

# FIRE NOTE

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## HOW THREE COMMUNITIES REACTED TO BUSHFIRE

RESEARCH FINDINGS FROM THE JANUARY 2013 BUSHFIRES IN NSW



▲ Dr Jim McLennan interviewing residents near Coonabarabran. They were lucky; the fire only licked their verandah. *Photo: Brydie O'Connor, NSW RFS*

### SUMMARY

This *Fire Note* explores the experiences and survival decisions of residents who came under threat from bushfires around Yass, Shoalhaven and Coonabarabran during January 2013. To maximise the lessons learnt from these fires, the NSW Rural Fire Service (NSW RFS) engaged the Bushfire CRC to undertake a community-focused householder interview research project, aiming to provide an understanding of community bushfire preparedness and responses to warning messages. A total of 238 interviews were conducted. Findings showed that many people had a basic plan for what to do when threatened by a bushfire, but few had documented it. Most believed that they had prepared their family to be safe by leaving rather than by mitigating the risk to home and property, although over half had cleared space around their home. 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. Few residents understood the implications of the different fire danger levels on their safety, and actions to take at each, apart from Catastrophic.

### ABOUT THIS PROJECT

This research was conducted for the NSW RFS and investigated five community bushfire safety issues: (1) bushfire knowledge, planning and preparation; (2) understanding of existing official bushfire information; (3) understanding of, responses to and perceived usefulness of the bushfire warnings immediately prior to and on the day of the fire; (4) experiences and behaviours of people affected by the fires; and (5) why relatively few dwellings (and no lives) were lost.

The full report, *Community understanding and awareness of bushfire safety: January 2013 bushfires* (Mackie, McLennan and Wright, 2013) can be found at [www.bushfirecrc.com/projects/rc-17/nsw-bushfire-task-force-2013](http://www.bushfirecrc.com/projects/rc-17/nsw-bushfire-task-force-2013)

### AUTHORS

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### CONTEXT

The 2012-2013 bushfire season in New South Wales presented the most challenging conditions in almost a decade. NSW RFS took this opportunity to learn from the major fires experienced to better understand how communities respond to bushfire threat.

### BACKGROUND

January 2013 saw NSW experience record temperatures, with some of the worst fire danger conditions ever recorded in many locations. By the end of the fire season, more than 6000 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.

Areas around Yass, Shoalhaven and Coonabarabran were impacted by large fires. Communities around Yass and Shoalhaven were impacted on 8 January, while the Coonabarabran fire threatened communities on 13 January. All three fires had the potential to have done more damage than they did if extensive suppression activities – such as the use of aircraft – had not been undertaken, if weather conditions had not abated, and the communities had not responded appropriately.

At the request of the NSW RFS, the Bushfire CRC coordinated a field research task force to interview a sample of respondents in each of the three communities affected by the fires, complemented by an online panel survey of a representative sample of residents of the same locations. Note that the online survey findings are not discussed in this *Fire Note* – see Mackie et al. (2013) for these findings.

The research task force aimed to provide NSW RFS with an understanding of:

- (a) Community preparedness.
- (b) How residents in the three affected locations responded to bushfire threat warnings.

## YASS – THE COBBLER ROAD FIRE

Yass is 59 kilometres north west of Canberra, with the Yass Valley area a diverse landscape, characterised by grassland plains, hills and valleys, including the Brindabella Ranges. Vegetation is predominantly wet and dry sclerophyll forests, and box and ironbark woodlands. There has been extensive clearing for agriculture.

On the evening of 7 January 2013, warnings were issued (Emergency Alert, radio and TV news) that the next day would be a day of Catastrophic fire danger for the Yass area. On 8 January at approximately 4pm, a fire was reported near Cobbler Road, Jugiong, 62 kilometres west of Yass. The fire travelled rapidly in a mostly easterly direction, burning through grassland and patches of open eucalypt woodland. The fire was halted at the Yass River, about 10 kilometres west of Yass. About 50 properties were in or near the fire-scar area. Several homes on rural properties were threatened, but none were destroyed. Stock losses were significant.

## SHOALHAVEN – THE DEANS GAP FIRE

The City of Shoalhaven lies within the south eastern coastal region of NSW and consists of a number of hamlets and towns. It is approximately 200 kilometres south of Sydney and is predominantly bushland.

A fire occurred west of Wandandian, 30 kilometres south of Nowra, on 7 January 2013, and was contained that night. Warnings were issued (Emergency Alert, radio and TV news) that evening that the next day would be a day of Catastrophic fire danger for the Shoalhaven area. Around midday on 8 January, the previously contained fire jumped containment lines, travelling in a south easterly direction towards Sussex Inlet. At 3.40pm, an Emergency Alert telephone and SMS warning was issued to residents of Jerrawangala, and just after 5pm, the fire threatened properties west of the Princes Highway. Four hours later, the fire crossed the Princes Highway.

Weather conditions moderated on 9 January, however the fire burned uncontained in inaccessible terrain for a further nine days. The fire danger increased to Extreme on 18 January and the fire threatened communities around St Georges Basin. In the following days the fire was contained, with no properties destroyed.

## COONABARABRAN – THE WAMBELONG FIRE

Coonabarabran is a rural residential town 341 kilometres north west 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 and narrow-leaved ironbark.



▲ The Coonabarabran fire threatens homes.

Photo: Alex King, NSW RFS

Conditions had been very dry for several years, and in the memory of residents, there had not been a significant bushfire threat to Coonabarabran coming from within the Warrumbungle National Park. The fire was detected on 12 January, and broke containment lines in the afternoon on 13 January – a day of total fire ban with Extreme fire danger conditions.

Multiple warnings were issued to local communities through doorknocks, websites, Emergency Alert and the media. The fire travelled in a north/north east direction towards Coonabarabran, threatening the Siding Springs Observatory. It was contained several days later. A total of 53 homes were destroyed. Several other homes were damaged. There were some stock losses and considerable lengths of fencing destroyed.

## BUSHFIRE CRC RESEARCH

During February, March and April 2013, the task force of Bushfire CRC researchers and NSW RFS Community Engagement, Corporate Communications and Public Liaison staff visited the communities of Yass, Shoalhaven and Coonabarabran to conduct interviews. Field teams were made up of one researcher and one NSW RFS member. 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. The interview guide was based on similar Bushfire CRC research undertaken following the 2009 Black Saturday bushfires, and the 2011 Perth Hills and Lake Clifton bushfires.

The survey examined various aspects of bushfire preparation, including whether respondents had a household bushfire plan,

their general preparation and preparation immediately prior to the fire. It also studied respondents' recall of general warnings and official bushfire information, including the NSW RFS Bush Fire Survival Plan.

The task force conducted 238 semi-structured interviews across the three areas, with 75 interviews completed around Yass, 80 interviews around Shoalhaven and 83 interviews around Coonabarabran.

Of the 238 interviews conducted, 31 interviews were subsequently transcribed and analysed for content and themes by the authors. The interviews were selected to cover: (a) all three study areas; (b) a range of property types; and (c) a variety of responses to warnings.

Interviews were undertaken when participants were present when a property was visited during the time available in the field. Because of time constraints, efforts were concentrated to interview residents in the worst-affected areas at the expense of obtaining information from residents more distant from the fire affected 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.

## RESEARCH OUTCOMES

Based on the chronology and research, the Yass, Shoalhaven and Coonabarabran areas experienced very different fire events, which impacted them in quite different ways. One of the key differences was the geographic environment in which the fires occurred and how this appeared to influence short and long-term preparedness, intentions and final actions. Both Shoalhaven and Coonabarabran are in close proximity to national parks with dense bushland, while the Yass area was mostly open farmland, with some woodland areas.

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 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.

## PREPAREDNESS

While only 28% of respondents reported receiving a copy of the NSW RFS Bush Fire Survival Plan kit, most (68%) of the respondents said that they had formulated a plan for what to do during a fire, but only 8% had rehearsed it. Few (9%) had written it down. This is despite more than half mentioning a written bushfire plan as an aspect of bushfire preparation. 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.

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

Respondents felt quite well prepared overall, with three-quarters (75%) of Yass, Shoalhaven and Coonabarabran respondents reporting they were 'well' or 'adequately' prepared, with more than half clearing space around their homes. 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 to do to be prepared for a future bushfire.

## INITIAL INTENTIONS

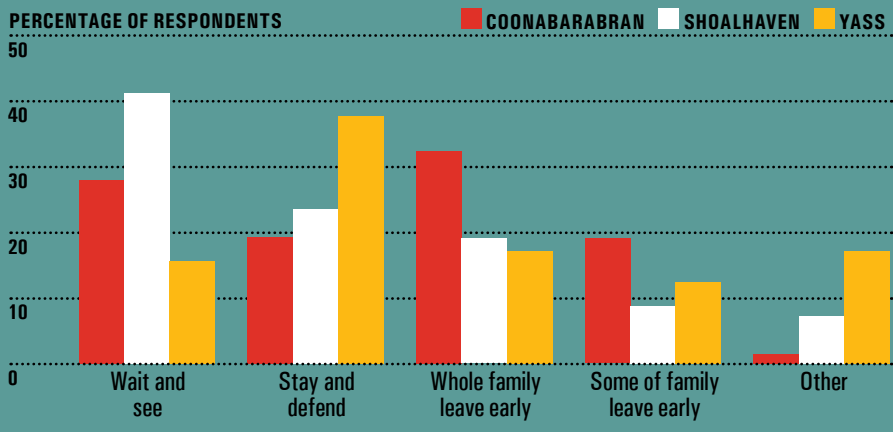


Figure 1: The initial intentions of respondents once learning of a bushfire threat.

## END USER STATEMENT

Major fire events in recent years have led to significant changes in the way fire agencies and the broader emergency management sector communicate and engage with the community.

These changes, including new Fire Danger Ratings, Alert Levels and the development of the Bush Fire Survival Plan, have now become a routine part of our messaging before and during major incidents.

The 2013 January bushfires were one of the first major tests of these recent changes in NSW. During this period, NSW experienced some of the worst conditions imaginable in terms of fire weather, the number of fires, the increased fire danger and destruction of property. While there were more than 50 properties destroyed in the two week period, not a single human life was lost.

The fires presented the NSW RFS and the Bushfire CRC the opportunity to learn from this major event and better understand the community's response, and why relatively few homes were lost.

The research will not only allow the NSW RFS to refine messaging and its approach to engaging with the community before and after these types of events, but will also contribute to the national research agenda and ensure ongoing improvement for all fire agencies.

– Shane Fitzsimmons, Commissioner NSW Rural Fire Service

Previous experience with bushfires and involvement of family members with NSW RFS were associated with better planning and preparation. The presence of dependents (children, elderly) and pet ownership made planning and preparation more difficult.

## USEFULNESS OF WARNINGS

Despite repeated prompting, less than a quarter of respondents elaborated on their views on the clarity and relevance or otherwise of the warnings they recalled. 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%) felt that the warnings were not sufficient to help them prepare and make decisions about the approaching fire.

## RECEIVING WARNINGS

The majority of the Yass and Shoalhaven 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.

The reasons that respondents gave for not receiving a warning are varied: in Yass and Coonabarabran, 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. Consistently across the three regions, 13% of respondents expected to be warned personally by an emergency service agency of imminent bushfire threat.

## INITIAL INTENTIONS

Respondents described a variety of intentions when they first became aware that a fire was imminent (see figure 1 above). In Coonabarabran, the highest proportion (33%) reported their initial intention was to leave, while a large proportion (28%) said

they would wait and see. In Shoalhaven, 41% reported their initial intention was to wait and see what developed before choosing a final action. In Yass, 37% described their initial intention was to stay and defend. Analysis 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 leave early.

## NAMING OF FIRES

The official names of the fires seemed to cause some confusion and uncertainty for some residents. As the fires spread, the names of fires, which were based on their starting point, did not reflect their current location, leading to some misperceptions of fire position for some people.

## 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.

A little more than half of the respondents (53%) made reference to bushfire alerts, fire danger ratings and radio warnings as ways of knowing about a bushfire threat. However, few residents understood the implications of the different fire danger levels on their safety (apart from 'Catastrophic').

## HOW IS THE RESEARCH BEING USED?

Understanding how the community prepares for and responds to an emergency is an issue for fire services and emergency management agencies around the world.

As the lead agency for bush and grass fires in NSW, the Rural Fire Service has a legislative responsibility for the issuing of public alerts and warnings relating to bushfire threats.

These alerts and warnings are delivered through a number of channels including traditional media, social media, face-to-

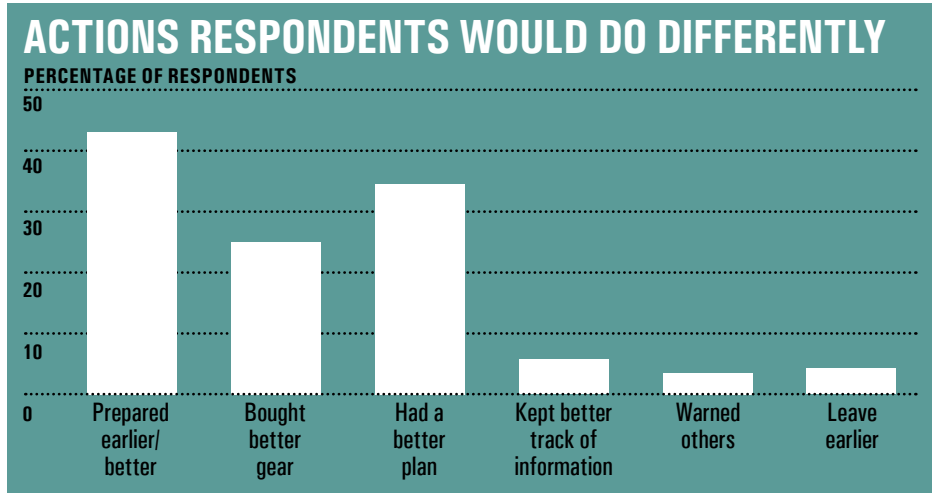


Figure 2: Actions respondents said they would do differently next time they were threatened by bushfire.

## REFERENCES /FURTHER READING

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face communication and engagement, the Emergency Alert telephone warning system and websites. During the January 2013 bushfires, there was extensive use of these approaches to inform people of the increased threat of fire and to issue warnings during major fire events.

While fire agencies have an obligation to deliver timely and relevant warnings to improve public safety, under the well-established concept of shared responsibility, the community also has an important role to play in the areas of planning, preparation and response. Despite the very best of intentions, it invariably happens that people do not respond to warnings, with many people adopting a 'wait and see' approach.

The research conducted by the Bushfire CRC allows the NSW RFS to improve the Service's understanding of how the public uses and responds to information and warnings, and the barriers which may prevent people responding.

The research identifies a number of areas of focus for the NSW RFS, including the terminology and naming conventions used during fires, the methods for delivering information and warnings, preparedness messages and materials developed for the community, and ultimately how to motivate people into taking decisive action during a fire event.

This research will ultimately help influence the NSW RFS's approach to community engagement, and during operations, the delivery of information and warnings to the community.

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Bushfire CRC is a national research centre in the Cooperative Research Centre (CRC) program, formed in partnership with fire and land management agencies in 2003 to undertake end-user focused research. Bushfire CRC Limited ABN: 71 103 943 755

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