents described their community as 'strongly linked', ranging from 51% in Coonabarabran to 67% in Yass. While 61% of Shoalhaven respondents described their community as 'strongly linked', fewer (36%) of the respondents in this study area said they 'helped' each other or were 'networked' (14%). Analysis showed that this was not a significant independent variable with respect to the experience of the fire event (i.e. where they went for information and whether they felt they were well prepared).

The awareness of community support during the fire was mentioned by many:

*Two blokes arrived, we'd never seen them before in our lives, arrived to help... They actually owned a block next door, and they said, "How can we help?" [C:01]*

*When something like this happens, they're incredibly supportive. I had an unbelievable amount of offers of a place to go to. I had friends that would come out. They'd come out and help. [C:12]*



**Figure 8 Sense of community by study area**

Note: multiple responses were permitted



## Insurance

Insurance, or lack of insurance, has been perceived to be an important influence in emergency situations.<sup>19</sup> The majority of interview respondents (73%) reported that they were fully insured, with Shoalhaven respondents being the most insured (88%) (Figure 9). Coonabarabran respondents were the least likely to be fully insured (64%).

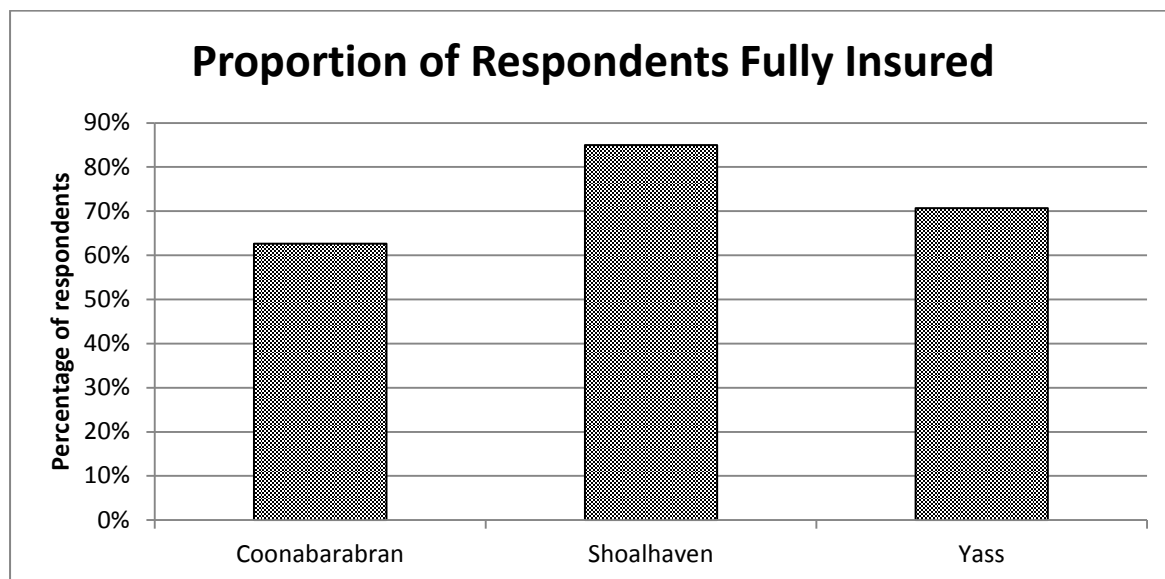


Figure 9 Proportion of respondents fully insured

Respondents who were fully insured were the least likely (23%) to stay and defend their homes; in contrast, 38% of uninsured and 45% of under-insured respondents indicated they would adopt this approach (Table 4). Fully insured respondents were also the most likely (38%) to have some or all of the family leave early.

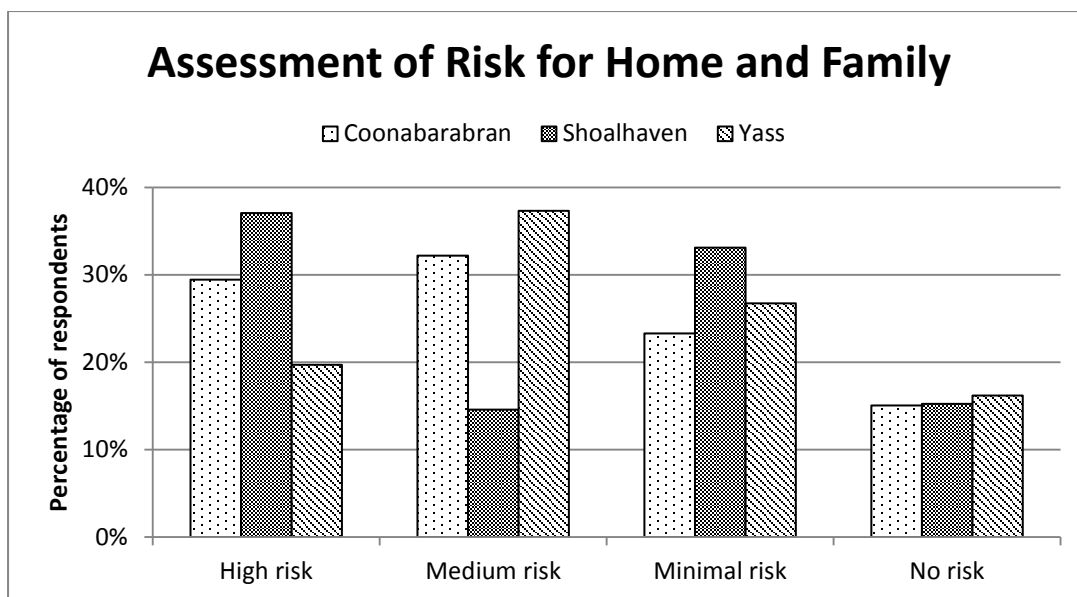
Table 4 Initial intentions by level of insurance

	Stay and Defend	Wait and See	Some leave early	Whole family leaves early	No concrete plan	Total
Fully insured	23%	30%	15%	23%	9%	100%
Under-insured	45%	25%	10%	20%	0%	100%
Have no insurance	38%	31%	0%	31%	0%	100%
	<b>27%</b>	<b>29%</b>	<b>13%</b>	<b>23%</b>	<b>8%</b>	<b>100%</b>

## Risk Perception

Most (52%) respondents thought that their home, property and family were at high or medium risk from bushfires. Overall, only 15% felt their home and family were at no risk (Figure 10, Figure 11).

<sup>19</sup> Carter, Rachel. *Economic Management of Disaster Resilience and Recovery: Remedying the Insurance Problem* available at <http://www.bushfirecrc.com/publications/citation/bf-2786>

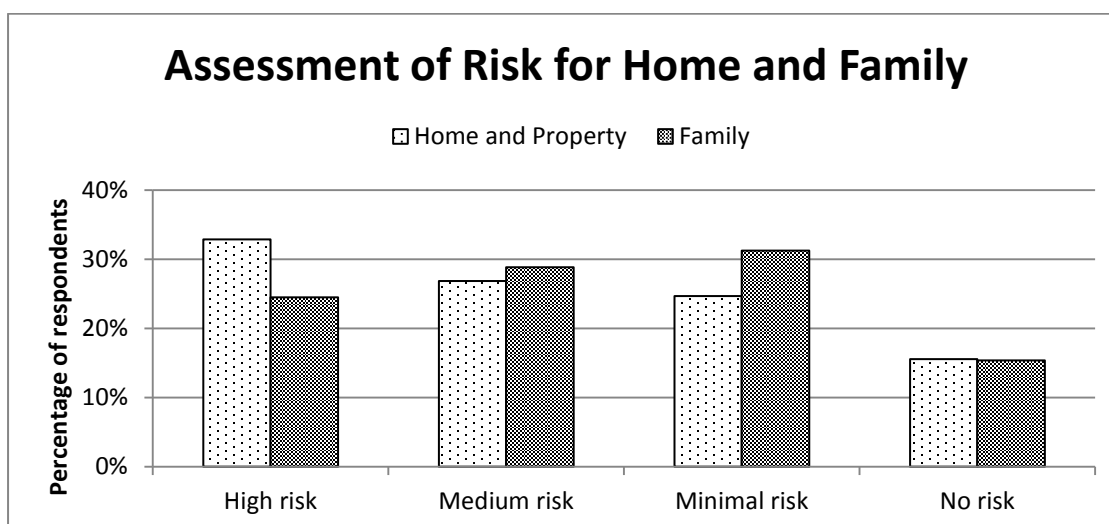


**Figure 10 Assessment of risk for home and family by area**

*Well, we figured we were at risk from bushfires coming because of the bush all around us and the national park just being up there is never a good thing. But I guess we'd kind of thought that we'd know about it. [C:12]*

*What I'm saying is we came down here with our eyes wide open... We were aware that things can go wrong when you get in the bush. And because there's one road in, one road out, yes, we can be very isolated. [S:03]*

Respondents were more likely to think that their home and property were at high risk from bushfires than their family was. This may be the result of a large proportion of the homes visited being in or near the fire scar.



**Figure 11 Assessment of risk for home and family: total across all areas**

## Bushfire Preparation

The following section looks at various aspects of bushfire preparation, including whether respondents had a household bushfire plan, their general preparation and preparation immediately prior to the fire.

### Household Bushfire Survival Plans

While only 28% of respondents reported receiving a copy of the NSW RFS Bushfire Survival Plan kit or document (Figure 12), most (68%) of the respondents of the three communities said that they had formulated a plan for what to do during a fire (Figure 13) and 8% had rehearsed it. However, almost none (9%) had written it down. This is despite over half mentioning a written bushfire plan as an aspect of bushfire preparation.

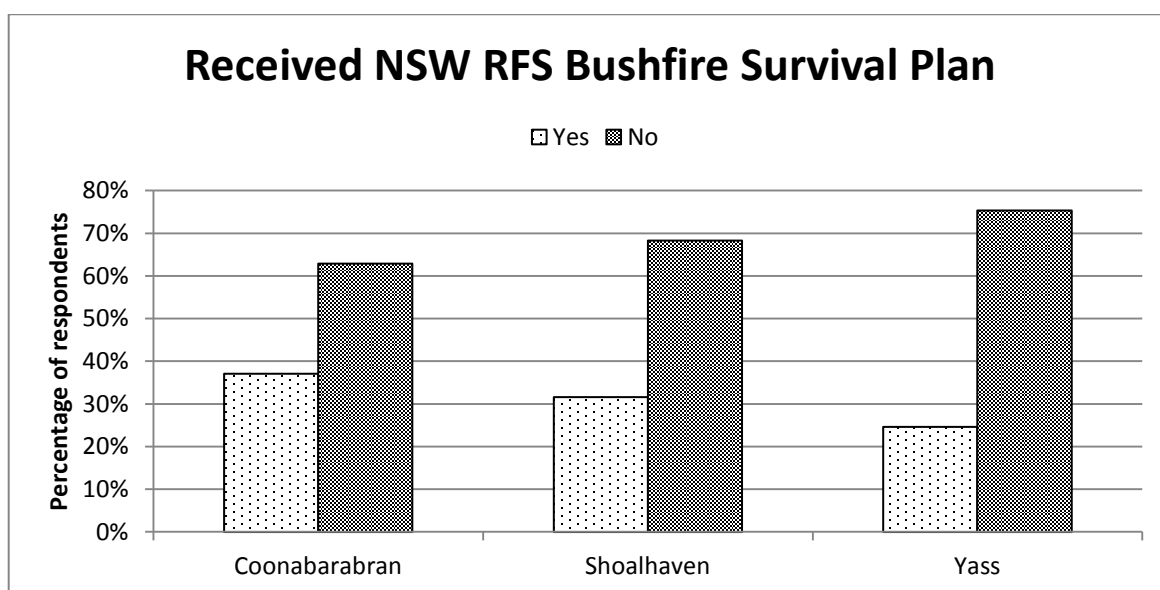


Figure 12 Respondents reporting received NSW RFS Bushfire Survival Plan by study area

The following describes some of the comments made with respect to the NSW RFS Bushfire Survival Plan document:

*Don't remember getting a Bushfire Survival Plan – I would've stuck that up on the fridge. [S:04].*

*We got the book from the RFS meetings – they gave us the Fire Plan, whatever it's called – Emergency Plan, and I put the box together after I got that – it's a really useful thing and it has a list of things at the last minute. [C:05]*

*I said to her, "Oh, they're talking on the telly about some bushfire survival kit." I didn't have a clue what they were talking about because I had never received anything. All I can recall is they were saying stuff about clean your gutters but beyond that I wouldn't have a clue. [Y:05]*

*I don't think I followed exactly the information printout. I just sort of scanned it, and just put into place what we needed to do here really [put up on the fridge]. Oh, I just got the kids together just over there around the bench and yeah, just described what would happen, yeah, if we had to go. [C:19]*

Approximately 20% of respondents said they had a back-up plan and a similar number (17%) said they had a different plan from their partners.

*It was sort of half written down and mostly in my head, because my husband's one of those people who just don't write anything down, whereas I have. [C:12]*

*I'm from the city. I was like, "Let's pack and run", and he was like, "No let's stand and fight" because he's got his sheep and all the rest of it and I'm like, "I don't want to be burnt", and we were sort of in that position there when we got the evacuation warning. [Y:09]*

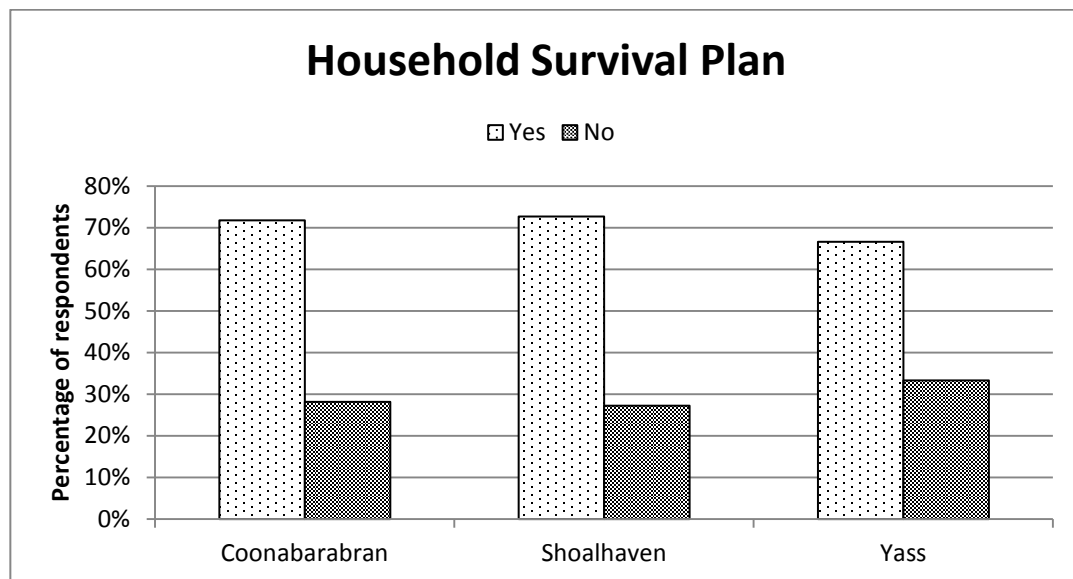


Figure 13 Respondents reporting they have a bushfire survival plan by study area

### Longer-Term Preparation

Respondents reported taking several kinds of actions to prepare for the bushfire season (Figure 14). For most, these activities included clearing space or vegetation around their house and making sure they had clear gutters.

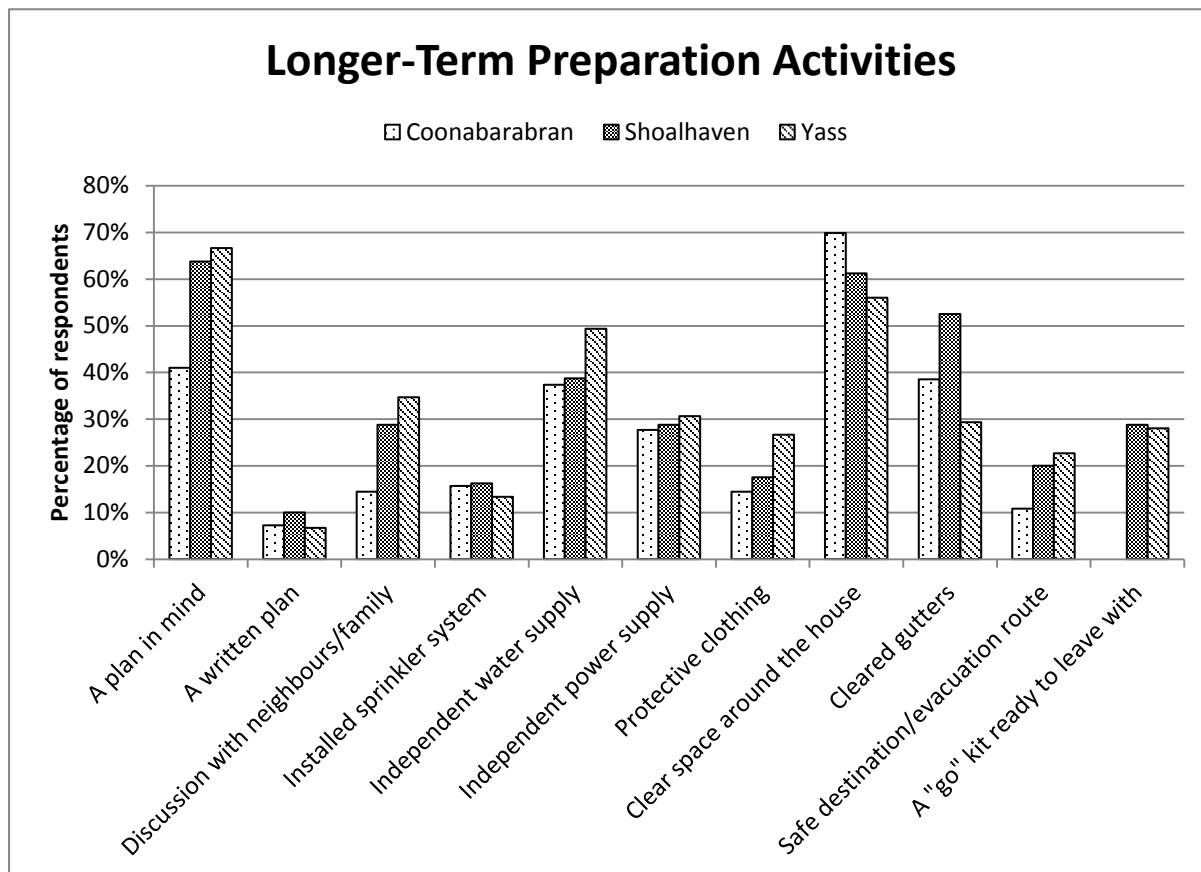
Some described very detailed preparation:

*In the back of your mind, you're thinking what can I do to make the house safer? So the other thing I've gone and done here that probably should have been done years ago, was I had circuit breakers and a Clipsal Safety Switch put in the electricity box. [Y:02]*

For some respondents, preparation was a communal activity:

*We had a meeting with the neighbours to decide what was going to happen if there was a fire out here so everyone could be informed. We went and did an inspection of all the properties so we know where all the hoses and tanks and pumps and all that sort of stuff are, so we were pretty much prepared that way. [Y:03]*

The reason for carrying out bushfire preparations stated most often was 'previous experience with bushfires'. This was followed in frequency by 'common sense' and 'living near grass and bushland'.



**Figure 14 Longer-term preparation activities**

Note: multiple responses were permitted

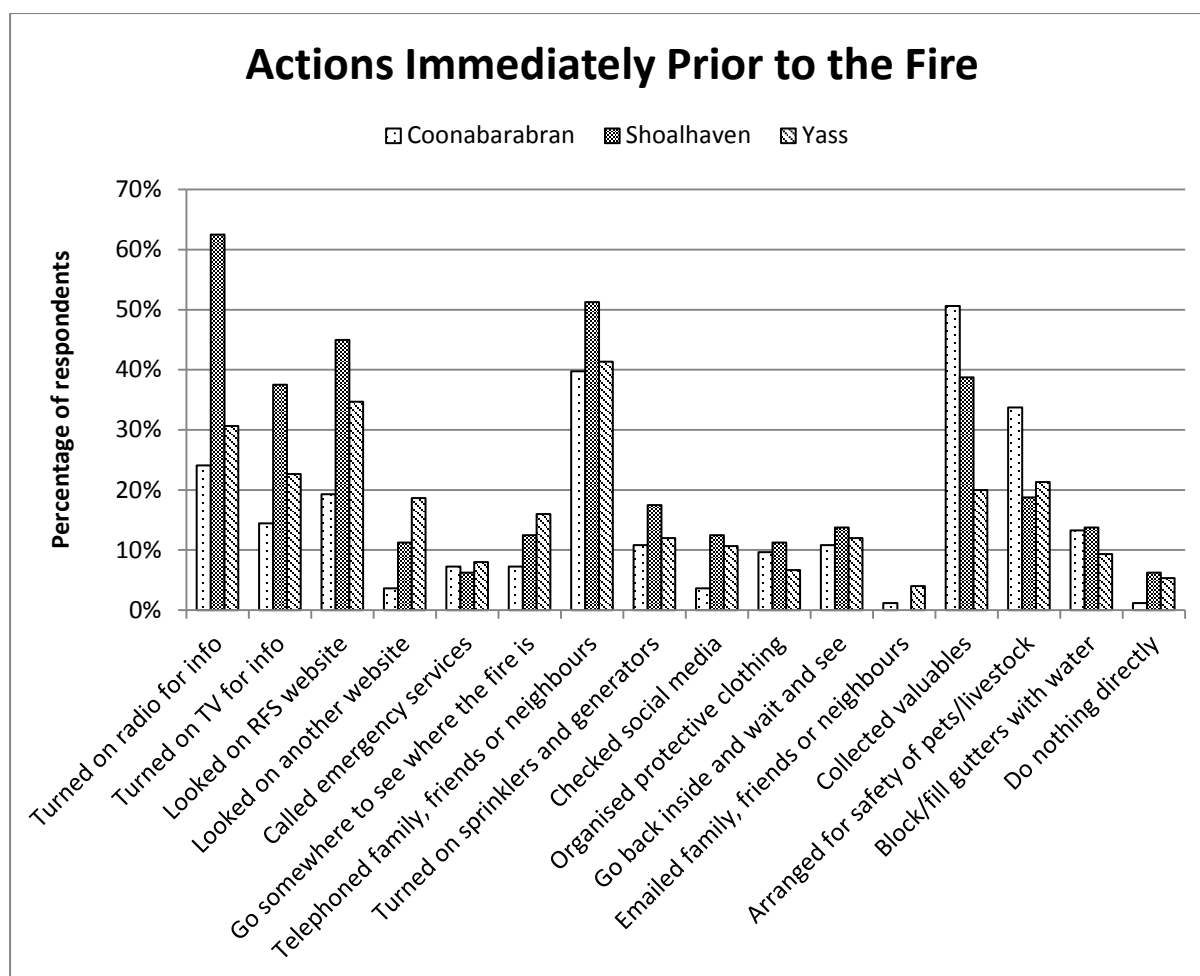
## Preparations Immediately Prior to the Fire

Once the respondents became aware there was a bushfire threat, they undertook a variety of preparatory actions; turning on the radio, telephoning friends and relatives, and going to the NSW RFS website for more information were the most common actions (Figure 15). Other respondents reported undertaking a diverse range of preparatory activities. A selection of accounts follows.

*I'm sleeping in the house with the sensor on the outside of the window; normally you have them on the inside, but this time I thought, "Well, I don't care about smoke on the inside, I want to know about smoke on the outside". [C:16]*

*In the car, I always keep a pair of joggers and socks ready because I've been in the car before when it's broken down and I've had to walk. So I had all that stuff prepared, hats, all the protective clothing, we'd done that, put our boots on... [C:22]*

*...on the day of the fire, I had a bad feeling all day, so much so that I even rang me insurance company to try to get onto them because they hadn't properly renewed me insurance for me at that point. [Y:10]*



**Figure 15 Actions immediately prior to the fire**

Note: multiple responses were permitted

## Influences on Preparation

Respondents described a diverse range of factors that influenced their preparation (Figure 16). Many accounts described a mix of media bushfire messages and prompts from family members.

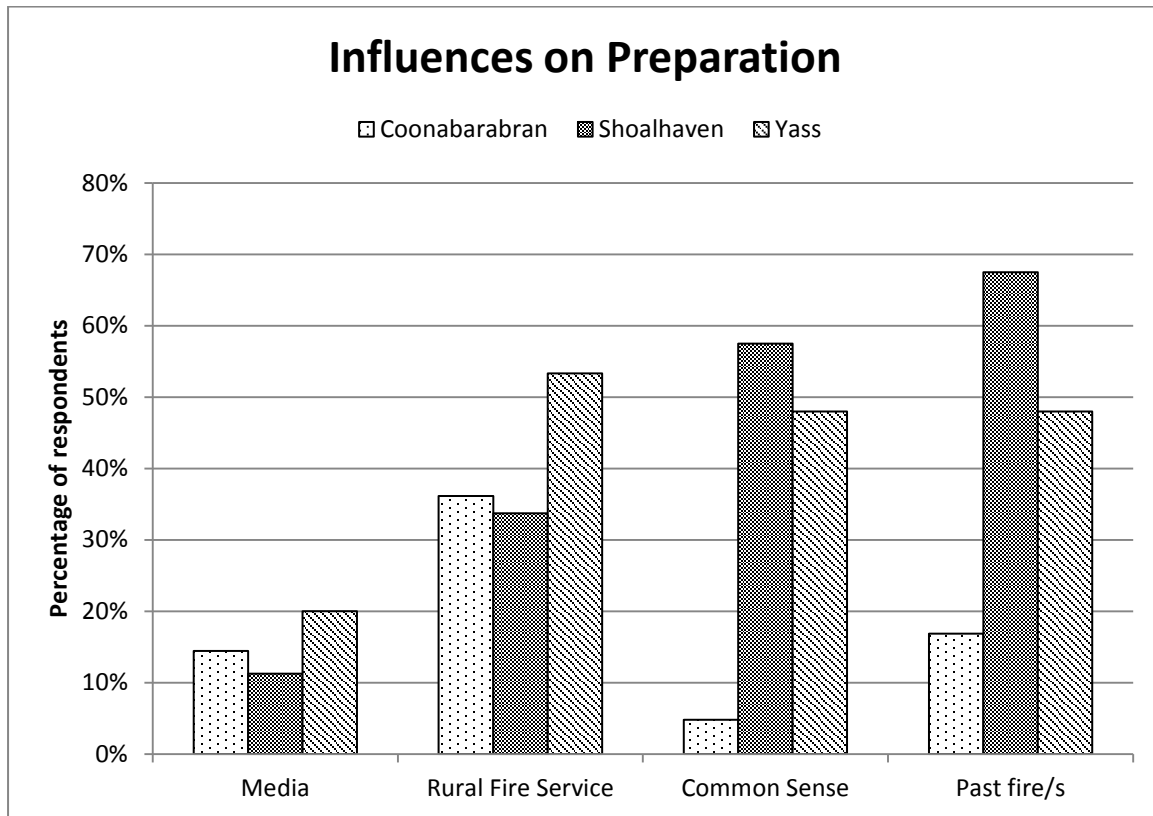
*The week before the fire, the TV was peppered with messages like, ‘Have you got your fire plan?’. And the kids actually talked about it at their primary school and they said to me “What’s our fire plan, Dad?” [C:18]*

For each community, there were different influences upon preparation. For Yass respondents, more than half reported NSW RFS were influential in respondents preparing for the upcoming fire season; however, only one-third of Coonabarabran and Shoalhaven respondents indicated this influence.

At Shoalhaven, bushfires in the recent past and experience of these were an impetus for over a third of respondents to prepare. This is in contrast with Coonabarabran and Yass, where residents mentioned few or no recent bushfire events and preparation activities were attributed to other influences, such as watching the weather forecast, or ‘common sense’.

*It’s just an inherent thing that we do every year and it was handed down from our parents and observation of other people in our district and it’s just a lifetime thing*

*that we do... there was a couple of pamphlets and things that came around. There was a little bit on the TV but it was basically the same things that we do. [Y:12]*

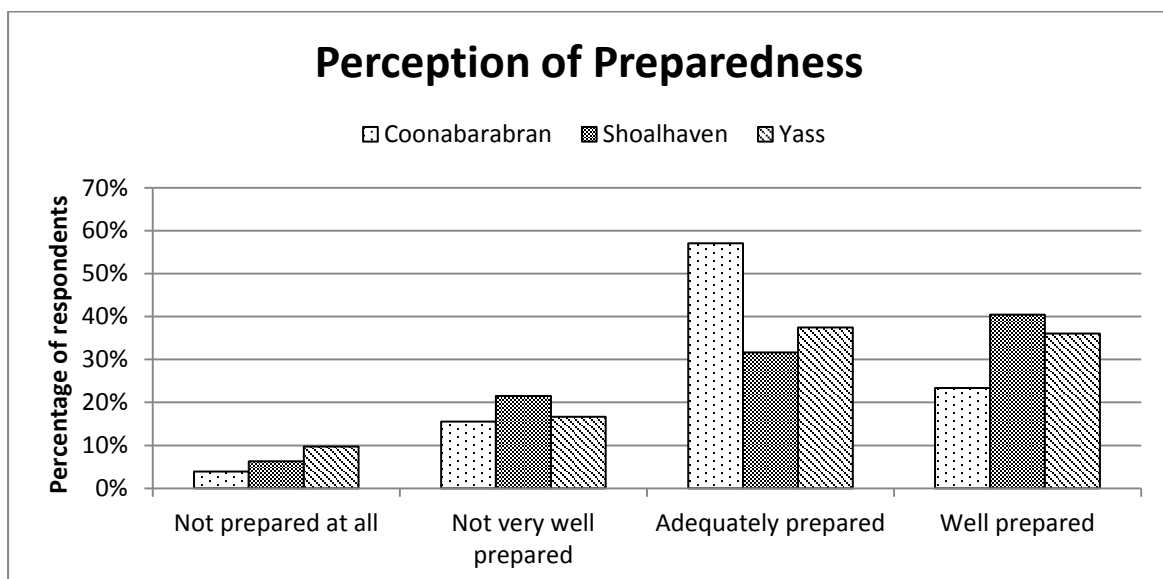


**Figure 16 Influences on preparation**

Note: multiple responses were permitted

### Preparation Perception

Respondents felt quite well prepared overall, with three-quarters (75%) of Coonabarabran, Yass and Shoalhaven respondents reporting they were 'well' or 'adequately' prepared (Figure 17).



**Figure 17 Perception of preparedness**

Of those who did not think they were well prepared, nearly two-thirds (64%) said that they had not believed that preparation was necessary, and 29% reported that they had expected NSW RFS to tell them personally what they need do to be prepared for a future bushfire.

*Yes, we were safe. I considered it – I had done a risk assessment on it and I considered that we were safe. We haven't got any trees other than that one there that was going to cause us any great damage. [Y:08]*

## Recall and Understanding of Bushfire Information

This section summarises respondents' recall of general warnings and official bushfire information including the NSW RFS Bushfire Survival Plan.

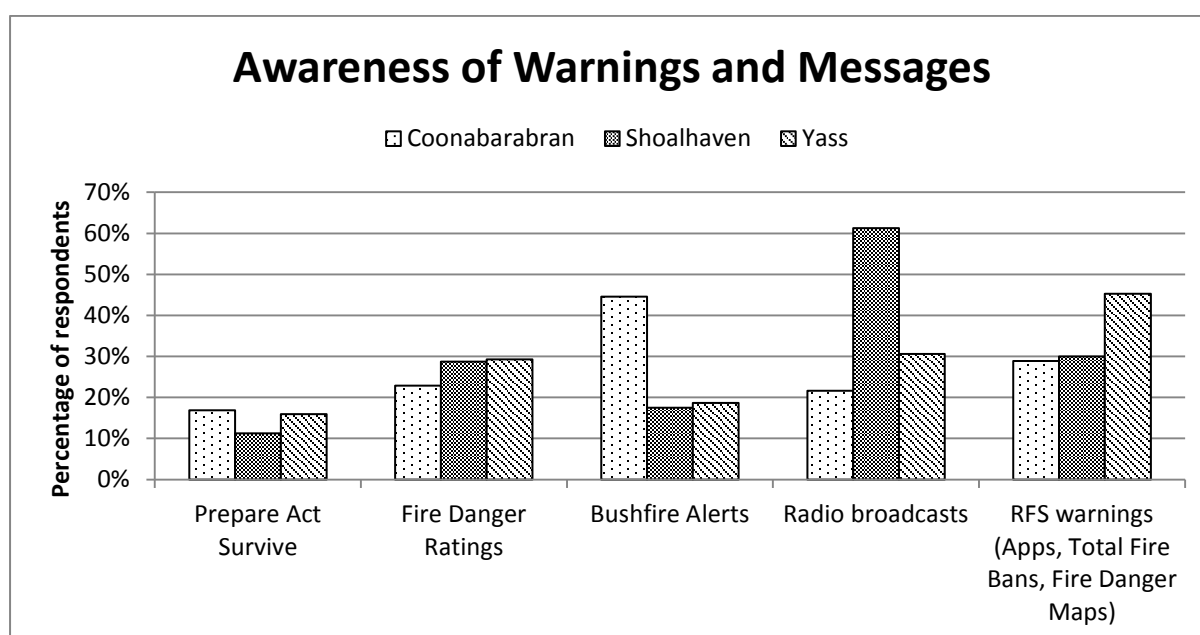
### Knowledge of Warnings and Messages

Most respondents (93%) showed some knowledge of official bushfire warnings or messages; however, across the communities, the specifics of their knowledge differed.

*There's been plenty of advertisements I think on the radio on preparing, having a fire plan. There's been a television series with that car burning and the houses burning down and yeah, it's time to get a fire plan. [Y:13]*

A little more than half of the respondents (53%) made reference to bushfire alerts, fire danger ratings and the radio warnings as ways of knowing about a bushfire threat. NSW RFS Fire Danger maps, Total Fire Bans, the Fires Near Me app, roadside billboards and sirens were mentioned by 28% of respondents (Figure 18).

*It was all over the press and there's a big board coming out of Canberra on the Barton Highway and ... I looked at it every day. [Y:01]*



**Figure 18 Awareness of warnings and messages**

Note: multiple responses were permitted



## Sources of Bushfire Information in the Year Prior to the Fire

Interviewees were asked: “In the year prior to the fire, what information or advice do you remember receiving from the NSW RFS?” Most (88%) respondents remembered receiving some NSW RFS information; most commonly, this came from local volunteers, with television the second most reported source (Figure 19).

*We got a New South Wales fire pamphlet that our local fireys came around and gave us all about a year or two years ago. Yeah, so all the information we had got out of that. [C:22]*

*Off the internet and also there's the fire safety booklets that we got delivered around as well, so most of the information was from those. I think they were provided from the Rural Fire Service from memory. [S:06]*

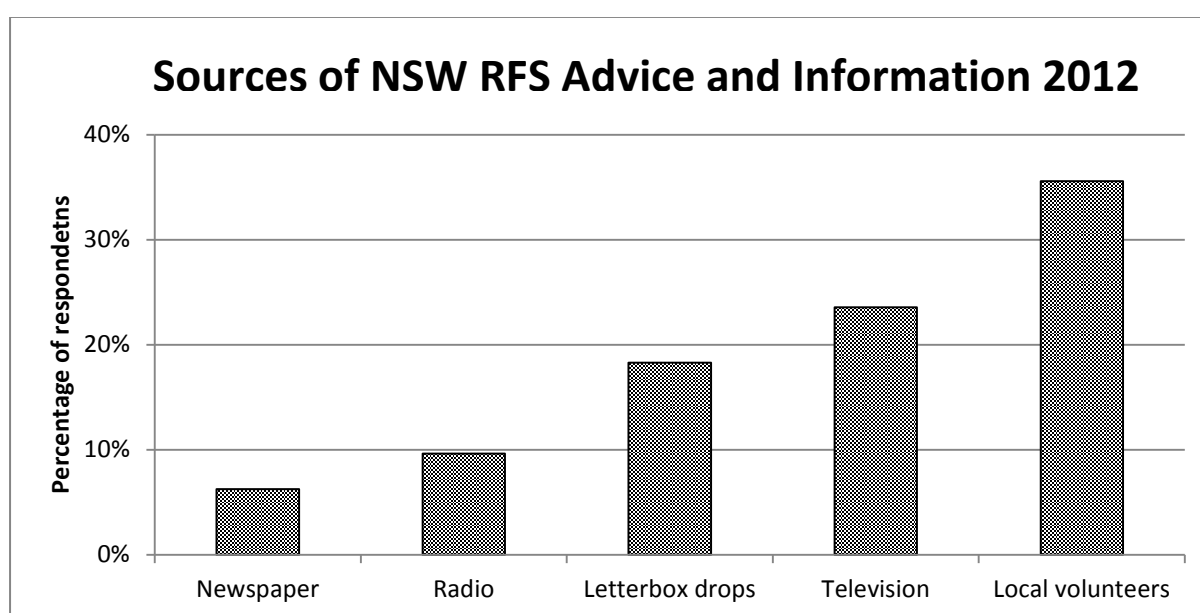


Figure 19 Sources NSW RFS advice and information 2012

## Bushfire Messages and Warnings for this Fire Event

Respondents were asked to describe all bushfire warning messages that they could recall in relation to their fire event. They were asked how useful they found these messages. They were also asked to describe cues that served as a warning.

## Warnings and Warning Messages Immediately Prior to the Fire

The majority of the Shoalhaven and Yass respondents (65%) recalled receiving some official bushfire warning message immediately prior to the fire. In Coonabarabran, less than half of respondents (49%) recalled receiving an official warning of any kind (Figure 20).<sup>20</sup>

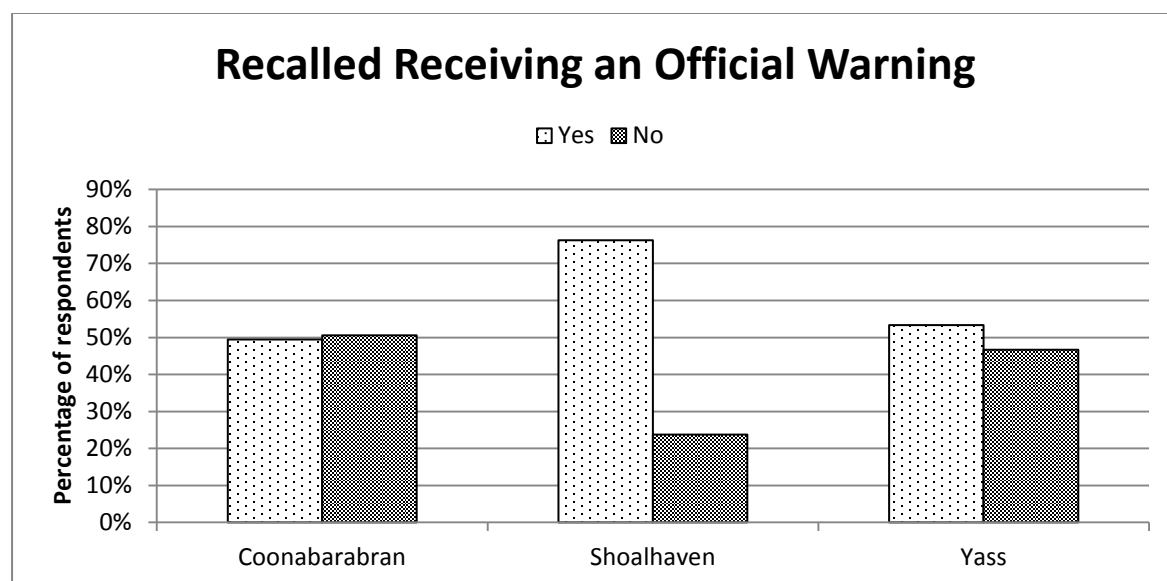
<sup>20</sup> Official warnings included those delivered via television, radio, the internet, email, SMS and landline phone calls along with warnings received via the RFS website and Fires Near Me app; personal warnings from emergency services were considered ‘official warnings’ or ‘warning messages’.

*We did not get any message, not on the landline, nothing. It was just intuition that we went into town. We never received anything via mobile and nothing on the landline. [C:07]*

Then:

*Police came running in and said, "Come on, mate, you've got to go. Is there anyone else in the house?" "Yes, the wife", "Come on, love, you've got to go." Until the police turned up, we had no sense of the urgency. [C:07]*

*It didn't go to 'Watch and Act' at any time up until when we got the warning – if it had gone to 'Watch and Act' then, we would have done a lot more preparation, and we would have been a lot more prepared. [C:12]*



**Figure 20 Respondents who recalled receiving an official warning by study area**

The reasons that respondents gave for not receiving a warning are varied: in Coonabarabran and Yass, almost all respondents who lived on rural properties commented on pre-existing poor mobile phone reception. There was also a perception that if the Emergency Alert telephone warning system called their landline and they were not home, the system would not leave a message on an answering service.

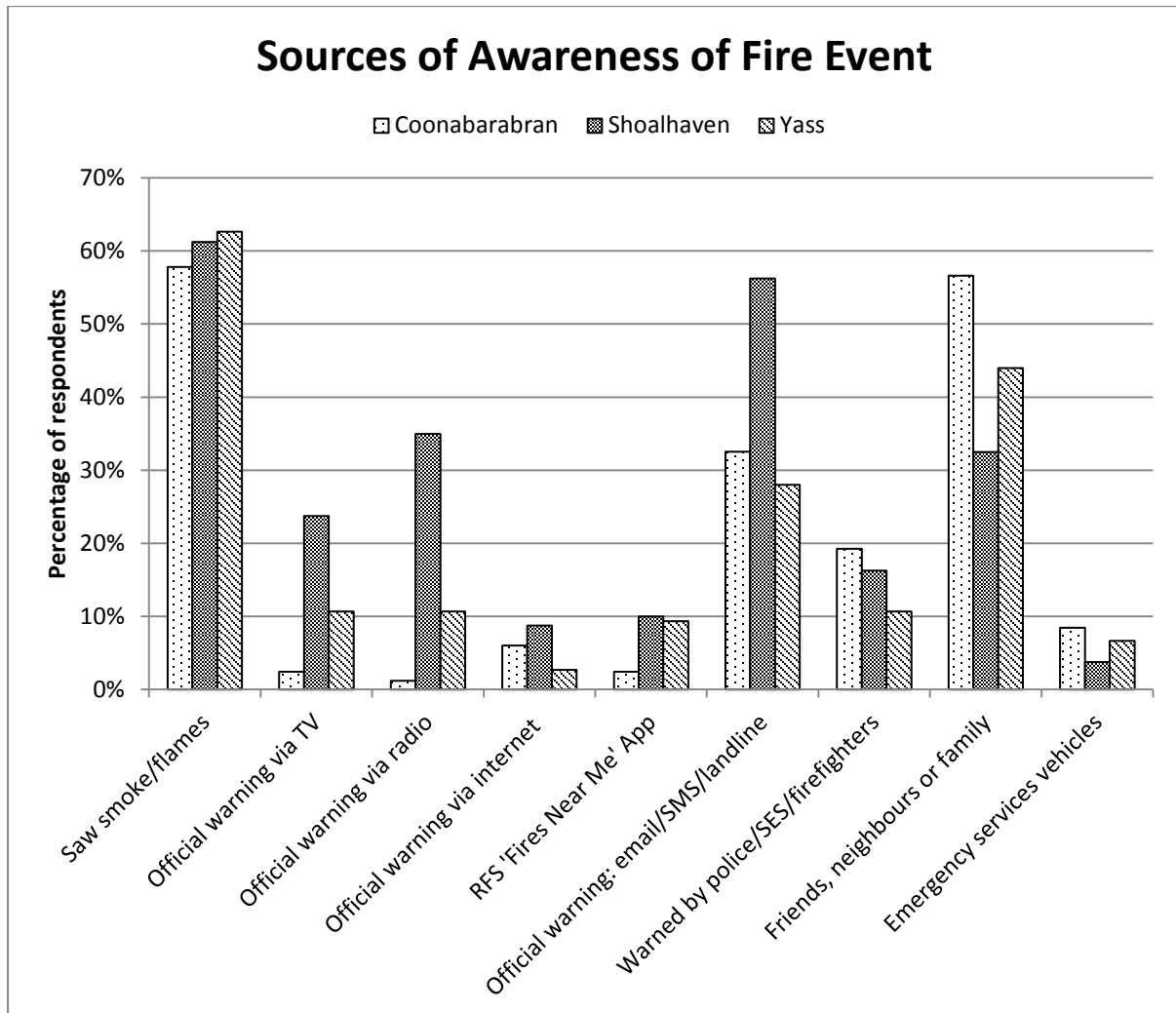
*It's really difficult here because of the phone system – the early warning system was brilliant in town, but as soon as you come out to these areas, it's useless, there's no communication... Dare I say it, Telstra needs to put a couple more towers here and there... This really is a black hole. [C:04]*

Consistently across the three regions, 13% of respondents expected to be warned personally by an emergency service agency of imminent bushfire threat.

### Other Warnings or Cues That There was Fire

Seeing smoke (61%) and calls from family and friends (45%) were the ways most respondents knew that a fire threatened (Figure 21).

*And it was only when I saw the visitor centre burn down and noticed that the cloud was... and the smoke is rising to better than 10,000 feet... I just called up my wife and said, "Get the hell out of it. Pack the dogs, cats and everything else! Leave", and that was the end of that, so she got out early. [C:16]*



**Figure 21 Sources of awareness of fire event**

Note: multiple responses were permitted

Respondents' social networks played a role in helping many find out about the fire: calls from friends and family constituted 30% of informal warnings for Coonabarabran respondents.

*And a neighbour way down there came up very agitated, because she'd lived through the 10-year-ago fire and she was going. She said, "You've got to get out, you've got to get out!" So at that point we were preparing to leave if we needed to, but we weren't going to get out before. [S:02]*

In Yass, 20% of respondents reported finding out about the fire from neighbours and family, while in Shoalhaven, this figure was 12%. This perhaps reflects how networked the communities reported being: it was noted previously that Shoalhaven appeared to be the least networked of the three.

## Preferred Method of Warning

Being warned by SMS or landline message was the first preference of 65% of respondents. The personal approach to being warned was seen as being very effective where possible, with 29% nominating this as their preferred approach (Figure 22). Radio or television was identified as the preferred approach by 5% of respondents.

*The way they were doing it [SMS] was good, I think. I think they did great. I think it's a great idea. You've got telephone and mobile phone. If your phones are down, you're getting the mobile phone warning. [Y:09]*

*I do think that older people probably need a different type of way of notifying them, like, maybe a group of people going around and saying, "Look, there is a problem. Maybe you ought to start getting ready" or "Do you need help?", or something like that, to get ready.[C:14]*

While not a prevailing view, one respondent indicated a desire for an alternative way of being warned:

*Well, there really needs to be some sort of alarm system, I think. You know, in the old days, you'd ring the church bells when there was something wrong. When there's a really bad thing on the ABC, they put that siren thing on. [C:17]*

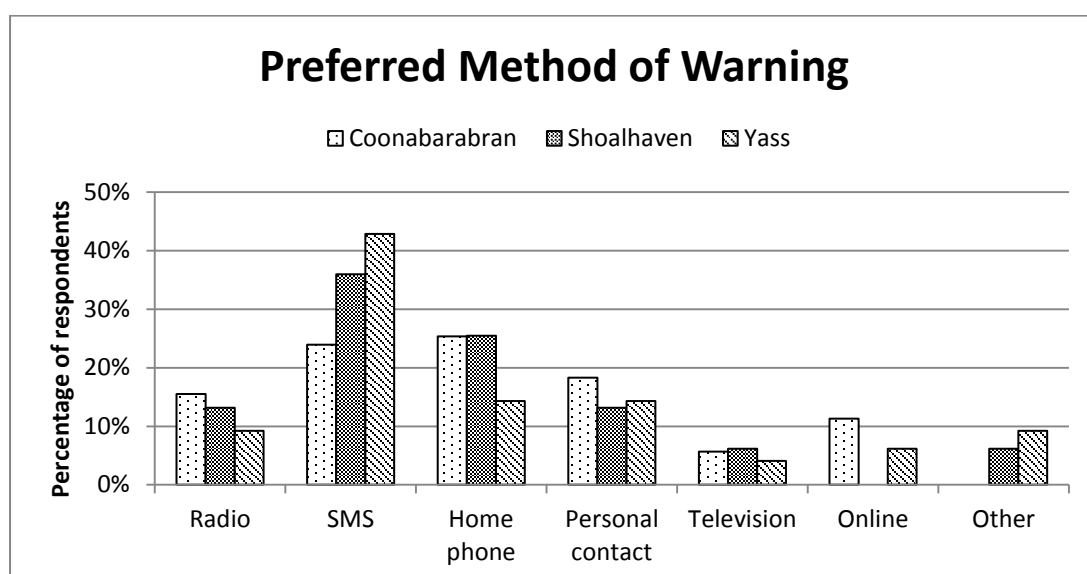


Figure 22 Preferred method of warning (combined first and second choices)

## Usefulness of Warnings

Despite repeated promptings, less than a quarter of respondents elaborated on their views on the clarity and relevance or otherwise of the warnings they recalled.<sup>21</sup>

Where respondents addressed this question, those from Shoalhaven thought the official warnings were sufficient, clear and relevant. The findings were similar for Yass, but in Coonabarabran, over half the respondents (55%) stated that the warnings were not sufficient to help them prepare and make decisions about the approaching fire (Table 5).

<sup>21</sup> This sort of information would appear to be more readily collected through a targeted structured interview.

**Table 5 Respondents rating of usefulness of warnings**

Warning information	Coonabarabran	Shoalhaven	Yass
Sufficient	55%	82%	78%
Clear	48%	76%	76%
Relevant	36%	64%	50%

*I had a text message to the effect that the residents in Baldhill should evacuate, which I thought was a bit strange because .... the message seemed to me to be a little bit irrelevant because there's no respondents there and that message was received by people in Jugiong and on the other side of Jugiong who weren't under any threat at all – it was far too broad and certainly wasn't specific and I would've thought probably alarmed the wrong people. [Y:13]*

*I don't really have a mobile service, it's intermittent out on that road. There's no mobile service out at a friend of ours 10 k out of town, you lose it about 5 k out. [C:01]*

*I have a real issue with the fact that they weren't calling us Warkton Road, they kept referring to it as Tenabar Road but we are Warkton Road and have been since my father-in-law was a child. That is a real issue. [C:13]*

The following comment illustrates another common theme: there continues to exist a level of misunderstanding around the bushfire warnings and the recommended actions associated with them.

*The first message I think I got was on the Monday night to say tomorrow's Catastrophic – something like that. I said, "Oh my God! Have a look at this", and they said, "What do you think about it?" I said, "I don't know, like I guess, I guess it's a high fire danger day." [Y:13]*

## **Experiences and Behaviour**

This section describes respondents' experiences and their actions during the fire event, and how they sought more information about the fire after they became aware of the threat. It explores what they initially did and what their intentions were at that time. It also looks at the actions they took and the things that prompted them to take evacuate (or not) as well as how the evacuation messages were perceived.

### **Information Seeking**

For some respondents, once they received advice or warning, the first course of action was to seek more information.

*I rang RFS headquarters myself, [and he said] "At the moment there is no immediate danger but in – depending on the wind situation, you may be required to leave. So it would be in your own benefit to prepare things that you would really want to take with you." So I thought: thank you. That's the information that I need. So that's what I did. I packed up. [Y:02]*

After becoming aware of a fire threat, respondents described several different methods to obtain more detailed or local information about that threat (in many instances, multiple methods were used) (Figure 23): 46% phoned neighbours, family or friends; 36% turned to their local radio; 36% went to the NSW RFS website and 24% looked to their television. Rather than seeking additional information, a significant number of respondents (25%) cited ‘trusting their gut’ as their way of knowing what to do.

*M\_\_\_\_\_ rang me and she said, “Can you see smoke from your place?” I went outside and had a look. And I rang her back and said, “I can see these plumes of smoke”. Then she rang me back and said it was roaring along the ridge on their hill, so I decided it was time to leave with the kids. [C:07]*

Others sought out local emergency service personnel:

*I switched on the radio, and I heard a reference to the Warrumbungles. I can’t remember what it was but I phoned the RFS and they asked where I was and I said Timor Road, [they said] “There’s already been an evacuation notice given for Timor Road.” So that was it, and we just up and left. [C:21]*

In relation to the Fires Near Me app, 13% of respondents were aware of it but only 3% reported using it during their fire event.

*We had the NSWFS website up all day, we used Twitter – the New South Wales Fire Service Twitter – and I’ve got an app – Listening Post Fire app – on here. [C:12]*

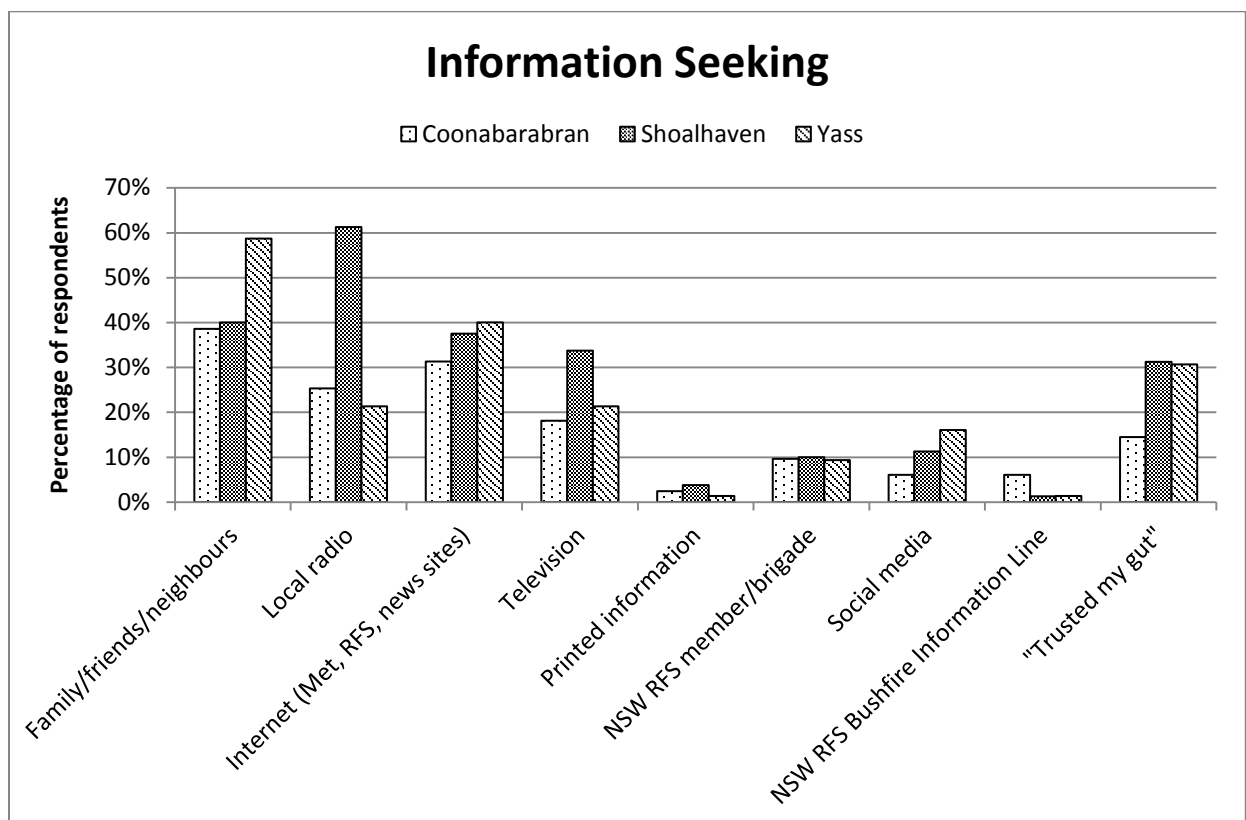


Figure 23 Information seeking

### NSW RFS Website

One third of respondents mentioned the NSW RFS website (33%) and reported accessing it during their fire event. Of these, 62 (82%) said the information they found there was useful to them, and 14 (18%) said that the information was not useful to them.

*... but the RFS website, I found that extremely helpful. I could go to the fire at Yass, whatever it come up under and know that was the fire I needed to look at. That was the information I needed, I didn't need to worry about anything else... and the amount of information that they were putting up and the updates that they were doing on it, I found, was excellent. [Y:02]*

*I was consistently checking the RFS update, the fire warning. There was a few times when we found it was not updated often enough or well enough and not all of the information was accurate. [C:13]*

There was also some concern raised about the stability of the website.

*The RFS website that crashed was the State one, that one just froze and the information that was on there, I think it was 1 o'clock am was the same thing as 3 o'clock pm – and I thought, "There's something wrong" – maybe they were getting too many hits for too many hours but for 5 hours, it just froze. [S:01]*

### Media Coverage

The radio and television were places many people went to get information enabling them to monitor the fire's progress. For some, this was useful:

*We were just listening to the radio, I just turned the radio on in the car every hour; when the news came on 2ST, they just gave you updates of where it was and what it was doing. [S:07]*

People knew (or were advised) to go their local radio for information but for some, that was not an option or it was not useful:

*There's no local news services on Saturday, or Sundays for that matter. [C:04]*

*...like, when they say, "Tune into local radio", which local radio? And we realised we didn't really have it on the dial. [C:17]*

*ABC Dubbo is the only radio station we can get – 2DU is almost impossible – and 2MR in Gunnedah impossible. But for some reason or other, ABC in Dubbo don't like giving out weather/fire information for Coonabarabran because they think we're too far away. [C:04]*

*And as I tuned in to this FM station, wow, it was an absolute hoot and they didn't have a clue. It was like they were all on drugs. And so I got nothing out of them and we just listened to them for a laugh because it was just so pathetic. She was saying, "I was supposed to give you guys some information on this fire but I wouldn't have a clue what they're doing". So, so: "I'll let you know if anything changes but in the meantime let's have a chat about such and such." [Y:13]*

Some commented that although the media was reporting about the fires, they couldn't rely on the information being accurate. The following comment reflects a common theme of wanting fire information in the media to come directly from fire authorities.

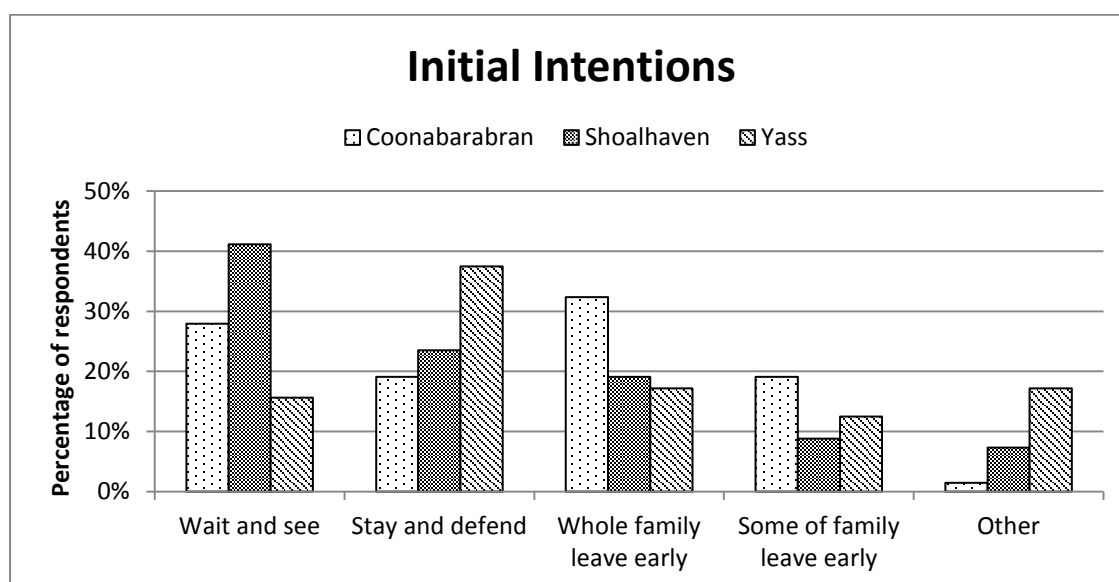
*I think the information should've come out from a reputable area, not just a bloke on the ground misinterpreting bits that was coming from someone there reporting it. As it got to the news desk, the information was completely untrue. By the time it was released to the public, it was wrong. They were over talking it, and it was ridiculous.* [S:01]

Misunderstandings about the location of the fire and misperceptions as to the direction the fires were travelling were noted by some respondents:

*I have a real issue with the fact that they weren't calling us Warkton Road, they kept referring to it as Tenabar Road but we are Warkton Road and have been since my father-in-law was a child. That is a real issue.* [C:13]

## Initial Intentions

Respondents described a variety of intentions when they first became aware that a fire was imminent (Figure 24<sup>22</sup>). In Coonabarabran, the highest proportion reported their initial intention was to leave; in Shoalhaven the greatest proportion reported their initial intention was to wait and see what developed before choosing a final action. In Yass, one-third described their initial intention was to stay and defend. Analysis (Table 6) was also undertaken to determine if property type (holiday home, residential block or house on small/large acreage) had any impact on the initial intentions. This showed that those from large acreages were most likely to stay and defend while those from houses on residential blocks were most likely to all leave early.



**Figure 24 Initial intentions by study area**

Note percentage calculated after excluding non-response/missing data

<sup>22</sup> Note in figure 24 missing data have been excluded prior to the calculation of percentages to enable comparisons between the study areas.



**Table 6 Initial intentions by Property size/type**

Property size/type	No concrete plan	Stay and Defend	Wait and See	Some leave early	All leave early	Grand total
Business	20%	0%	40%	40%	0%	100%
Holiday house on residential block	0%	0%	0%	0%	100%	100%
House on a residential block	16%	2%	30%	7%	44%	100%
House on small acreage (<10 ha)	5%	21%	33%	14%	26%	100%
House on large acreage (>10 ha)	4%	43%	26%	16%	11%	100%
Other	0%	50%	0%	0%	50%	100%
<b>Grand total</b>	<b>8%</b>	<b>26%</b>	<b>29%</b>	<b>14%</b>	<b>23%</b>	<b>100%</b>

Many respondents decided to wait and see how the fire might affect them:

*So we went out and we had a look from one of the hills out there and looked back at it, and then we stood there for about an hour and a half just watching it coming around and through. [S:06]*

Others got to ready to leave:

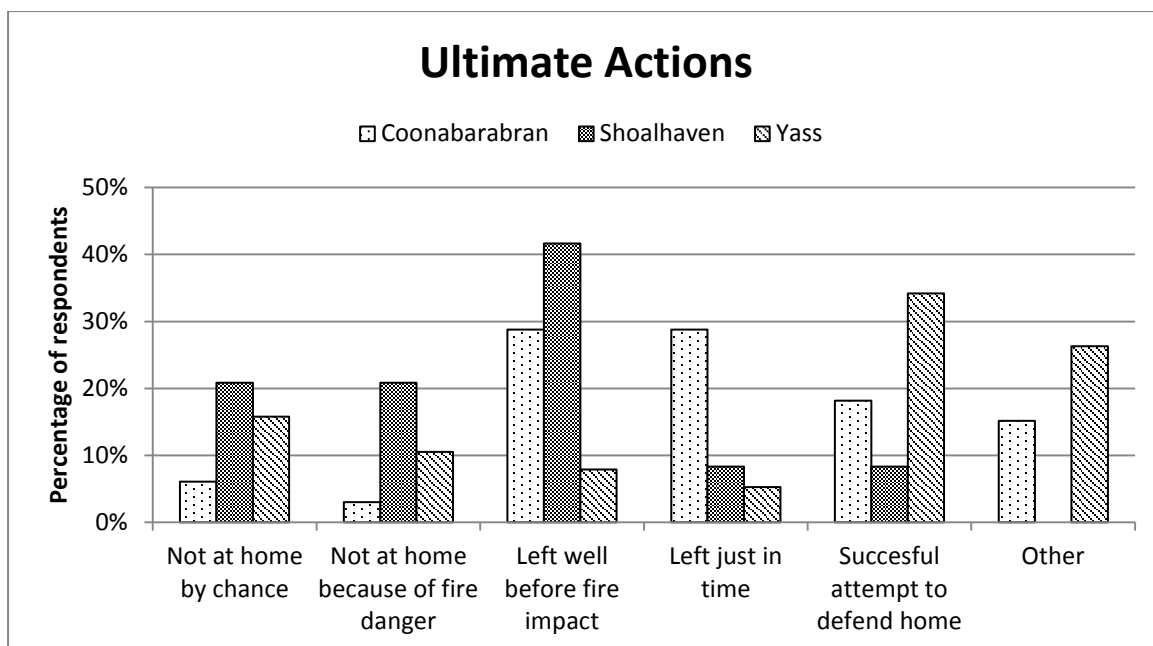
*One has to use one's common sense here. If it's a nice little fire and you sort of see it coming up the hill, and you think, "Oh yeah, that's not too bad", but if it's a humdinger, well run like hell, or go down the hole. [C:16]*

For Yass and Coonabarabran respondents (58%), getting ready to defend their house was their priority, which was also part of their fire plan.

## Ultimate Actions

In Coonabarabran, a quarter of respondents left well before the fire, while a similar number left 'just in time' (Figure 25). Other respondents either prepared to leave (but didn't) or successfully defended their home. People's social network continued to be an important source of information and reassurance throughout the fire.

*Talked to a helicopter pilot who landed in our top paddock who said, "You'd better leave", went to the neighbours where we saw the police who said, "Get out now". If that helicopter had not arrived, we wouldn't have known the urgency. And we probably would've been cremated, I'm guessing. [C:10]*



**Figure 25 Ultimate actions by study area**

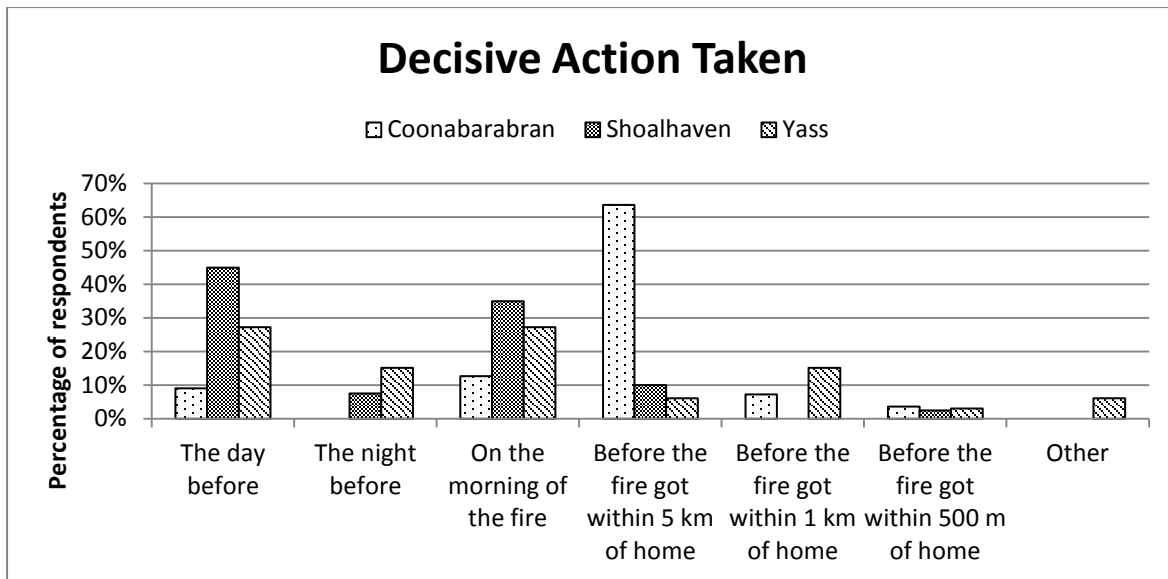
The majority of Shoalhaven respondents stayed at home and were not impacted by the fire. However, some did leave ahead of the fire threat. In Yass, where respondents were generally well prepared and had experience of bushfires, many successfully defended their home (Figure 25), while others moved stock and opened gates.

*So once I knew I was staying here for a while, I went and mustered several mobs of sheep, put these sheep in the shed yard, moved them from dangerous paddocks that I thought into paddocks with a bit less grass and stuff in them and actually I did two mobs the day before. [Y:12]*

### Timing of Decisive Action

The point at which the respondents took decisive action was different across the three communities, as the fires impacted each community differently (Figure 26). For Coonabarabran respondents, the trigger to take decisive action was overwhelmingly visible proximity of the approaching fire, with almost half of those respondents reporting they took decisive action when they estimated the fire was within 5 km of their property. In contrast, for Yass and Shoalhaven, the influencing factor was ‘time’, with decisive actions being taken either the day before or on the morning of the fire threat.

*The creek was my cut-off point; if it came across the creek, I was gone. [C:9]*



**Figure 26 Timing of decisive action by study area**

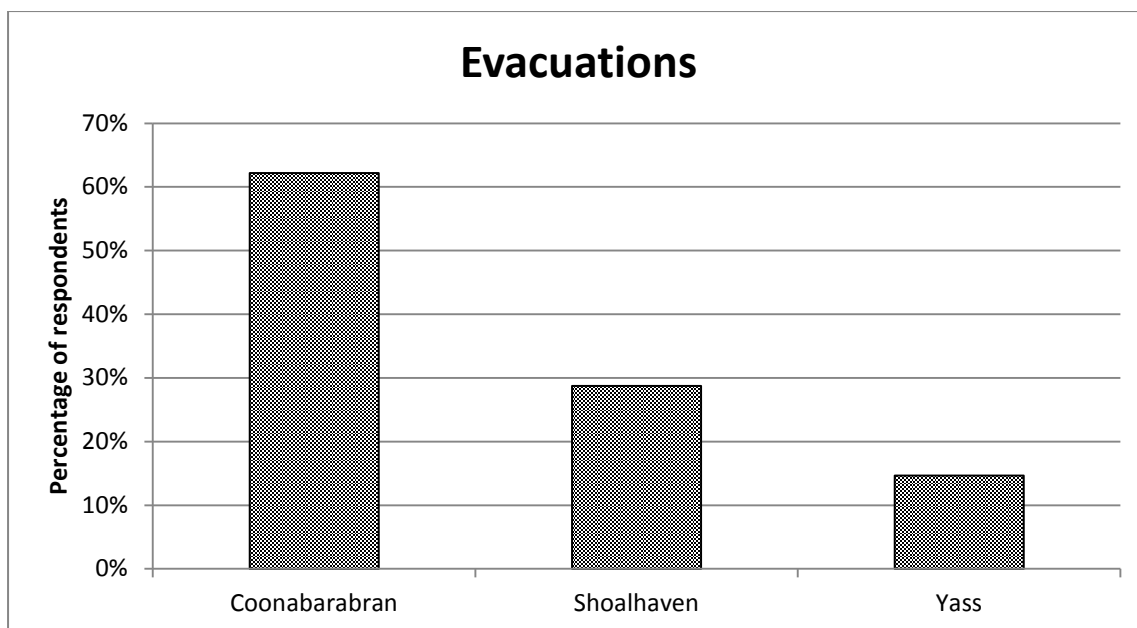
For others, they only took action when they got an official warning:

*It was the “Get out now, leave” he said; it was a recording, but he said, “Leave now, you’re in great danger.” That was like my father saying, “Do what I tell you.” I just went, “Right!”*  
[C:23]

## Evacuation

### Evacuation Experience

Eighty-five respondents (36%) over the three communities decided to evacuate owing to the threat of fire. There were significant differences among the three communities: the greatest percentage of evacuations was in the Coonabarabran area (62%). In Shoalhaven, 29% evacuated; in Yass, it was 15% (Figure 27).



**Figure 27 Proportion of respondents who evacuated by study area**

For Coonabarabran and Yass respondents, the decision to evacuate was equally attributable to emergency personnel advice and respondents' own judgements. However, in Shoalhaven, the majority (70%) evacuated because 'they decided to', rather than being urged to by police or other emergency officials.

Many people went to stay with friends or family; in Coonabarabran where an evacuation centre was made available, some people (19%) made use of that.

For those who did evacuate, most respondents in Yass (70%) and Shoalhaven (88%) did so for a few hours or overnight. The remainder left for 2 days or more; however, in Coonabarabran, the proportion of these was much greater and over half of respondents were away from their properties for more than 2 days.

Most respondents who evacuated were happy with their decision, and would evacuate again if similar circumstances arose. However, a small number (10%) felt that the inconvenience outweighed the benefits, and would choose to stay at home next time.

Coonabarabran was the only one of the three communities studied where a formal evacuation message was issued. There, some felt that the messages were contradictory. In the other two study areas, there was some confusion as to whether evacuation was or was not necessary.

*I think the evacuation notice said 'Evacuate to the east', so that was a little bit confusing... Now, the fire was between here and Coonabarabran... it didn't say the people on the east side, the southern side, the northern... it didn't... and then the next one was a report to Baradine, wasn't it? But then we wouldn't evacuate that way because the fire was right there. [C:01]*

*...and what they said was, "Evacuate immediately", and we said, "Well, hang on, we're not going to do that and, you know – because there's no fire here at the moment", and it was – we could see it was like up there. [Y:10]*

*We only have one road out, so knowing that the smoke was that way, it was sort of borderline – it was really hard to decide should I go that way and take the kids into the risk of going into the fire, or stay and then maybe risk it coming this way? [Y:03]*

In Shoalhaven, some felt they were being instructed to evacuate and the necessity to do so was questioned:

*They told us to evacuate now and go over to the bowling club and I said, "I'm not going" and he said, "Well, you're going to go" and I said, "Okay, okay, I'm going to go". But I didn't, I just went around the back of the house and he moved on. [S:05]*

Some respondents reported taking into account visual cues and information from neighbours in their decision to evacuate or stay.

*If I was home and I knew there was a bushfire in the region and it got to the stage where I could actually see flames and it's a bit hard to judge distance, but if I could actually see flames, then I would definitely leave, I wouldn't stay. [Y:02]*

*...and then there was another text message that said 'In your area, there's an immediate risk. You might think about evacuating'. I thought "F\*\*k!" So I went and had a look and I couldn't see any smoke, so I thought, well it must be wrong. So I came back inside and just kept eating and having a drink. [Y:02]*

*Well, we started getting messages telling us to evacuate – which we were sort of laughing off because we couldn't see any smoke or anything in the distance. [Y:09]*

Other triggers to evacuate were calls from family and friends, official warnings or official contact from emergency services. In some cases, this involved respondents being visited in their homes by family, neighbours or police.

*The police officer did turn up and told us to prepare to defend or leave, so we left. [Y:07]*

### *Impact of Fire and Damage to Property*

In Coonabarabran, 53 homes were destroyed, there was extensive loss of fences and outbuildings and stock losses were modest – many farmers had reduced their stock levels because of the dry conditions. In Yass, no homes were lost but stock losses were heavy; grazing pasture and fences were also destroyed.

*I went by myself. I drove past firemen shaking their head at me, crying my eyes out. Trees burning on either side of me, people standing in paddocks with hoses and guns putting out their sheep, they were shooting them. It was awful. [Y:9]*

In Shoalhaven, property loss was minimal; there were no homes destroyed. However, there were reports that owners of businesses associated with the tourism industry sustained economic loss as result of the bushfire. This is discussed more extensively in a subsequent section dealing with those issues particular to the Shoalhaven community.

## OTHER THEMES AND ISSUES EMERGING FROM THE INTERVIEWS

This section brings together several themes from the interviews: issues that some respondents talked about at length and that were important for them to communicate to the research team. These include their knowledge of Neighbourhood Safer Places, the importance of social media for timely information, and unique issues affecting their community. Also included are the reflections by respondents on their experience and the things they would do differently in the future, and there are reflections from Bushfire CRC researchers.

### *Why Relatively Few Dwellings (and No Lives) were Lost*

Some Yass and Coonabarabran respondents who actively experienced the fire attributed the survival of their home and property to environmental factors and ‘just sheer luck’, and several noted that if it had not been for a wind change, the outcome might have been very different. The contribution of neighbours and their own short- and long-term preparation was also credited with saving their homes and property.

*We always thought being so close to the park, it was always a reality that it could happen, but when we bought here, it was an old orchard and there was regrowth through the orchard. So we had it cleared, we put a lawn in, we had a trailer set up with a back on it with 1,000 litres of water and a pump. [C:22]*

### *The Role of Neighbourhood Safer Places*

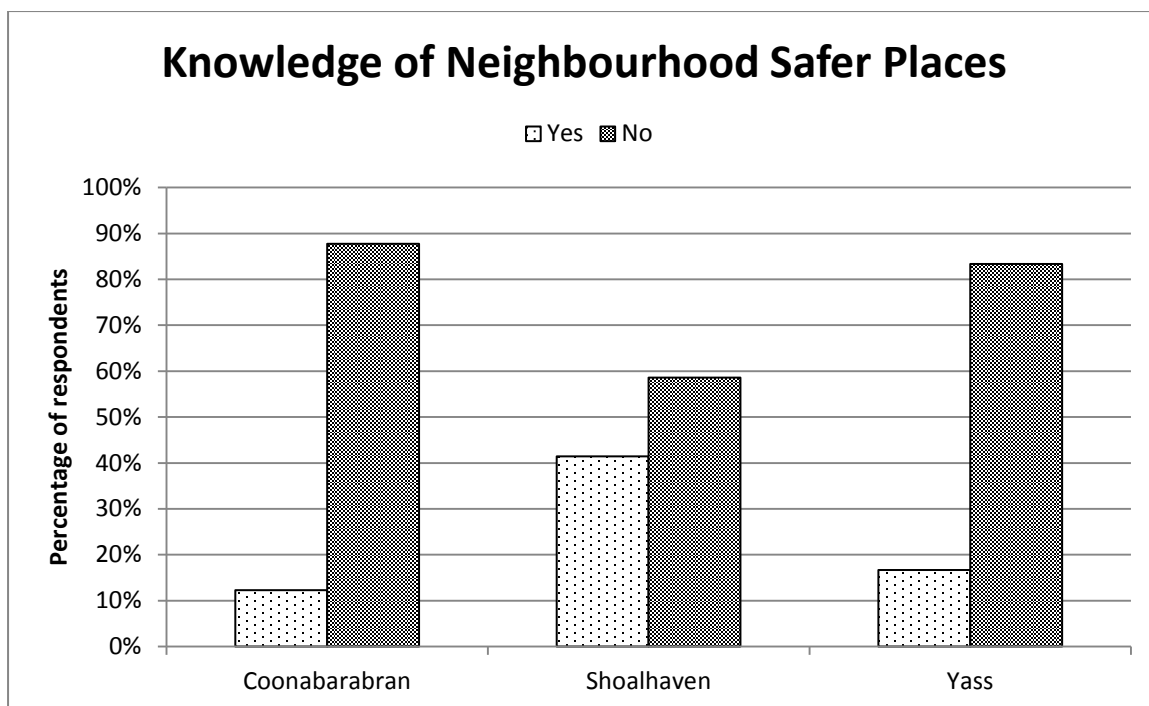
Overall, more than half of all respondents did not know where their local Neighbourhood Safer Place was, and in Coonabarabran, this number was much higher (87%) (Figure 28). Of those in Coonabarabran who had the option to go to a presumed safer place, over a third went to one they had identified themselves; these included the bowling club and friends’ houses in the Coonabarabran township.

Respondents described a range of (presumed) safer places:

*I've kept thinking about that afterwards because the Canberra fires, they tore through the residential areas, so yeah, I don't know if anywhere in town is safe. Probably the airport would be the safest place, even though it's on top of the hill, there's no bushland around there. [C:06]*

*But our main aim was to head to the beach, because you know, that's the safest thing you can go in, there's still a fair bit of sand between the bush and the water, and if need be, we could have gone in the water. [S:03]*

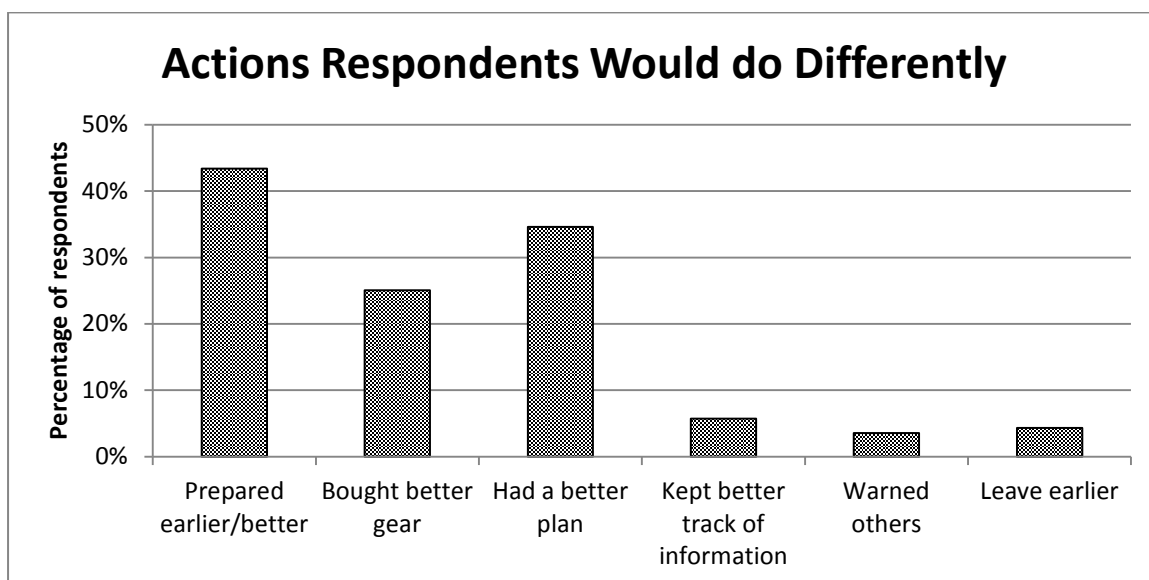
*Well, our plan was to – if we got told we had to go, we were actually going down to the beach, that's where we were going. But then we got contacted from the Red Cross to say, can we meet at the Bowling Club as an evacuation point. [S:07]*



**Figure 28 Knowledge of Neighbourhood Safer Places**

### *What People Would Do Differently*

When asked to reflect on their experiences, a third of the respondents said they would do things differently if there was a 'next time' (Figure 29). People reported they would clear their property more, purchase more fire mitigation equipment, have a better plan and prepare more, seek more information sooner and either leave earlier or stay and defend.



**Figure 29 Actions respondents would do differently**

Note: multiple responses were permitted



Some felt the experience of the fire would improve their future preparedness:

*I think if there was a fire anywhere – if there was another fire in the National Park in the next 20 years, because the next few years will probably be safe – I think that we'd actually assume the worst a lot sooner instead of taking what we saw on face value, so we'd get everything a lot better. [C:12]*

*It's been a good experience in the sense that it makes you more prepared. We have prepared evacuations plans and now the residents know more about the procedures and everything like that should be undertaken in the event. [S:06]*

Some interviewees talked in detail about what they would differently:

*The communication between the three of us could have been better, and we could have been more clear about, "Are we going to tape the windows?". So I think we could have been a bit better and I hope we'd be better next time. [C:17]*

*We're changing our fencing regime into all-steel where traditionally a lot of the fences here were 60 to 70 years old and there was a lot of wooden material in it so now we're going to the modern steel materials, because some of the fences we have down there that are new and all steel stood up to the fire quite well. [Y:12]*

Other comments illustrated the stressful nature of dealing with this catastrophic event:

*They were just little things that possibly if we'd written them out specifically – I think before the fire I would have thought, "Well, of course you'd take that" ... but it was the effect on our mind. So a checklist would have counteracted what was happening to us emotionally. [C:04]*

*No-one told us what it would be like to stand in front of a group of people and tell them they'll be OK – I nearly cracked, my God. [S:1]*

*Because I was freaking out and I was trying not to but I was like running around the house saying, "Pack a bag" and I was trying to be really calm but they can tell. And they were like... my 3-year-old was saying, "Are we going to die?" I said, "No". But I think that was because of the older kids, they were eight, seven and three. [Y:04]*

Perhaps the last word on things they would do differently should go to a woman from Coonabarabran:

*I would have preferred not to have left husband behind. [C:06]*

### *Importance of Local Information*

A recurring theme across all three locations was the importance to respondents of getting up-to-date fire information from local sources. Local knowledge was seen as being more reliable and trustworthy than radio broadcasts from national radio stations. Not only did respondents want to get their fire updates and information from people they knew and trusted but they wanted these people to be available so they could call them. For example, one respondent reported being

disappointed that her neighbour, who was a local fire chief, had not called her personally to tell her about the fire.

Respondents also were less trusting of officials who came into the area to help, citing unfamiliarity with the area as a reason they did not take advice they were given by such individuals. Some expressed a sentiment that even the local NSW RFS needed to be more familiar with the specifics of their community

*Give the fire brigade more guidance, more local input. Most of the guys that came here didn't know a thing about the area. And when you've got a bulldozer and a crew going through fairly quickly, yeah, you're probably better off conversing with the guys that know the place. [C:04]*

### *Comparison of Communities Highlighted By the Interviews*

From the short time researchers were in the communities and from the interviews themselves, it seems Coonabarabran, Yass and Shoalhaven areas experienced very different fire events, which impacted them in quite in different ways.

One of the key differences was the geographic environment in which the events occurred and how this appeared to influence short- and long-term preparedness, intentions and final actions. Both Coonabarabran and Shoalhaven are in close proximity to national parks with dense bushland, while the Yass area was mostly open farmland, with some woodland areas. The following discussion highlights some of the points that were particular to the individual communities.

#### *Coonabarabran*

Even though many homes were on relatively large 'life-style' properties embedded within local bush and close to the park, Coonabarabran respondents did not describe any previous fires coming from the Warrumbungle National Park to threaten Coonabarabran and the perceived risk of a bushfire threatening from the park was low. The property ownership in this area was a mix of local residents and homeowners who only used their house as an occasional holiday home. There were suggestions by some permanent respondents that the 'weekenders' did not keep their property cleared to the standard needed when living 'in the bush' and that this may have impacted on the damage to their property and to that of their neighbours.

Many respondents from Coonabarabran commented that during the fire, they felt isolated and disconnected from official information because of the pre-existing lack of mobile phone coverage. They acknowledged that warnings were getting through to the landlines, but if the householder wasn't there to pick up the message, it was missed.

*It's really difficult here because of the phone system – the early warning system was brilliant in town, but as soon as you come out to these areas, it's useless, there's no communication... Dare I say it, Telstra needs to put a couple more towers here and there... This really is a black hole. [C:04]*

In addition, in the sparsely populated western (farming) part of the fire-affected area, five residents indicated they felt the initial radio warning message reported the location of the fire incorrectly and

if they had acted on this, they would have driven east (toward the Coonabarabran township) into danger.

## Yass

From the briefing and comments from the interviewees, the fire in Yass appeared to the researchers to be predominately a grass fire that burned across open farmland and up the verges of the local roads. Many Yass respondents had experience or knowledge of previous fires, and they appeared to be less concerned by the prospect of a bushfire threatening their properties than the researchers felt they might have been. However, the stock losses and fence damage in Yass were extensive and of concern to the respondents; some interviewees commented that the reporting of the aftermath of the fire did not take this into sufficient consideration.

As noted previously, involvement in the local NSW RFS in Yass was greater than in the other communities, and almost every rural respondent seemed to personally know someone they could call in the local NSW RFS. It appeared to the researchers that the respondents felt the experience that comes from living in the area for some time was an advantage during the bushfire event, with many Yass respondents unequivocally stating they had no intention of evacuating, choosing to defend their home and property.

Local media was important in this area and some respondents from Yass made special mention of the Yass Tribune Facebook page<sup>23</sup> as a reliable and up-to-date source of information during the fire. This comment is typical:

*They [The Yass Tribune website] were just very factual and calm about the whole thing, which I think put a lot of people at ease ... when they started putting stuff up and all those things were actually happening, it was almost like the whole town... because you recognise all those names on who's commenting, the whole town gravitated to that information because they knew it was right. [Y:04]*

The reason that many respondents in Yass reported that they turned to social media was that they found the information to be up to date, almost 'up to the minute'. Additionally, the personal connection that social media provides meant that many of the comments people saw on the Yass Tribune Facebook page were from people in the community they knew personally – this added to the credibility of what they were reading.

*The Yass Trib would put up and say six fire trucks have just gone straight out there. It was almost like you could see what was happening outside your house, you just knew what was going on. And then they would put up and say it's been put out. Then an hour later or a couple of hours later, the RFS website would update. [Y:19]*

## Shoalhaven

In the Shoalhaven area, researchers were repeatedly told of the impact of a serious fire in 2001–2002 with many respondents referring to this event.

*I was around when the 2000 fires were on. But luckily enough the fire went around the park and ... so we just had to survive the smoke and that for a while. [S:06]*

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<sup>23</sup> <http://www.facebook.com/pages/Yass-Tribune/150627891616238>

Unlike Coonabarabran and Yass, many respondents were relatively new to the area and as previously noted, when the message to evacuate was received, many chose to leave. The fire was reported in the media over several days and there was uncertainty among some respondents as to the progress of the fire and the warnings they were getting in relation to the threat posed.

*From what we could see and what we could understand, we were never, ever in any danger. [S:01]*

*There were warnings but ... that was spooking a lot of people out, that's why a lot of them took off to the RSL that didn't need to. [S:05]*

A feature of the fire in this area was the role tourism operators played and a concern respondents had with regard to the impact of the fires on this section of the economy.

*Sure, I did get the messages on the phone and probably that's good for a lot of people but ... it does tend to scare – see what it did, it did a bad thing for the town because all the tourists went home and they were having a hard time, all the businesses and there was no threat to them whatsoever really in the end. [S:05]*

A feature of the Shoalhaven study area was that when the fire impacted, there were many tourists in large caravan and camping parks and other holiday accommodation. Many of the people staying in these parks were families and extended families, and during the fire, those who were in a position of authority felt this responsibility keenly. The area is also well known for the national park, which also attracts many visitors and has particular access and egress challenges.

As part of the taskforce deployment, a number of tourism operators in this area were interviewed. These individuals clearly played a major role in the management of people in the area and in the delivery of information. Some of these individuals reported relying on their own knowledge, information and previous experience to guide those for whom they were responsible as information from the NSW RFS websites was not (in their view) sufficiently timely or relevant to the specific area.

*Yeah, and people were frightened, they were – you know, it was difficult because they kept on coming and saying to us, “What have you heard?”, but we couldn't tell them anything because we hadn't heard anything. And people were starting to get quite, I felt, agitated, because nothing was coming through. [S:07]*

*People took their dogs and cats and horses and everything to the RSL. I know the girl that was in charge of – she works for, is it DOCS in Nowra? She just got it all loaded on her. She's only a young girl and they sent her out here to coordinate it. [S:05]*

Six Sussex Inlet (a community within the broader Shoalhaven area) residents volunteered comments to the effect that the use of the term 'Catastrophic' to describe the predicted fire danger level was unhelpful and confusing, and prompted unnecessary panic among some of their neighbours.

## CONCLUDING REFLECTIONS BY RESEARCHERS

During the three deployments, researchers were encouraged to record notes of their impressions of the interviews and the issues raised by the respondents. In a meeting of several researchers 2 weeks after the final deployment, researchers commented on those issues that, *in their opinion*, might not have been emphasised in the ICS but might be useful for NSW RFS to consider. These are presented not as empirical observations but as impressions.

- Respondents greatly valued the opportunity to tell their story to the teams and many commented they felt it was their first chance to be heard by authorities.
- People are busy and community bushfire safety campaigns have to compete with other calls on time and attention. For residents who had never previously experienced a bushfire threat, bushfire planning and preparation appeared to have a low priority.
- A major determinant of a household's readiness for bushfire appears to be previous experience of a serious bushfire.
- People in general tend towards an optimistic view of their future circumstances, which may result in an unrealistically low appraisal of their danger if a bushfire was to threaten. This seemed especially true for some recently arrived 'life-style' residents of bushland locations in Coonabarabran and Yass.
- People do not like dealing with uncertainty. A simple message is more easily understood.
- Respondents under threat used multiple sources of information to make decisions about their risk from the fire – they did not automatically assume that official information sources like radio broadcasts were likely to be more trustworthy than their local unofficial sources.
- Local social networks and informal leadership of communities were highly valued as sources of reliable information in these emergency situations.
- The official naming of streets and roads is not always the same as these are referred to in the local community and the use of different names can cause confusion or annoyance.
- The official naming of the fires, which are based on their starting point, while helpful to the agencies, did not reflect their location at another point in time and seemed to cause some confusion and uncertainty for respondents.
- Interviewers of Coonabarabran and Yass farming residents were struck by both the readiness of householders to phone local NSW RFS Brigade captains to find out about fire threat situations and the captains' willingness to take the calls on their mobiles – in several instances while engaged in fire-suppression operations.
- Information that tells residents that the risk from the fire has passed may be as important as threat warning messages in relation to safe return to fire-affected areas to look after livestock.
- The experimental undertaking of weekend survey visits did not prove useful as the response rate was lower than for weekday visits.

## FINAL POSITIVE APPRAISALS FROM THE COMMUNITIES

Many of the respondents were overwhelmingly positive about the help they had received from their local emergency services. The NSW RFS firefighters, both local and volunteers, were credited with helping to save homes and property and many respondents were very grateful.

*...just sort of seeing how good a job that the fireys did with saving all the houses up there was unbelievable, and that was just basically having people around each house to put the fire out as it came close and that sort of stuff. [Y:03]*

*Not so much the National but the RFS, I found that very helpful. [Y:05]*

Similarly, the fire information that respondents got from the media was appreciated, especially the up-to-date information feeds from television and social media sites.

*I will commend the ABC – they were on the radio full-time. They got their staff back, and broke into the programs, and they broadcast on the fire for the rest of the night. [C:05]*

*I think the information provided on the internet, the local guys coming around providing maps and updating us with what was happening with the fire, that was good. The SMS warnings and stuff like that was good. I think everyone's getting their act together to a certain degree for this. [S:06]*

*It was the day they put out the 'Catastrophic' warning. And then I was watching TV and they had the run-along on the bottom of the TV and that sort of thing... I ended up getting onto the RFS website, which I found was excellent. [Y:02]*

## PART 2 ON-LINE PANEL SURVEY

### ON-LINE PANEL SURVEY METHODOLOGY

#### *Background and Aims*

To supplement the community-based interviews and to provide a broader geographic coverage into the areas warned of the relevant fire threat but ultimately less impacted by the January events, the Bushfire CRC and NSW RFS agreed that it was appropriate to conduct an on-line panel survey in, and immediately surrounding, the areas alerted to the Wambelong, Cobbler's Road and Dean's Gap fires.

The Bushfire CRC commissioned an accredited on-line research company<sup>24</sup> to carry out a survey during the same time as the community interviews were being conducted. The questions asked in the on-line survey were almost identical to those used to record the interview summary data (i.e. the ICS). However, the aim was to broaden the sample size and capture the information over a more representative demographic so as to provide a quantitative perspective.

#### *Methodology*

The on-line research company used an invitation-only panel to recruit participants. This approach avoids the self-selection biases inherent in many 'open' on-line methods and is recommended by senior researchers.<sup>25</sup> A total of 975 surveys were completed by panellists. Results from this work are provided in this section of this report. A copy of the questionnaire and the responses to the individual questions are provided in Appendix 2 of this report. A copy of the full data set collected in the study has been provided to NSW RFS for future analysis.

The survey was quantitative in design and used only 'closed questions' so as such, it is not possible to understand why individuals responded in particular ways. There were several questions that, if participants chose either 'Yes' or 'No', had instructions to go to a later question and the intervening questions were not answered.

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<sup>24</sup> The Online Research Unit, [www.theoru.com](http://www.theoru.com)

<sup>25</sup> Pers. comm., Prof. C. Skinner, January 2013

## RESULTS

### *Panel Survey Respondents*

The on-line panel survey respondents (n = 975) comprised 336 men and 639 women with an average age of 52 years. The large majority of households did not have any children and just over one in five had children under 12 (Table 7). This sample includes a higher proportion of women and fewer households with children than the populations of corresponding areas; however, it provides a broader base (and significantly larger sample) than that available from the respondents participating in the community interviews.

**Table 7 On-line panel survey respondent demographics**

	On-line panel survey	Overall percentage
Male	336	35%
Female	639	65%
Members of RFS	35	3.5%
Households with no children	809	83%
Households with children under 12 years old	205	21%
Households with pets	623	64%

As indicated above, the panellists were drawn from a wider area than the community interviews and, as such, they had a range of exposures to the 2013 fires. Only 4% indicated they were very directly impacted by these fires and just over half indicated they considered the area was impacted by fire (Table 8).

**Table 8 Respondents' perception of the impact of fires in the area**

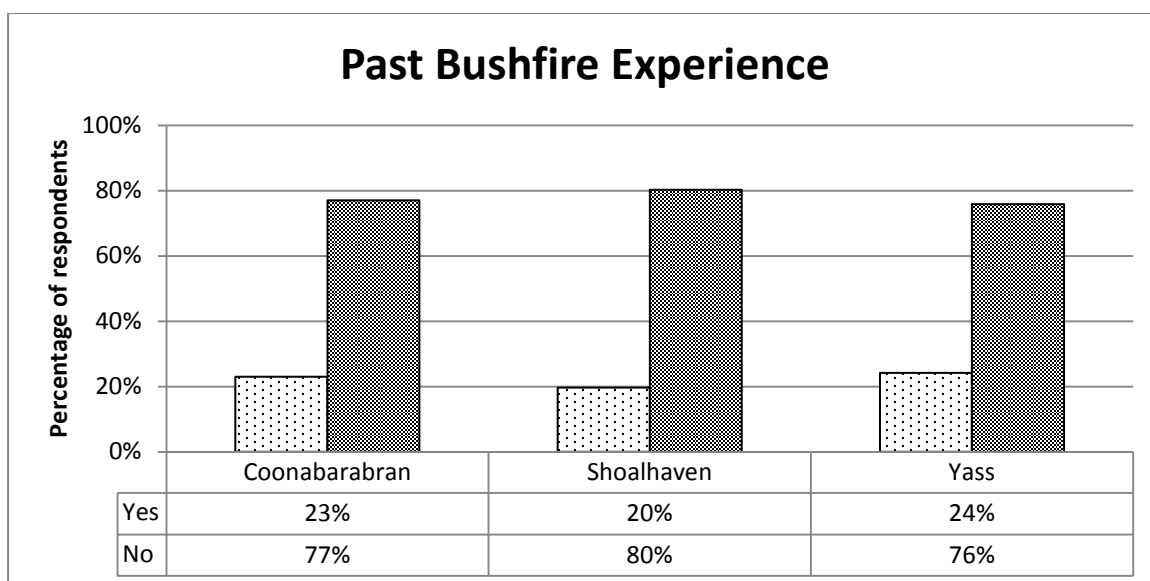
Consider area was impacted by fire	Percentage of respondents
Yes, very directly	4%
Yes, but not directly	16%
No, despite fires in the area	32%
Subtotal those who considered there were fires in the area	52%
Those who considered there were no fires in the area	48%

### *General*

#### *Experience with Previous Bushfires*

Less than a quarter of the panellists had experienced any bushfires. This proportion was consistent across each of the study areas (Figure 30).

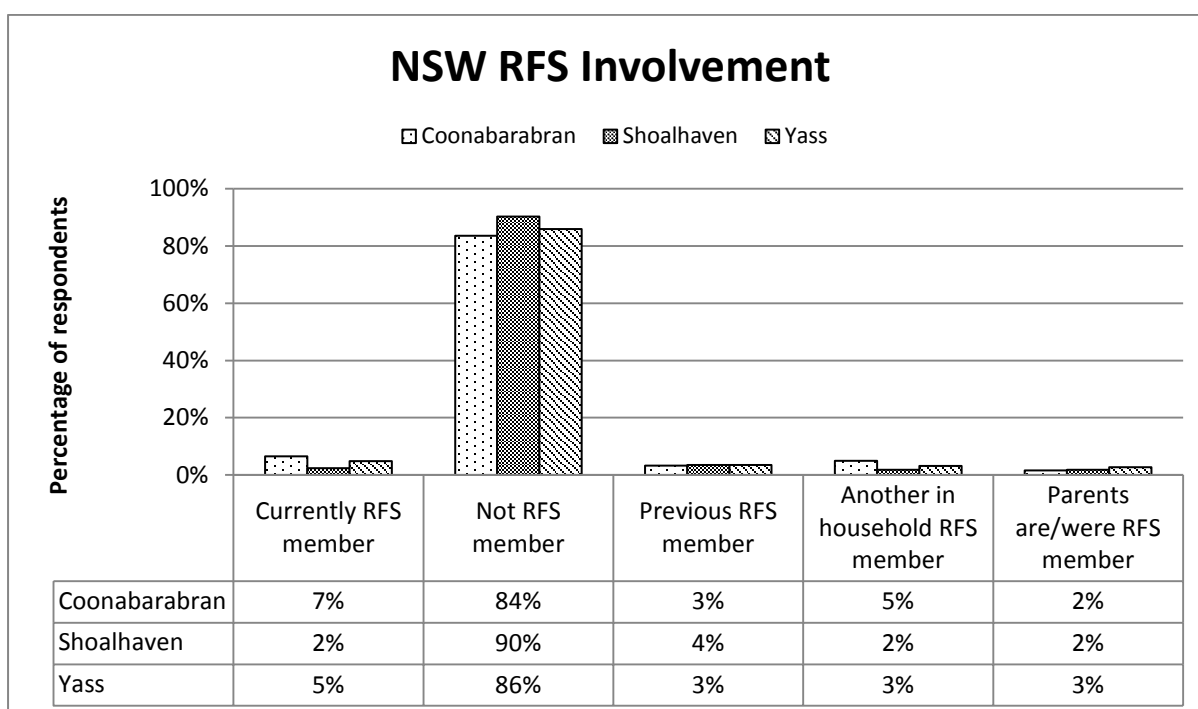




**Figure 30 Bushfire experience of the survey respondents**

### NSW RFS Involvement

The panellists' association with NSW RFS was minimal, with the greatest level of involvement indicated for those from the Coonabarabran area (Figure 31).



**Figure 31 NSW RFS involvement by area**

## Insurance

Panellists were asked about their level of insurance: across the three study areas: 76% of panellists indicated they thought they were fully insured, 10% felt they were underinsured and 14% indicated they had no insurance (Figure 32). The level of coverage varies only very slightly by area, although it is notable that a higher proportion of Coonabarabran panellists indicated they had no insurance cover than in either of the other two regions.

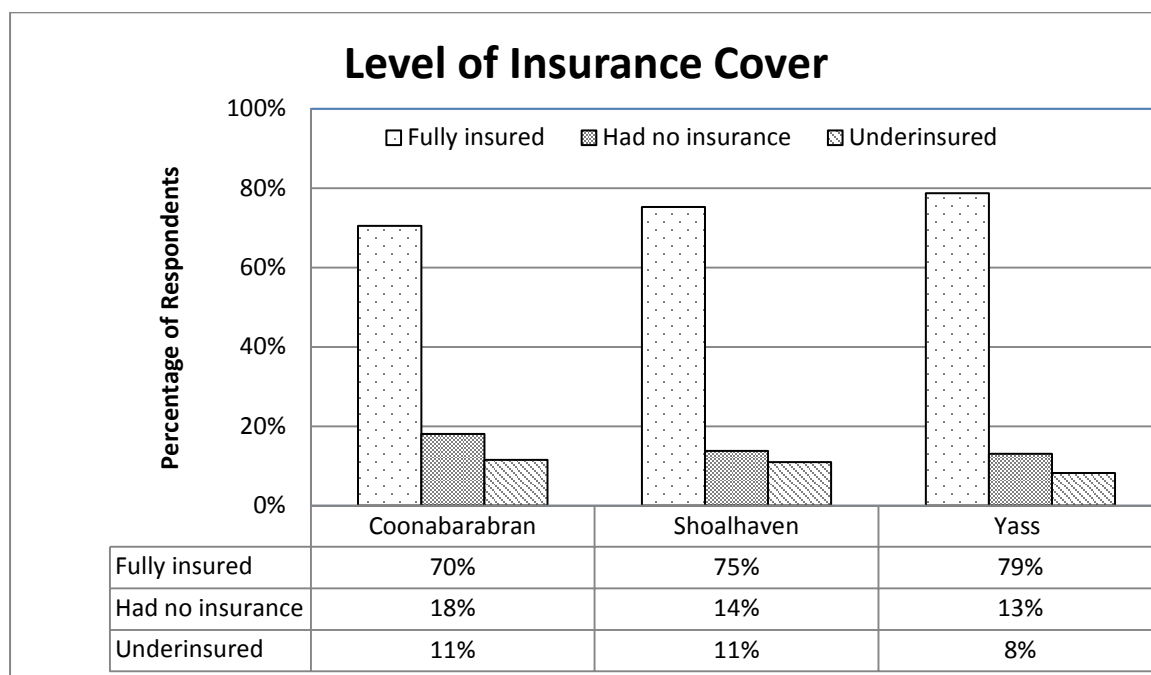


Figure 32 Level of insurance by area

## Risk Perception

Almost three-quarters of the survey respondents described their risk as low or non-existent and this perception of risk did not change as a result of the recent bushfires (Figure 33).

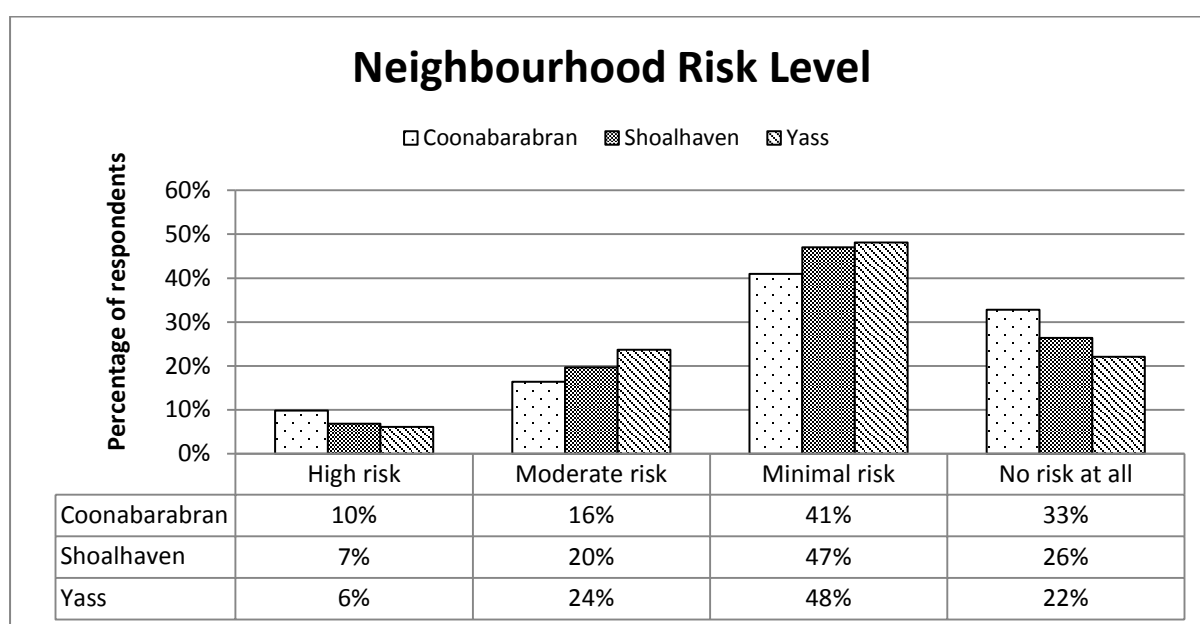


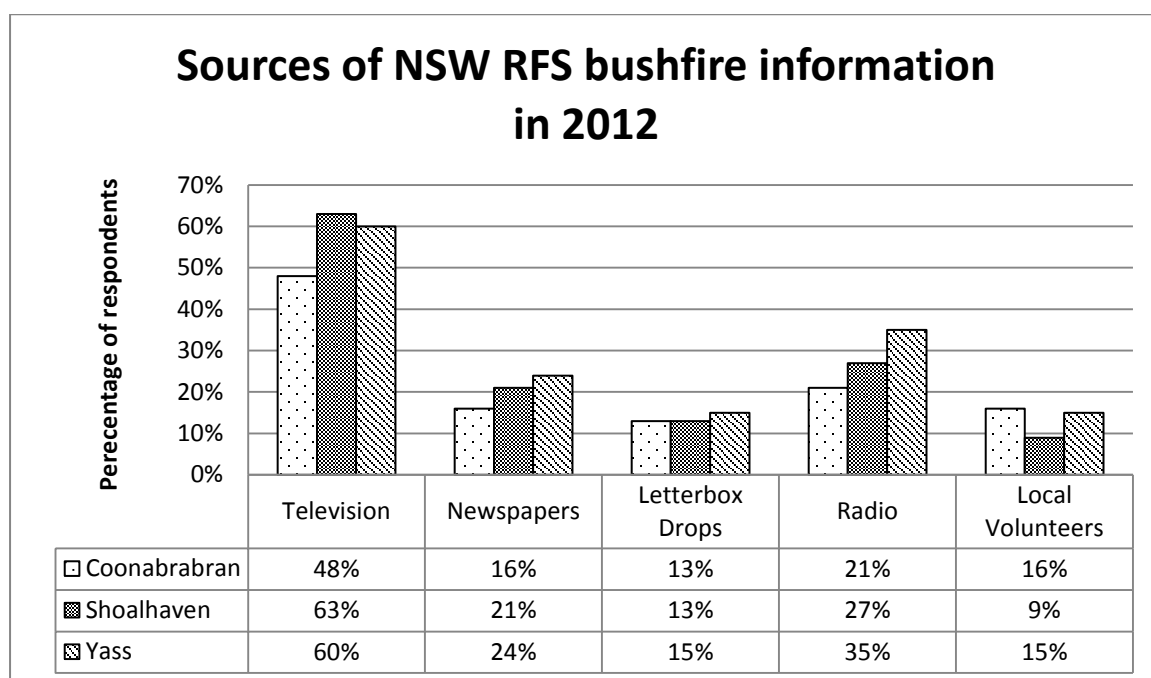
Figure 33 Assessment of neighbourhood risk by area

## General Awareness of Bushfire Information

This section explores the general level of awareness of bushfire information sources. By way of introduction to this section, all panellists were asked: ‘Do you remember receiving any bushfire advice or information from the NSW Rural Fire Service in 2012 (that is, in the year prior to the fires that recently affected this or nearby areas)?’

### Knowledge of Bushfire Information from NSW RFS (prior to the January 2013 fires)

Less than a third (27%) could recall getting any official bushfire information in the prior year, and for the participants that did, television (60%) was the most common source (Figure 34). In response to the follow-up question, ‘Did you do anything specific as a result of receiving this advice or information?’, 58% said ‘No’, i.e. they did nothing as a result of receiving this advice.



**Figure 34 Sources of NSW RFS bushfire information in 2012**

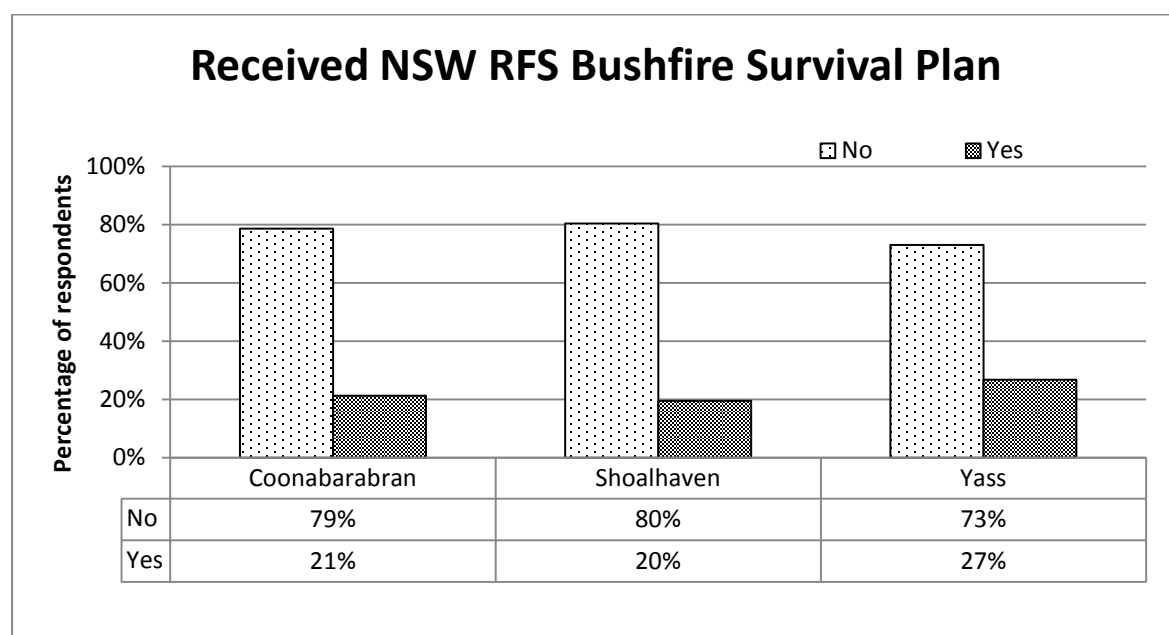
### Knowledge of general fire information and information sources

Panellists were asked which of a range of bushfire warnings, messages and communications channels commonly used in the areas they had seen and recalled. A large majority (89%) of panellists recalled seeing or hearing at least one of these items. More than half of the panellist recalled the ‘Fire Danger Ratings’; ‘Prepare, Act, Survive’; bushfire alerts, and NSW RFS Total Fire Ban messages (Table 9).

**Table 9 Recall of bushfire warnings, messages and warning media**

	Percentage of respondents
Fire Danger Ratings	65%
Prepare, Act, Survive	57%
Bushfire alerts	53%
Roadside billboards	42%
Sirens	22%
Radio broadcasts	42%
NSW RFS Total Fire Bans	56%
NSW RFS Fire Danger map	22%
NSW RFS Fires Near Me app	17%
None of these	11%

Panellists were specifically asked whether they had received a copy of the NSW RFS Household Bushfire Survival Plan. Approximately 20% in the Coonabarabran and Shoalhaven areas had received a copy of this plan while slightly more (27%) of those from the Yass area indicated this was the case (Figure 35).



**Figure 35 Received NSW RFS Bushfire Survival Plan by area**

## What does 'being prepared for a bushfire' mean?

Later in the survey, panellists were asked: 'What does being prepared for a bushfire mean to you?' It should be noted that this was a prompted question to which the respondents had to answer 'Yes' or 'No' to a series of presented options responses, consolidated across the regions, are presented in Figure 36. It is probable that an unprompted question would have given far fewer responses to those things that were believed to be indicators of 'being prepared for a bushfire'.<sup>26</sup>

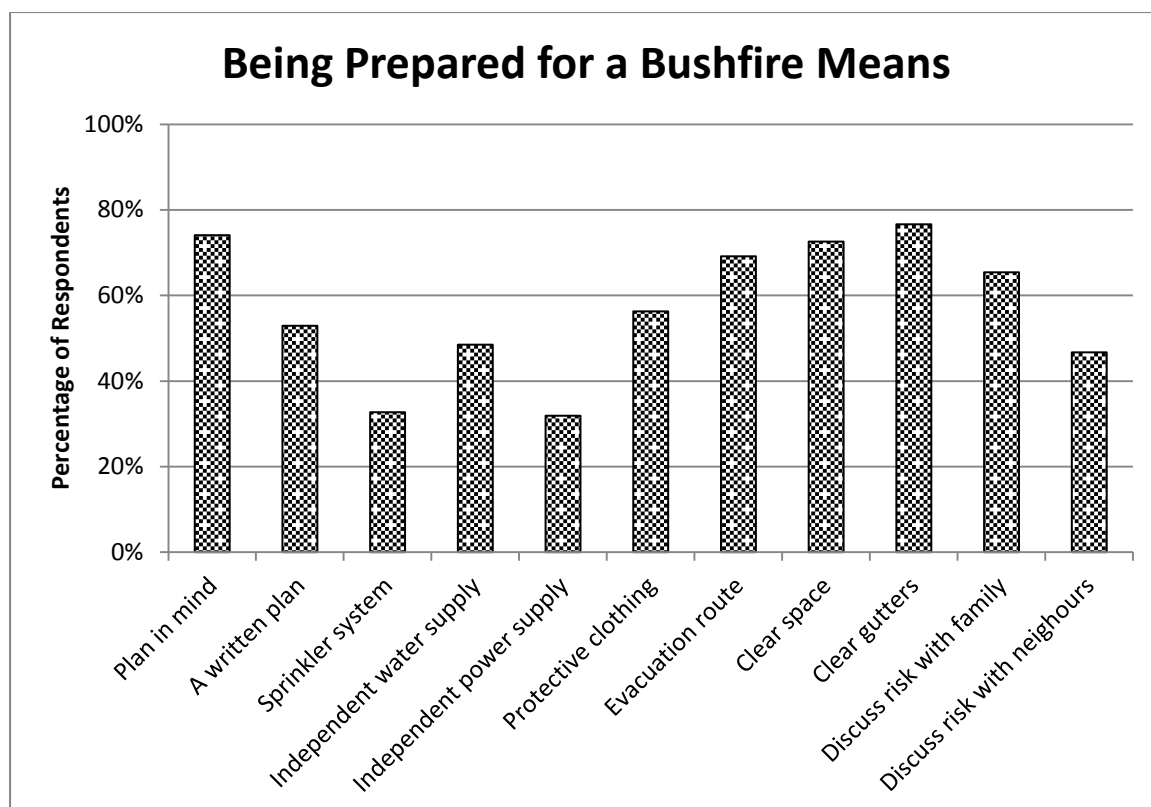


Figure 36 Panellist view of what being prepared means

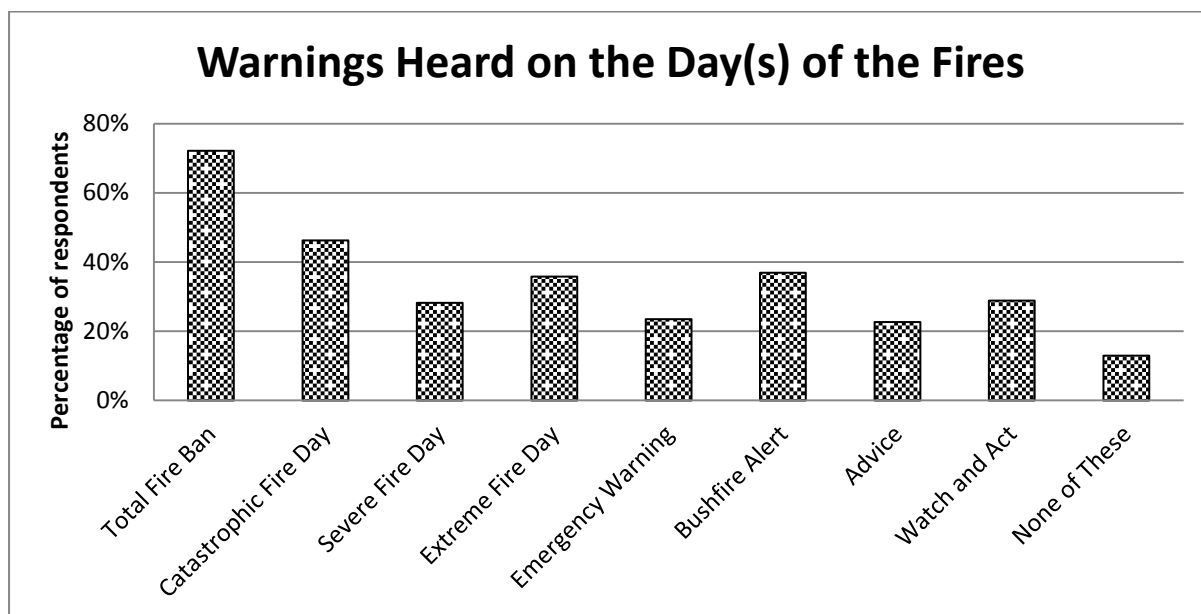
<sup>26</sup> Please note the categories in this chart have been abbreviated from the original prompts to simplify presentation.

## Recall and Understanding of Bushfire Information

This section explores in more detail recall of general warnings and official bushfire information in the lead up to and in the day(s) of the January 2013 bushfires in the areas surveyed.

### Knowledge of Specific Fire Warnings (prior to January 2013 fires)

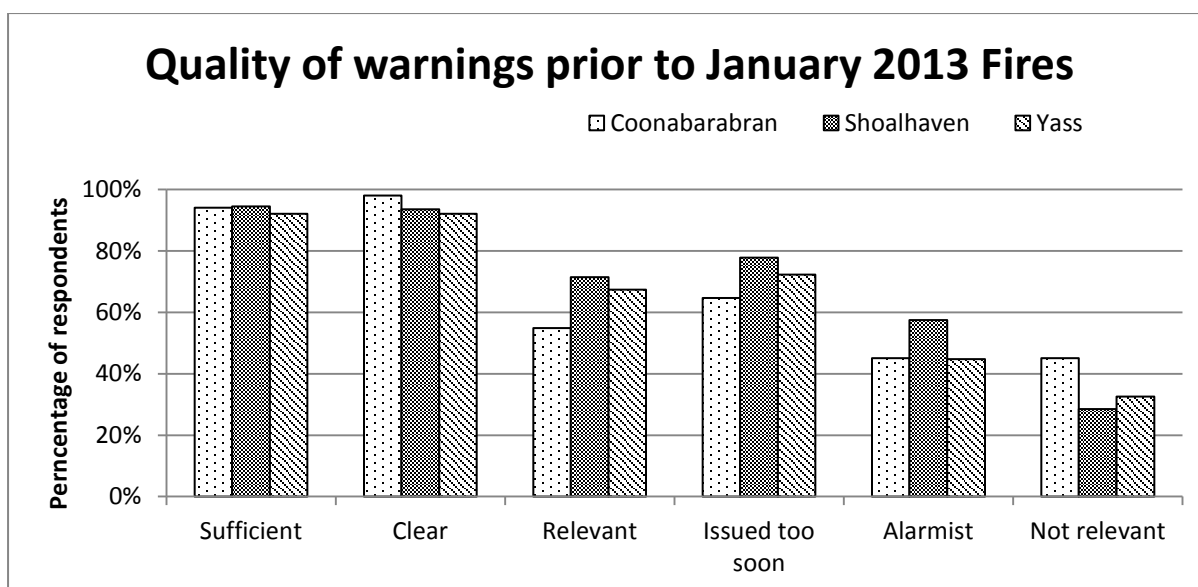
Survey respondents were asked about their understanding and recall of official warnings prior to the January 2013 bushfires. Most knew about the Total Fire Ban warning and over half knew there had been Catastrophic and Extreme fire danger warnings issued prior to the January 2013 fires (Figure 37).



**Figure 37 Bushfire Warnings heard on day of fire (January 2013)**

With respect to these warnings, panellists were asked, 'Did you see the emergency warning (Watch and Act/Advice and Bushfire alert) information?' For those who had seen such information they were then asked 'Was this information sufficient/insufficient; clear/confusing; too soon/too late; alarmist/not urgent enough and whether it was relevant or not relevant to them.

Warnings were generally considered to be clear, sufficient and relevant. There was very little variability in the response to this question by area (Figure 38).



**Figure 38 Quality of warnings prior to January 2013 fires**

Respondents were also asked if they understood the urgency indicated by different warnings responses are shown in Table 10. The urgency of the emergency warnings was variously understood, with some confusion around the relative urgency of the Advice and Watch and Act warnings.

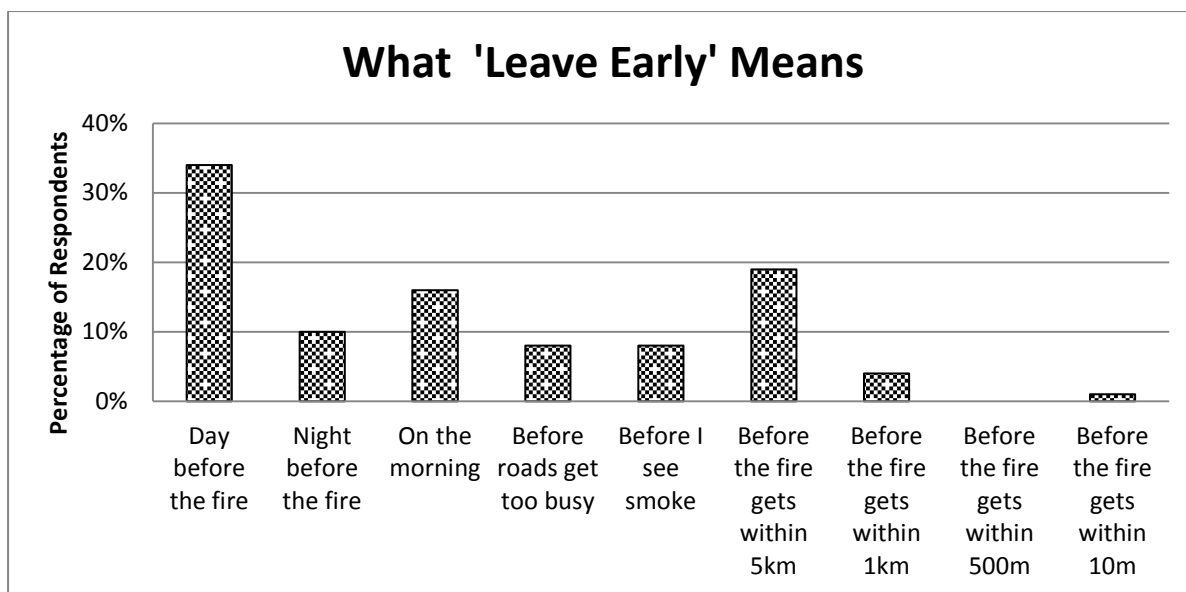
Panellists were then asked to match the official warnings to the meanings and advice associated with them as recommended by NSW RFS. Responses are shown in Table 11 following. As can be seen from that table, there is a degree of confusion as to the message each of the warnings is delivering.

**Table 10 Panellists' understanding of urgency of warnings**

Least urgent	→			Most urgent
Emergency warnings	7%	5%	15%	73%
Bushfire alert	7%	26%	57%	10%
Advice	50%	37%	10%	3%
Watch and Act	35%	33%	18%	12%

### Understanding the 'Leave Early' Message

All panellists were asked what the recommendation to 'Leave Early' meant to them. Responses varied considerably. Just over a third (34%) would leave the day before a Catastrophic fire day was predicted and a similar number (26%) of people would leave their properties either the night before or on the morning of the predicted day (Figure 39). In response to this question, fewer (19%) would leave only when they judged the fire to be within 5 km of their home. However, in a later question in which panellists were asked, 'Would you leave if the fire was 5 km away?', 74% responded yes, they would leave (indeed, 44% said they would leave if the fire was 10 km away).



**Figure 39 Understandings of the 'Leave Early' message**



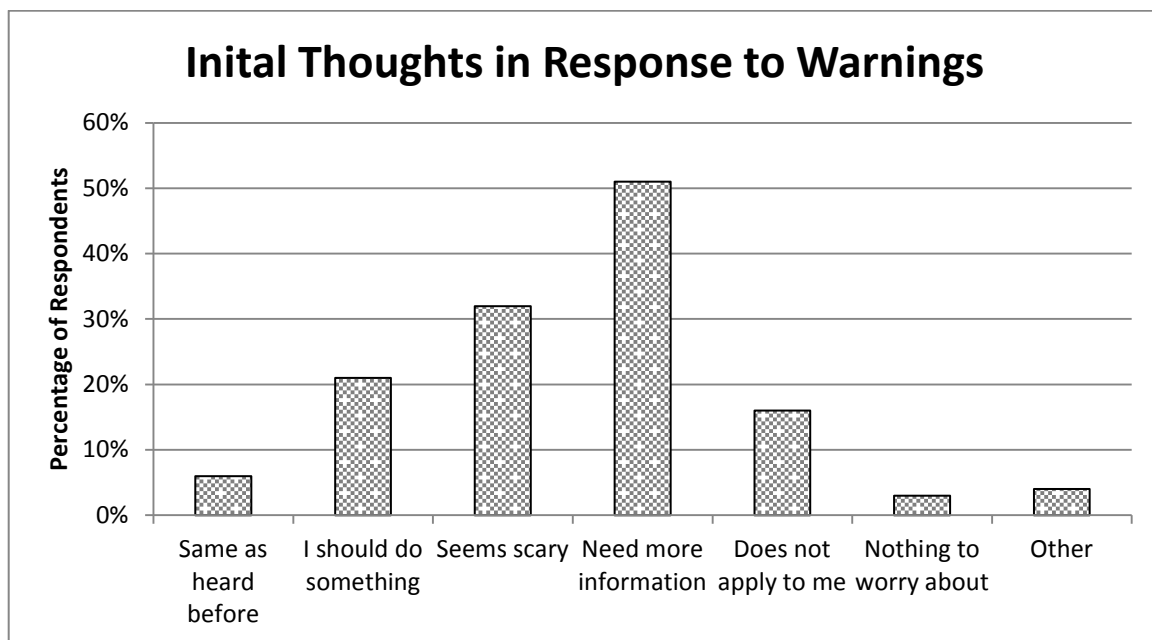
**Table 11 Understanding of recommended actions associated to bushfire warnings and messages**

	<b>Warning or message</b> (multiple responses permitted; percentages are of RESPONDENTS, hence sum to greater than 100%)							
<b>Recommended Actions</b>	<b>Total Fire Ban</b>	<b>Catastrophic</b>	<b>Severe fire day</b>	<b>Extreme fire day</b>	<b>Emergency warning</b>	<b>Bushfire alert</b>	<b>Advice</b>	<b>Watch and Act</b>
There is a heightened level of threat	14.3%	8.6%	16.3%	16.4%	16.0%	19.2%	17.5%	18.1%
If you are not prepared to the highest level, leave early in the day	5.7%	20.7%	18.5%	15.0%	21.2%	9.7%	19.2%	11.1%
No fire may be lit in the open and all fire permits are suspended	78.5%	3.2%	6.6%	9.4%	3.9%	4.9%	6.7%	3.4%
For your survival, leaving early is the only option	4.4%	42.3%	10.6%	10.1%	21.5%	7.8%	16.2%	7.6%
A fire has started, there is no immediate danger	3.3%	1.7%	3.4%	3.4%	12.4%	35.1%	25.8%	33.2%
Only stay if you are physically and mentally prepared to defend	4.4%	19.1%	16.3%	17.4%	21.7%	10.4%	20.95	14.2%
Specified level of threat from fire	6.4%	9.1%	14.4%	16.8%	22.4%	23.3%	19.4%	11.8%
You are in danger and need to take action immediately	5.6%	35.1%	13.0%	9.9%	29.9%	9.0%	11.3%	15.6%

## Experiences and Behaviour in the 2013 Fire Season

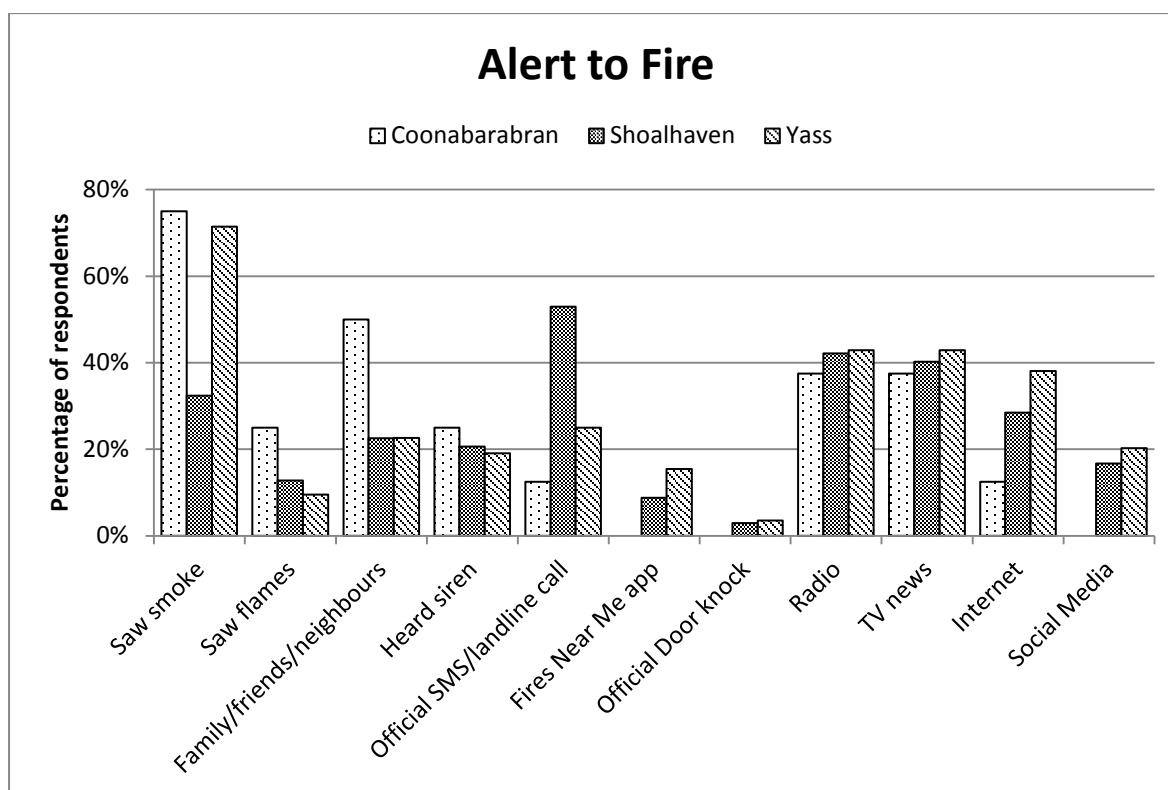
### Initial Response to Warning

Just under half of the survey respondents (42%) reported being warned about bushfires during January 2013. The initial thoughts on receiving a warning were to pay attention, with responses such as 'I should do something about this', 'I need to find more information' and 'this seems scary' rating highly. Notwithstanding this, 19% of respondents indicated they felt the warning was 'nothing to worry about' or 'does not apply to me' (Figure 40).



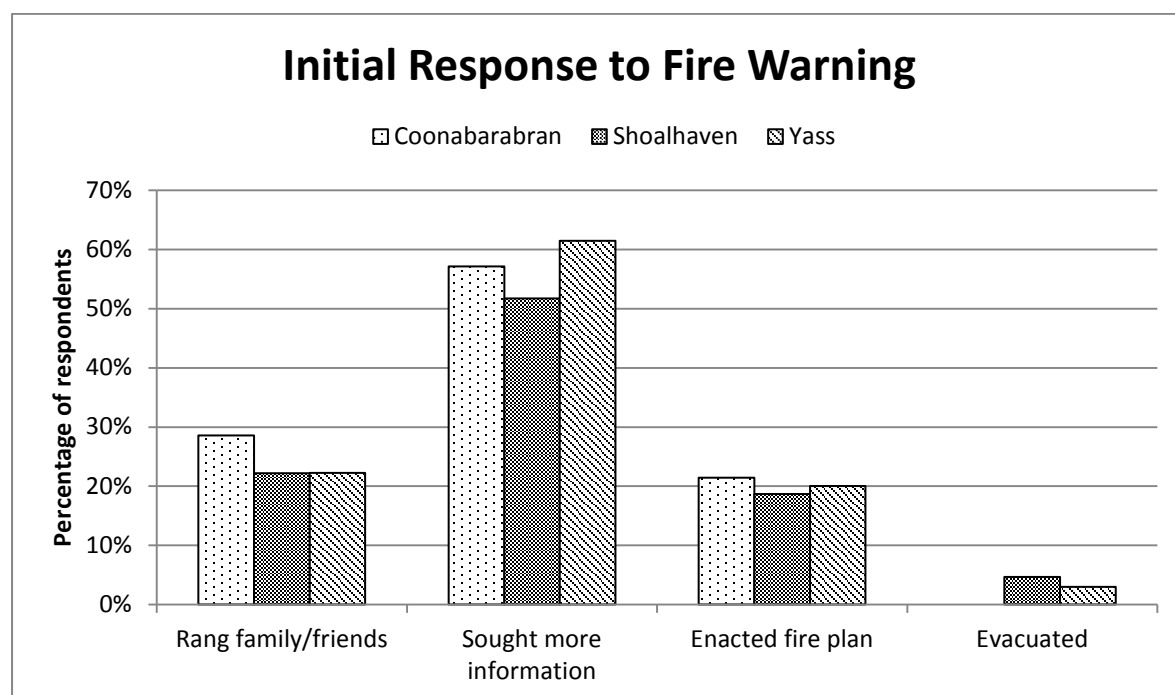
**Figure 40 Initial thoughts on hearing a warning**

In addition, panellists were asked about the cues that alerted them to the January 2013 fires; just under half were aware of the fire because they saw smoke. Many heard about the fire via the radio (42%) and the television news (36%) and 39% were contacted by emergency services either via an SMS or a call to their landline (Figure 41). The responses to this question varied significantly by area, with the key cues in the Coonabarabran area being the sighting of smoke or a call from family, neighbours or friends; in contrast, those from the Shoalhaven area were more likely to highlight notification via SMS or landline and the radio and television messages. Panellists from the Yass area were most likely to nominate alert via the internet or social media.



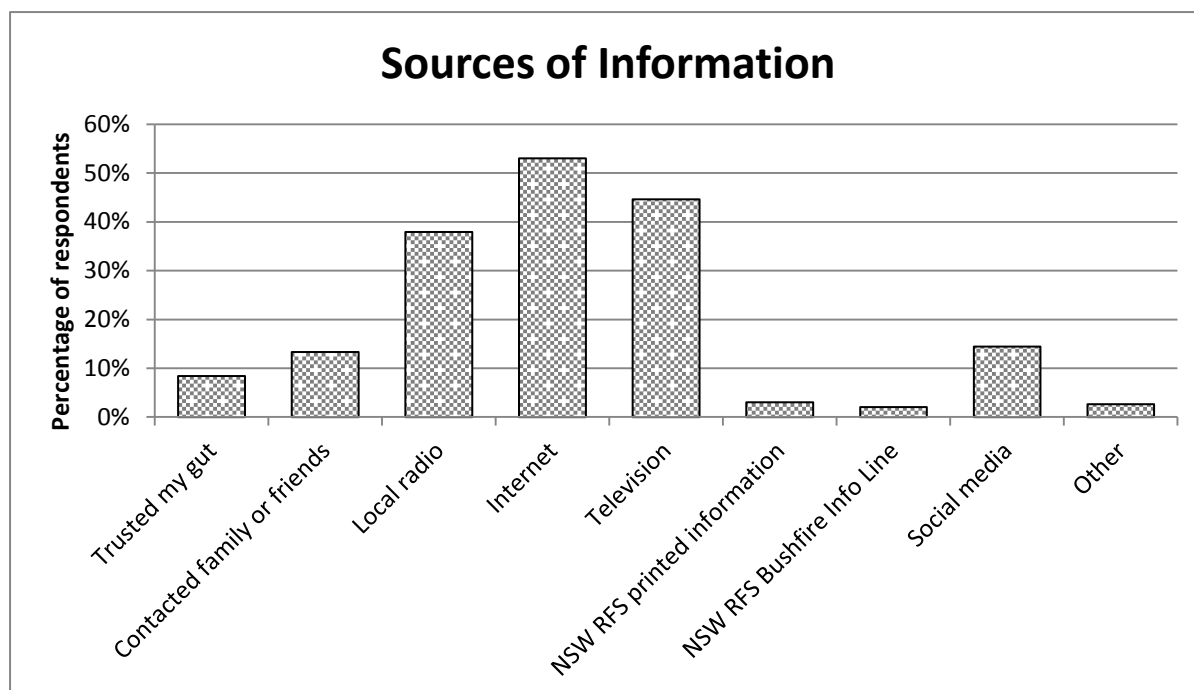
**Figure 41 Cues that alerted panellists of the fire**

Panellists were asked: ‘After hearing the warning, what did you do?’ Multiple responses were permitted and Figure 42 (which shows the major responses) highlights that the major action in response to such a warning was information-seeking; this action was common across the areas.



**Figure 42 Initial responses to fire warning by survey respondents**

Recognising the importance of this response (to seek further information), panellists were asked, 'When you went looking for more information about the fire danger conditions, where did you go'? Over half sought more information using the internet (weather sites, NSW RFS website and news sites).<sup>27</sup> Just under a half went to the television while a third sought information from the local radio (Figure 43).



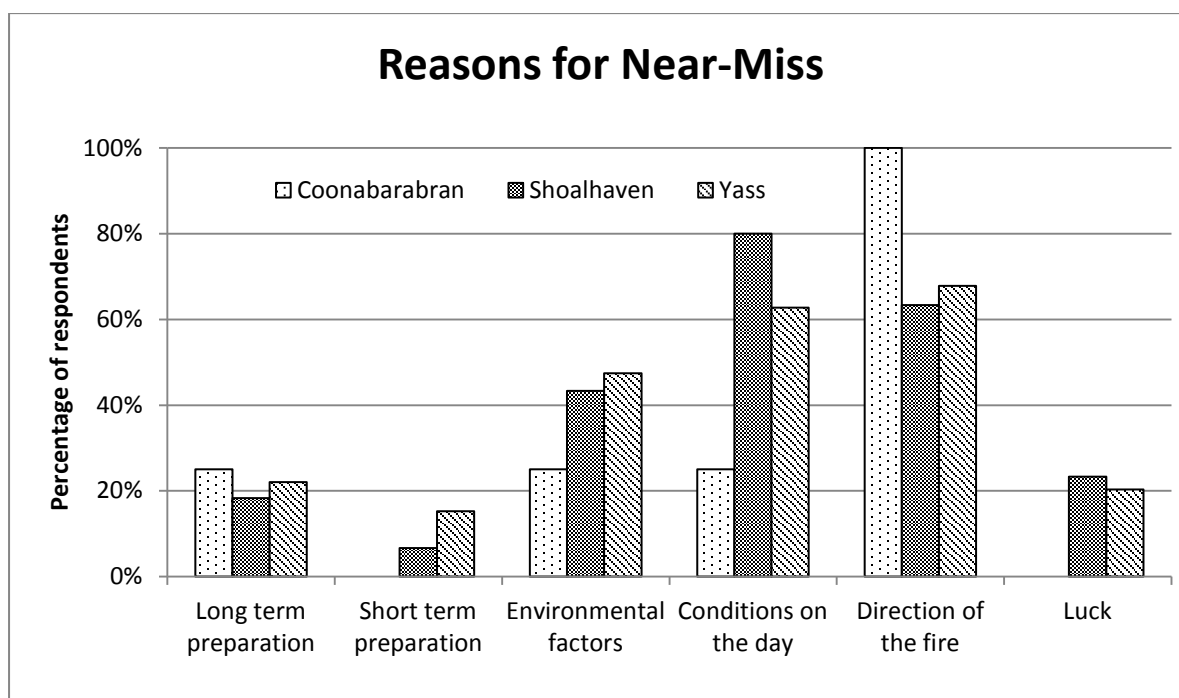
**Figure 43 Information sources used when seeking more information**

### *Stay and Defend, Leave Early or Evacuation*

Those respondents who indicated they were directly or indirectly affected by the fire (i.e. 52% of the panellists) were asked, 'Did you stay and defend?', with follow-up questions on whether they were alone, what equipment was used and what they did.

This group were also asked if they considered their experience of the fires to be 'a near-miss' or a 'false alarm'. Two-thirds said they felt it was a 'near-miss', and if conditions on the day and the direction of the fire had been different, then fires could have easily impacted their area. Conditions beyond their control (direction of the fire and wind direction) were reported as reasons their property was not impacted, and few respondents (10%) put avoidance of damage down to their short- or long-term preparation. These responses are shown in Figure 44.

<sup>27</sup> This figure is unsurprising as the panellists are likely to be heavier internet users by virtue of taking part in on-line surveys and may thus be atypical in this regard.



**Figure 44 Reasons why their home was not impacted by fire**

### Stay and Defend Experience

Fifty-four percent of panellists who felt they were directly or indirectly impacted by the fires indicated they 'stayed and defended' their properties; the majority of these (79%) did so with others – mainly other family members. The equipment used was predominately the garden hose (58% of responses) and other garden equipment (27%). Less than 30% indicated they wore boots, long-sleeved shirts and pants or helmets or goggles.

### Evacuation

Of those who directly experienced the January 2013 bushfires, only a few evacuated ( $n = 29$ ), and for most (96%), it was just for a few hours (48%) or overnight (48%). Of those who evacuated, only 17% indicated they went to a nominated Neighbourhood Safe Place (17%); the majority of those who evacuated went to another (unspecified) nearby safer place (48%). Many (62%) thought that the evacuation was unnecessary but almost all of them said they would make the same decision again should a similar situation arise.

## Perceived Level of Preparedness

All panellists were asked how well they thought they were prepared for the January 2013 fires. A large majority (66%) felt they were either 'well prepared' or 'adequately prepared' (Figure 45). For those who indicated they felt they were 'not very well prepared' or 'not prepared at all', the reason was most likely (65%) to be that they didn't think it was necessary, although 13% indicated they didn't know what to do, and 14% said they expected to be told what to do (presumably by emergency service officials). When asked what actual preparation had been done, there was a wide range of responses (Figure 46).

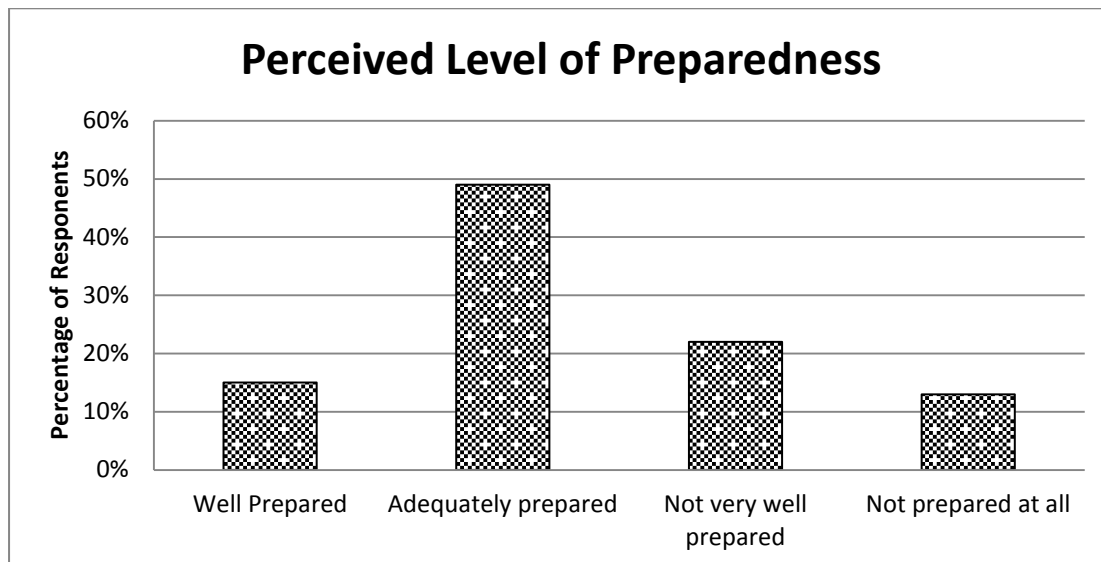


Figure 45 Perceived level of preparedness

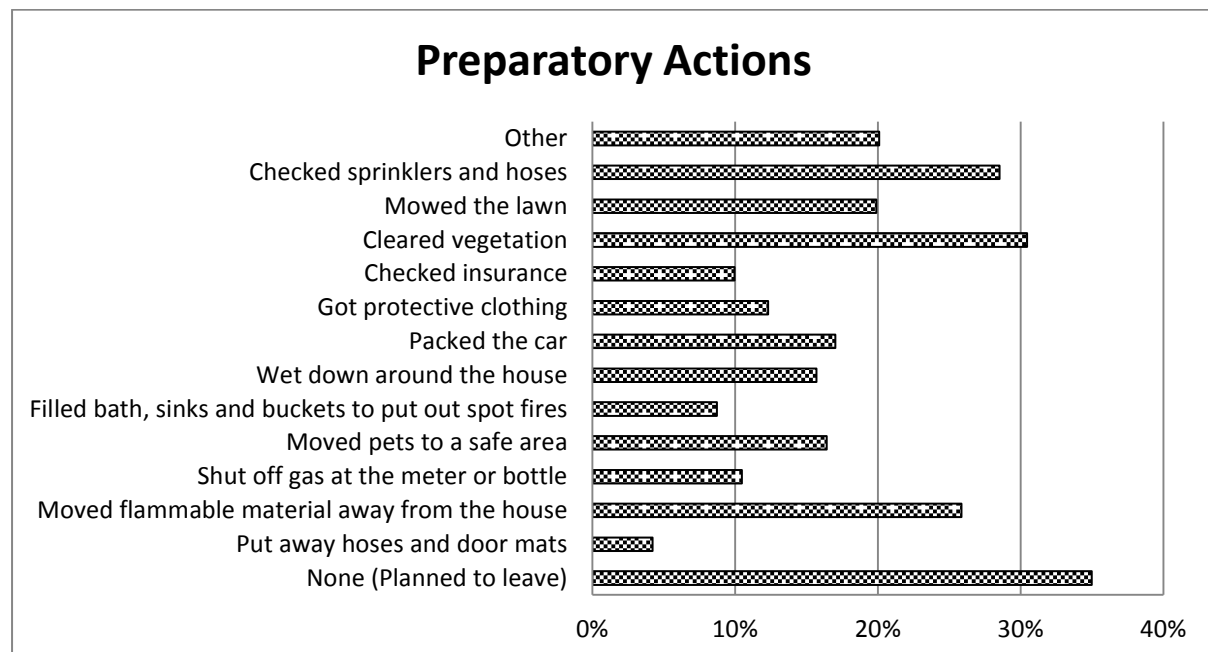


Figure 46 Preparatory actions undertaken

Finally, respondents were asked how they would rate their physical and mental health and stamina. While panellists felt their mental and physical capacity was average or good, when asked about a specific situation – i.e. their ability to work in a smoky environment – they were less confident (Figure 47).

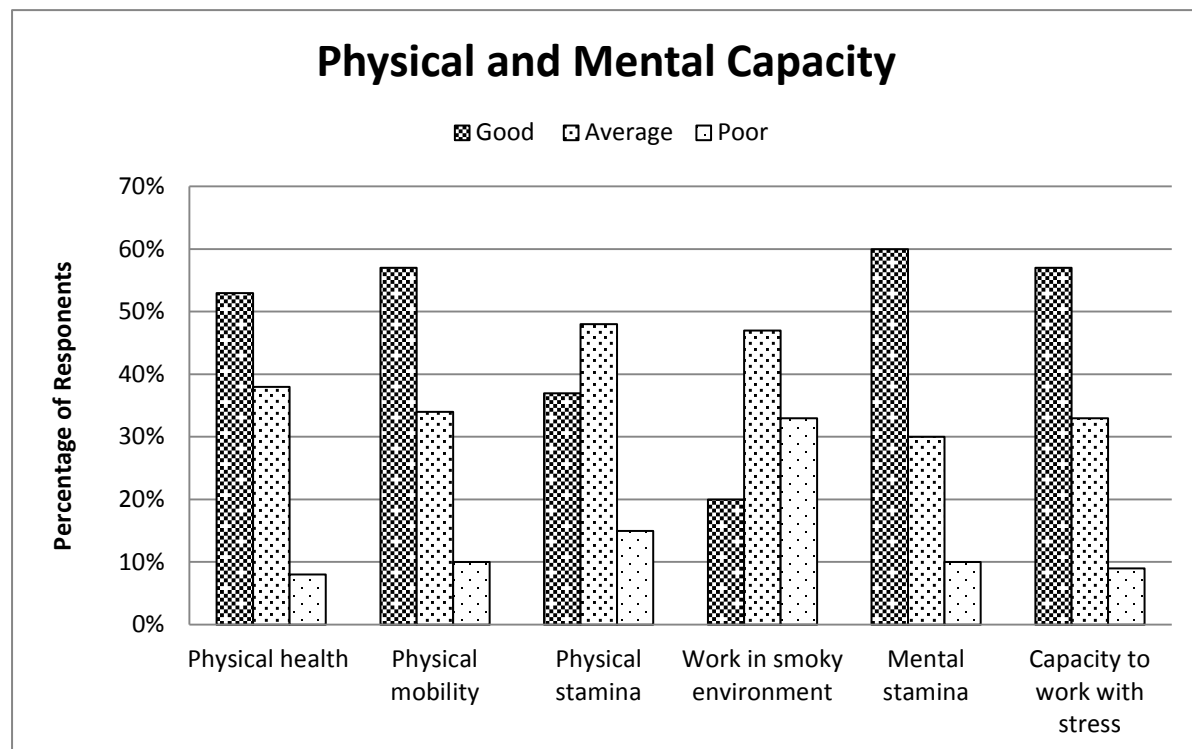


Figure 47 Physical and mental capacity

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