

FIRE NOTE

TOPICS IN THIS EDITION

- COMMUNITY EDUCATION
- RISK

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NATIONAL STUDY PROFILES BUSHFIRE PREPAREDNESS



▲ Researchers explore why some communities and their people prepare more than others.

SUMMARY

This national research investigated the community and householder characteristics that contribute to bushfire preparedness in Australia's bushfire-prone areas.

The findings are based on four separate but related studies (both qualitative and quantitative) conducted over two years in a total of 28 fire-prone communities across four states: Western Australia (WA), Victoria, South Australia and Tasmania.

The large-scale quantitative phase of the research project identifies and quantifies the 'whole-of-community' influences together with individual factors involved in determining whether and how well communities and their householders prepare for bushfire threat.

Overall, the findings show that bushfire readiness is driven largely by individual factors, rather than community level influences. These individual factors include the influence of perceived social norms (e.g. that preparation for fire is expected by others), as well as previous experience with bushfire and heightened risk perception.

ABOUT THIS PROJECT

This *Fire Note* reports on the Human Behaviour under Stress (Part 1) project conducted under the Bushfire CRC theme Communicating Risk.

AUTHORS

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CONTEXT

This project aimed to understand why some communities prepare more than others for bushfire risk.

The three main questions addressed in the four studies were:

- To what extent do community characteristics influence individual perceptions of risk and fire preparedness?
- How much variation in fire preparedness at the individual level can be explained by community characteristics, as opposed to individual level characteristics?
- What combination of community level and individual level characteristics best predicts preparedness?

BACKGROUND

When bushfires occur, many people are ill prepared to take actions which could mitigate risk to life and property. Others are well prepared.

This project set out to address what appeared to be large differences between communities in their preparedness. It also examined the differences in other characteristics which may have been important in determining property owners' perceptions of risk and their subsequent preparedness.

Previously, there appeared to have been no systematic exploration of the nature of these community differences or of their impact on individual preparedness. Nor had there been any concerted effort to disentangle individual characteristics from community influences.

The studies described in this *Fire Note* were designed to fill this gap and to identify those community characteristics that influenced fire preparedness. The approach was designed to study and understand behaviour from a multilevel perspective. It aimed to measure the amount of variance in individual preparedness that is determined by

COMMUNITY AND INDIVIDUAL LEVEL VARIABLES: WESTERN AUSTRALIA

Community Level Variables (4.58%)

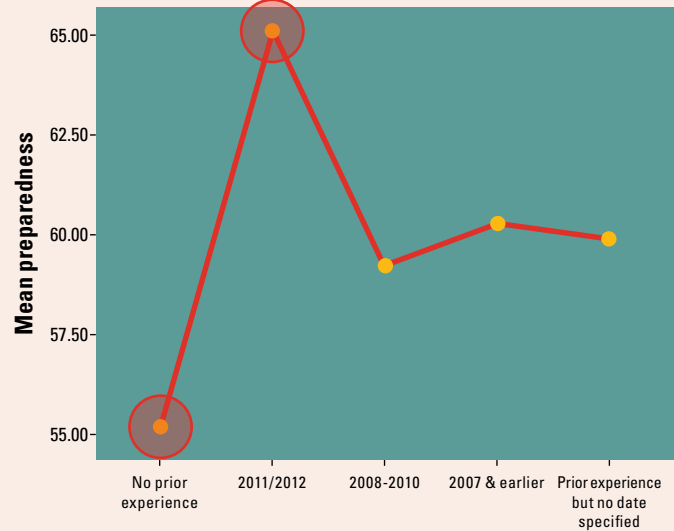
- Aggregated community perception of risk to town (significant predictor)
- Social capital (not significant)
- Place attachment (not significant)
- Proportion of properties inspected (not significant)

Individual Level Variables (95.42%)

- Living on a residential block (significant predictor)
- Being retired (significant predictor)
- Being involved in a community preparedness activity (significant predictor)
- Having been previously affected by fire (significant predictor)



▲ Figure 1. Mean preparedness across six employment categories for survey respondents. In ascending order: 1. Unemployed 2. Part-time or casual. 3. Full-time. 4. Business owner/manager. 5. Not in workforce (eg studying). 6. Retired.



▲ Figure 2. Mean preparedness scores for all WA respondents across the periods in which prior involvement with bushfire was indicated.

community level variables and how much by individual characteristics.

THE RESEARCH SCHEDULE

The research was conducted in two parts and comprised four separate studies.

PART ONE – PRELIMINARY INTERVIEWS IN WESTERN AUSTRALIA

The first study involved analysis of data captured in Bushfire CRC post-fire questionnaires of residents following the 2011 WA bushfires in Roleystone, Kelmscott, Red Hill and Gidgegannup. That initial study was undertaken by Bushfire CRC researchers for the Department of Fire and Emergency Services.

Rich data provided from this survey assisted in the identification of community level influences that appeared to be related to people's preparation for bushfires, as well as in refining measures of fire preparedness.

The second study was a small scale interview-based pilot study designed to provide an in-depth study into how people think about bushfires and bushfire risk, as well as how they prepare for such events.

This revealed a range of factors which were possible determinants of preparedness and also informed the selection of variables to be used for later quantitative analysis.

PART TWO – QUANTITATIVE STUDIES OF NATIONWIDE COMMUNITIES

Two large-scale, quantitative studies of community and individual level predictors of fire preparedness were conducted for this stage of the research. The first was conducted in 10 bushfire-prone communities in south-western WA and the second undertaken in 18 communities within the south-eastern states of Victoria, Tasmania and South Australia (six communities within each state).

More than 2600 people responded to both surveys. This included 1342 from the WA communities and 1307 from the communities in the other three states.

The surveys measured community and individual characteristics using self-report questionnaires. These comprised standard measures, such as social capital and place attachment, as well as a range of measures devised specifically for this project, such as perceptions of risk and fire preparedness.

The researchers also used social sciences theory, the Theory of Planned Behaviour, to analyse the data.

A statistical technique, Hierarchical Linear Modelling, was also applied to allow the researchers to untangle the relative importance of community and individual influences on household preparedness.

RESEARCH OUTCOMES

While a variety of bushfire-prone community types were studied, in aggregate, all communities scored similarly well in relation to preparedness.

The analyses showed that the direct impact on preparedness of community level influences (including social capital and attachment to place) was relatively small.

In the WA sample, only the aggregate perceptions of the bushfire risk in the respondents' town was a significant community level predictor: communities appeared to develop shared perceptions of risk which, when high, increased preparedness.

Most of the differences in preparation between people were related to individual characteristics, such as the location of their property (close to bush), home ownership, being retired, previous experience with fire and involvement with bushfire related organisations.

The second survey of 18 additional communities from Victoria, South Australia and Tasmania produced similar results. Again, analysis showed that community level influences were significant, but small in magnitude and that individual characteristics were the strongest predictors of preparedness. Several factors, such

as being retired, involved in community bushfire related activities and living on rural blocks, made it more likely that people would prepare. As in WA, the study showed that the more people were involved in bushfire preparedness activities (such as attending community meetings and volunteering in local bushfire brigades), the better the levels of preparation within that community. The results also confirmed that individual preparation was influenced by such participation.

The results indicated that the better prepared were those who had favourable attitudes to controlled burning and those who reported stronger social norms to undertake bushfire preparation. Where community members were aware of social pressure to prepare, they were more likely to prepare. People who felt more capable of undertaking bushfire preparedness actions were also more likely to undertake those actions.

Only one community level variable, the proportion of people involved in a community preparedness activity, was a significant predictor. The greater the proportion of the community involved in community preparedness activities, the greater the overall level of preparedness.

THE WESTERN AUSTRALIAN EXPERIENCE: KEY FINDINGS

Among its findings, the WA surveys showed:

Community influences

- Communities were moderately well prepared for bushfire.

- Communities differed in fire preparedness, as well as on various characteristics such as social capital, perceptions of risk and engagement in bushfire related community activities.
- Community influences, however, were not the main drivers of preparedness, although aggregated community perception of risk to the town/ community was a significant predictor.

Individual variables

- Rural householders, on large and small properties, were generally better prepared.
- Retirees were the best prepared and the unemployed were the least well prepared.
- Home owners were significantly better prepared than renters.
- People who had experienced bushfire were better prepared and more likely to be involved in local community and bushfire-ready groups.
- Personal preparedness was correlated strongly with involvement in bushfire-ready community related organisations and initiatives.

A SOUTH-EASTERN AUSTRALIAN/ NATIONAL PERSPECTIVE: KEY FINDINGS

Community influences

- As in WA, community level influences were not the main drivers of preparedness.
- The only significant community level influence on preparedness was the proportion of the community taking part in community preparedness activities.

END USER STATEMENT

This research provides new insights on the factors that determine how well householders prepare for bushfire.

The project delivers probably the first quantitative study of its type conducted in an Australian context. It identifies and quantifies the nature and extent of community influences and individual factors or variables in predicting bushfire preparedness.

The findings underline how community and householder information needs are different in relation to bushfire preparedness. This has significant implications in terms of the tailoring and targeting of messaging and information for householders.

Bushfire mitigation policies could also, for example, incorporate strategies that facilitate participation in community bushfire organisations, elevate perceptions of fire risk and reinforce social expectations (norms).

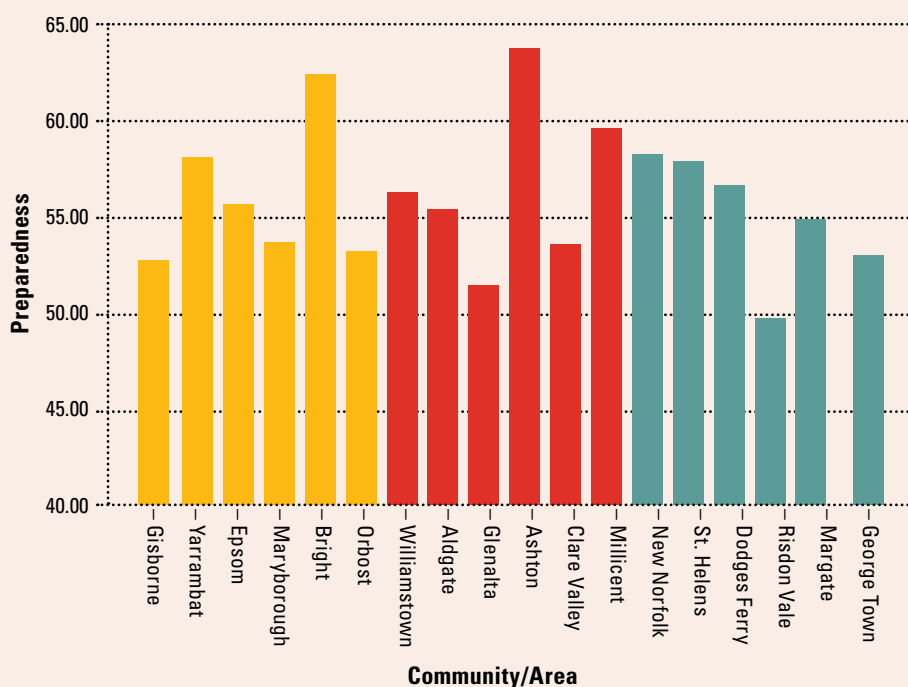
– Damien Killalea
Director, Community Fire Safety,
Tasmania Fire Service.

The more people who took part, the greater overall level of preparedness.

Individual variables

- People living on larger blocks were better prepared.
- Retirees were the best prepared.

COMMUNITY PREPAREDNESS IN VICTORIA, TASMANIA AND SOUTH AUSTRALIA



No state differences in preparedness.

Identical results to WA study

- Community level variance: 2.59%
- Individual level variance: 97.41%

Individual Level Variables:

- Residential households less prepared
- Retirees most prepared
- Those previously affected are more prepared
- Those volunteering in community preparedness activities are more prepared

◀ Figure 3. Mean preparedness scores derived from a 27 item preparedness measure for 18 communities sampled across Victoria, South Australia and Tasmania.

- The longer people had lived in the area, the better they were prepared.
- People who attended information sessions and community bushfire education programs were better prepared.
- Householders' perceptions of risk were related to judgements about quantity of and proximity to bushland.
- People who felt more capable of undertaking bushfire preparedness actions were more likely to prepare.
- Social norms were important: people who felt that friends and neighbours would judge them poorly for not undertaking bushfire preparedness were more likely to be prepared.
- People who viewed controlled burning favourably were better prepared.



▲ Perceptions of bushfire risk related to proximity to and quantity of bushland.

HOW COULD THE RESEARCH BE USED?

The results suggest that bushfire mitigation approaches designed to increase preparedness levels in bushfire-prone communities should incorporate strategies which facilitate participation in community bushfire organisations and community preparedness activities. These are obviously beneficial in their own right, but also appear to feed into household decisions to mitigate the risks from bushfires. The WA results also suggest that measures which emphasise the level of bushfire risk to communities are likely to be effective in driving better preparation. It is also clear that reinforcing social expectations (norms) that everyone should undertake preparedness actions influences people to prepare their own households.

FUTURE DIRECTIONS

As is the case with surveys generally, the relatively low response rates and the high number of retirees reduced the representativeness of the sample. However, the study did cover a wide range of fire-prone communities in south-eastern Australia.

In addition, many of the variables measured were simultaneously properties of individuals and of communities when considered in aggregate. The results indicated substantial

differences between communities on a number of these variables (for example, the proportions of the community previously affected by fire, retired from the workforce, living on residential sized blocks and involved in community bushfire preparedness activities). However, this variability, together with the relatively small sample of communities (and the reduced power of the analysis), made it difficult to reach firm conclusions about the level of influence of all of these variables. Future research which samples more households from more communities might assist in more precisely assessing these influences.

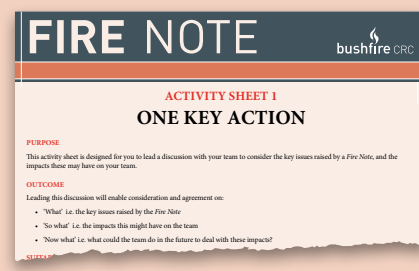
Measures of bushfire preparedness are also notoriously difficult to devise. In this study, the researchers computed a score which was based on the respondents' assessments of whether or not various actions were applicable in their situations. This may have led to respondents (in identical circumstances) making different judgements about whether the action described was actually relevant to them, given their location and bushfire planning. Future work could evaluate the applicability of such scales to residential and non-residential respondents, as well as considering utilising different item subsets for different fire strategies (i.e. defending vs. leaving early).

REFERENCES/ FURTHER READING

Morrison, D, Lawrence, C and Oehmen, R, 2014, Community level influence on individual behaviours with respect to bushfire readiness. Bushfire CRC Final Report of Research Program on Community Level Influence on Individual Behaviours.

NOW WHAT?

What three things stand out for you about the research covered in this *Fire Note*? What information can you actively use, and how? Tools are available at www.bushfirecrc.com/firenotes to help, along with activities you can run within your team.



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AFAC is the peak body for Australasian fire, land management and emergency services, creating synergy across the industry. AFAC was established in 1993.