

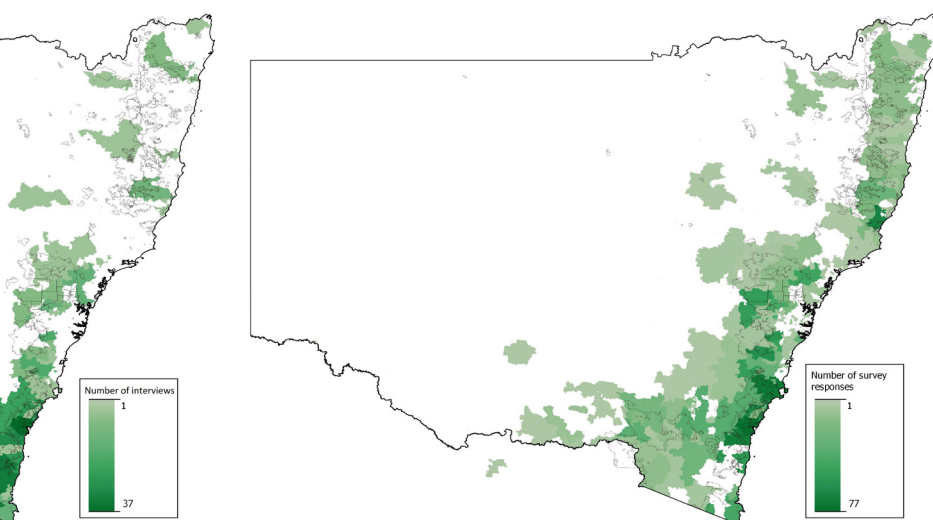
▲ **Figure 1:** GEOGRAPHICAL SPREAD OF INTERVIEWS BY POSTCODE (N=202).

and three aerial firefighters from the United States. Many more people were affected by smoke, including in regional areas and major population centres such as Sydney, Canberra, Newcastle and Wollongong.

By season's end, when February rain reduced the fire threat, fires had burned a record 5.5 million hectares of NSW and destroyed 2,448 homes (NSW RFS 2020). Community and commercial buildings and infrastructure were also significantly impacted. The fires adversely affected many industries, including agriculture, forestry and tourism.

BUSHFIRE AND NATURAL HAZARDS CRC RESEARCH

The research involved 202 semi-structured, in-depth interviews, conducted with 215 people threatened or affected by bushfires across NSW (see Figure 1, above left). Gender breakdown was 59% female, 41% male. Of the 202 interviews, 166 were with people who were threatened at their primary place of residence, while 36 were with people who were tourists, visitors or holiday home owners in affected



▲ **Figure 2:** GEOGRAPHICAL SPREAD OF SURVEY RESPONSES BY POSTCODE (N=1,004).

areas. Interviews were conducted via web conferencing and telephone (due to COVID-19 restrictions), were audio recorded, transcribed, and then qualitatively analysed using data analysis software NVivo 11.

In addition, an online survey received a total of 1,004 completed responses from people who were threatened or affected by bushfire at their primary place of residence (n=773) or at a secondary residence (e.g. holiday home) or as a tourist or visitor to a fire threatened or affected area (n=231) (see Figure 2, above right).

This *Hazard Note* reports on findings from both the community interviews and the survey. Statistics reported throughout are for survey respondents who were threatened or affected by bushfire at their primary place of residence ('residents') unless otherwise stated.

This *Hazard Note* covers findings relating to prolonged and/or repeated exposure to fire, Fires Near Me NSW, fire spread prediction maps, Tourist Leave Zones, and the experiences of tourists and visitors generally. Full details of the research are available in the report *Black Summer – how*

the NSW community responded to the 2019-20 bushfire season (Whittaker et al., 2021).

RESEARCH FINDINGS

PROLONGED AND/OR REPEATED EXPOSURE TO FIRE

The length of the fire season and the repeated threat of bushfire was a significant factor that influenced people's planning, preparation and responses. The extended fire season required many people to adapt to fire as an everyday part of their life, juggling work, schooling and family celebrations with ongoing monitoring, preparation and responses to fire.

Many people were exhausted by the ongoing nature of the threat and the continual need to monitor and prepare. Some discussed living with the continual 'anticipation of threat' and voiced times where they had wished the fires would arrive so that the experience would be over.

The length of the fire season allowed many people to engage in considerable planning and preparation. Residents who had not previously considered the risk of bushfire talked about how they made

WHAT WAS SAID

On continuing with holiday plans

"Really that crossover between wanting your summer holiday and the good times that come with it, and being able to push the risk away a little bit, because you really just want to have that good time, rather than really be involved in an emergency. 'That can't happen, look, we're on holiday. There's just no way.' But of course, there was."

On prolonged exposure to fire

"So, what I found was really difficult with that planning was, you're on high alert. You're actually constantly on tenterhooks. It's not like something happens, it scares you, and then the threat goes away. The threat is always there, and it's still coming, you just don't know when...the threat's just looming. You don't know when it's coming. So, you have to constantly be in the mode to fight or flight. It's not good."

On fire spread prediction maps

"I saw an ember attack map that included the edges of Conjola Park as coming under ember attack that day. That was the predicted map, so I figured if down south around Moruya and Mogo and all that the ember attack had already hit them by 8:00 o'clock in the morning that weather, that wind, was coming up the coast and so I knew we were stuffed. I knew that we were going to get burned that day."

fire plans for the first time, while others had time to hone their preparations.

The long duration of the fire season influenced some people to change their bushfire plans. Notably, some realised that they no longer accepted the risks involved with staying to defend due to an increased understanding of the likely severity of the fire and witnessing fire impacts in other areas.

FIRES NEAR ME NSW

The Fires Near Me NSW app was extremely popular, with 94% of primary residents surveyed reporting they had downloaded the app, including 39% reporting that it was the most useful source of information (followed by NSW RFS volunteers as the next most useful source at 13%). Most residents thought Fires Near Me NSW was easy to understand (89%) and useful (88%). More than two thirds thought the information was sufficiently localised. However, less than half believed the information was up to date (47%).

While a number of people reported that Fires Near Me NSW was not updated frequently enough, there was still a strong preference for it as a source of information, with 78% of survey respondents indicating it was their preferred source of information in the future.

The NSW RFS had identified issues with Fires Near Me NSW, including the timeliness

of maps due to the large number of fires and the speed of fires spreading, and these issues were reflected in many community interviews.

FIRE SPREAD PREDICTION MAPS

Fire spread prediction maps were introduced by the NSW RFS to communicate elevated risk from fire conditions and the large number of dangerous fires burning across the state.

Most people recalled seeing these maps for their area (86%) and found them easy to understand (93%), sufficiently localised (77%) and useful (85%). Around half of these respondents said that seeing the fire spread prediction influenced their decision to leave or avoid travelling to a fire threatened area.

Some tourists and visitors consulted fire spread prediction maps prior to commencing their travel. A small number of people said the fact that their travel destination was not within a fire spread prediction area gave them a false sense of security in continuing with their travel plans.

TOURIST LEAVE ZONES

Tourist Leave Zones were communicated to encourage visitors to leave certain areas due to the fire risk.

Around half (47%) of the tourists, visitors and secondary residents who were surveyed reported that they were in a Tourist Leave Zone during the bushfires. After receiving

notification of the Tourist Leave Zone, 54% of people returned home to their primary residence and 14% went to another location outside the zone. Around one-third stayed within the zone. Reasons for staying within the zone included to protect houses and property (mostly occupants of secondary residences; 32%); because police, fire or emergency service advised people to stay (12%); and because attempts to leave were unsuccessful (11%). The majority of interviewees understood the purpose and were supportive of Tourist Leave Zones.

TOURISTS AND VISITORS

While most tourists, visitors and those who owned secondary homes were aware of bushfire activity in the vicinity of their travel destination, many did not think they would be directly affected. Continuing with annual holiday plans and wanting to escape smokier conditions at their primary place of residence were the main motivations for people to travel during the bushfire threat.

Some tourists and visitors sought assurance from accommodation providers that it was still safe to visit. Others reported hearing local councils and tourism agencies say it was safe to travel. Some felt there were mixed messages about whether it was safe to visit or remain in particular areas, with NSW RFS telling people to leave or

SUMMARY OF KEY RESEARCH STATISTICS¹

Engagement with NSW RFS programs and materials:

- 57% had read the *NSW RFS Guide to Making a Bush Fire Plan*.
- 44% had participated in a local NSW RFS brigade event.

Fire spread prediction maps:

- 86% recalled seeing a fire spread prediction map for their area.
- 93% found it easy to understand, 77% sufficiently localised and 85% useful.

Official warnings:

- 78% received official warnings with sufficient time and 71% with sufficient information to take protective action.

Fires Near Me NSW:

- 94% had downloaded the Fires Near Me NSW app.

- 78% indicated that it was their preferred source of information in the future.

Neighbourhood Safer Places:

- 44% were familiar with the term 'Neighbourhood Safer Place'.
- 72% of those who were familiar with the term were aware of a Neighbourhood Safer Place in their area.

Experiences of tourists and visitors:

- 38% considered it likely that a bushfire could occur in the area they were visiting and 33% considered it unlikely. Just 2% had not considered the risk.
- 27% indicated that a bushfire was already burning in the area they were going to visit.
- 45% of those who travelled to an area where a fire was already burning did so to defend a property or assist family

or friends. 26% did not think the fire would affect them and 11% wanted to continue with holiday or business plans.

- 52% had not done anything to prepare for the possibility of bushfire on their trip.
- 47% reported that they were in a Tourist Leave Zone during a period of bushfire threat.
- 34% found out about the Tourist Leave Zone via radio, 13% via television, 13% via social media, 11% from people in the surrounding area and 10% via Fires Near Me NSW.
- 54% returned to their primary residence after receiving notification of the Tourist Leave Zone, 14% went to another location outside the Tourist Leave Zone and 32% remained within the Tourist Leave Zone, mostly to defend property (typically holiday home owners) or because they were unable to leave.

¹ Statistics are for survey respondents who were threatened or affected by bushfire at their primary place of residence.

avoid fire threatened areas and some local businesses encouraging people to visit.

CONCLUSION

The findings presented in this *Hazard Note* and in the full report, *Black Summer – how the NSW community responded to the 2019-20 bushfire season*, present numerous opportunities for the NSW RFS, other government agencies and communities to reduce future bushfire risk. Few opportunities are the responsibility of any one stakeholder alone. The findings highlight the complexities of community preparedness and responses to bushfire and the need for integrated and holistic responses to risk reduction. Bushfire risk reduction is a shared responsibility between governments, fire and emergency services, businesses and communities at risk.

Community expectations of warnings and information appear to be growing. In particular, many people expect to receive highly detailed and localised information in near real-time. Analysis of interviews suggests that people want this information in order to make more ‘responsive’ or ‘timely’ decisions about protective actions. Messaging is needed about the potential

for disruptions to communications during bushfires, underscoring the need for well-planned and decisive action to avoid last-minute evacuation or being unable to leave a fire affected area.

For most people, the Fires Near Me NSW app remains the preferred source of warnings and information during bushfires. People identified ways it could be improved, including by providing more information about where the fire is spreading and, particularly for tourists and visitors, information about roads and transport. While there are benefits of providing more localised and detailed information about the likely spread and impact of bushfires, there is a risk that this would encourage people to delay their protective action. Those who plan to leave during bushfires should do so long before they are directly threatened.

Fire spread prediction maps and Tourist Leave Zone messages were effective in communicating risk and motivating people to take protective action. Consideration should be given to reserving their use so they continue to be taken seriously by the community. Community members must understand

that such communications are based on predictions that, while based on the best available science, are inherently uncertain.

Few travellers had prepared for the possibility of encountering bushfire while travelling or at their destination. Tourists and visitors should be encouraged to plan and prepare for bushfire when travelling to and visiting bushfire risk areas.

FURTHER READING

New South Wales Rural Fire Service (2020) Unprecedented season breaks all records. *Bushfire Bulletin* 42 (1), pp. 2-3.

Whittaker J, Haynes K, Tofa M, Wilkinson C, Dilworth T, Collins J, Tait L & Samson S (2021) *Black Summer – how the NSW community responded to the 2019-20 bushfire season*, Bushfire and Natural Hazards CRC, accessible at www.bnhcrc.com.au/publications/black-summer-nsw-community

Whittaker J, Haynes K, Tofa M, Wilkinson C & Taylor M (2020) Understanding bushfire risk, warnings and responses: a study of the 2018 Reedy Swamp fire, report, Bushfire and Natural Hazards CRC, accessible at www.bnhcrc.com.au/publications/reedyswampfire

Whittaker J, Haynes K, Tofa M, Wilkinson C & Taylor M (2020) Understanding bushfire risk, warnings and response – lessons from the 2108 Reedy Swamp fire, *Hazard Note* 69, Bushfire and Natural Hazards CRC, accessible at www.bnhcrc.com.au/hazardnotes/69

Whittaker J (2019) Ten years after the Black Saturday fires, what have we learnt from post-fire research?, 34(2), *Australian Journal of Emergency Management*, pp.32-37.

Whittaker J & Taylor M (2018) Community preparedness and responses to the 2017 NSW bushfires, *Hazard Note* 45, Bushfire and Natural Hazards CRC, accessible at www.bnhcrc.com.au/hazardnotes/45

END-USER STATEMENT

“The 2019/20 bushfire season was described as ‘unprecedented’ because of the scale of risk across NSW, the forecast fire conditions, the impact of the fires on communities, and the scale of loss.

“We also saw the community respond like never before, such as engaging with our warnings and information, and taking action.

“While any loss is a tragedy, there was the potential for dozens or even hundreds of lives to be lost – and it’s testament to the combined efforts of community and emergency services that the losses weren’t of that magnitude.

“Large events like this always present an opportunity to consider what works and what needs to be refined, in conjunction with inquiries like the *NSW Bushfire Inquiry* and its recommendations, this research helps map out how we can continue to improve.

“Importantly, the research sets out that while fire services like the NSW RFS are critical in mitigating the risk, it isn’t for government or emergency services alone. While the quality and amount of preparedness information and warnings improves, the community can’t afford to become overly reliant. The community must do its part to prepare and respond.”

Anthony Clark, Director Communications and Engagement, NSW Rural Fire Service

The Bushfire and Natural Hazards CRC is a national research centre funded by the Australian Government Cooperative Research Centre Program. It was formed in 2013 for an eight-year program to undertake end-user focused research for Australia and New Zealand.

Hazard Notes are prepared from available research at the time of publication to encourage discussion and debate. The contents of *Hazard Notes* do not necessarily represent the views, policies, practises or positions of any of the individual agencies or organisations who are stakeholders of the Bushfire and Natural Hazards CRC.

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