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R.P. Thornton

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Welcome from Editor

It is my pleasure to bring to you the compiled papers from the Science Day of the AFAC and Bushfire CRC Annual Conference, held in the Sydney Convention Centre on the 1st of September 2011.

These papers were anonymously referred. I would like to express my gratitude to all the referees who agreed to take on this task diligently. I would also like to extend my gratitude to all those involved in the organising, and conducting of the Science Day.

The range of papers spans many different disciplines, and really reflects the breadth of the work being undertaken, The Science Day ran four steams covering Fire behaviour and weather; Operations; Land Management and Social Science. Not all papers presented are included in these proceedings as some authors opted to not supply full papers.

The full presentations from the Science Day and the posters from the Bushfire CRC are available on the Bushfire CRC website www.bushfirecrc.com.

Richard Thornton

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Capturing Community Members' Bushfire Experiences: The Lake Clifton (WA) Fire

Patrick D. Dunlop[AE], Jim McLennan[B], Glenn Elliott[B], Leanne Kelly[B], Karli Riseborough[A], Meagan Tyler[C], and Peter Fairbrother[D]
[A]University of Western Australia, Crawley, WA, Australia
[B]La Trobe University, Bundoora, VIC, Australia
[C]Victoria University, Melbourne, VIC, Australia
[D]RMIT University, Melbourne, VIC, Australia
[E]Corresponding Author

Abstract

On Monday January 10, 2011 a fire broke out in the Lake Clifton district, which is 109 km by road from Perth CBD and 68kms from Bunbury. More than 40 houses were saved but 10 houses were lost together with a number of other structures in the rural subdivision development known as Armstrong Hills at Lake Clifton. The fire caused much of the damage during the initial six hours, and after that time it was more a matter of containing the fire and extinguishing where it was burning than defending further property and homes. Although the fire never reached the area, residents of neighbouring Tuart Grove were evacuated. No lives were lost. However, in addition to the 10 destroyed dwellings, losses included many outbuildings, farming equipment, livestock, and fencing.

During the week after the fire, the Bushfire Cooperative Research Centre (Bushfire CRC) and the Fire and Emergency Services Authority of Western Australia (FESA) assembled a taskforce with the brief to investigate the events of the day from the perspective of the local residents. This report is written with a view to providing a methodological framework from which to build future like research. Nonetheless, several of the key findings are also discussed so as to expand on the existing database of community responses to bushfire threat (e.g. Galea & McNally, 2010; McLennan & Elliott, 2010). More detailed discussions of the results can be found in the recent report on the fire by McLennan, Dunlop, Kelly, and Elliott (2011).

Method

Research Taskforce

The research taskforce comprised nine individuals from two disciplines: four members of the taskforce were affiliated with research institutions (via the Bushfire CRC), and the remaining five were affiliated with FESA. Prior to the start of data collection, three taskforce representatives met with the local community recovery group to discuss the goals of the research project and gain an understanding of the issues the community was facing in the wake of the fire. This proved to be very critical for quickly building credibility within the community as it enabled us to establish a formal and sanctioned presence in the area. The taskforce then established a 'home base' near the fire affected area to act as a central point of contact and from which to conduct planning activities. All members of the taskforce were dressed in branded outfits (either Bushfire CRC or FESA, as appropriate) and all wore name tags.

Materials

Prior to the commencement of the data collection, a map of the area, showing the fire scar and the locations of all affected properties, was shared amongst the taskforce members. The map also included a list of all addresses and the corresponding status of the property (vacant, structure[s] damaged, structure[s] destroyed, or structure[s] intact) and was used throughout the project as a means of monitoring which properties were visited. Each interview pair was also equipped with the following items: a digital audio recorder, pens/pencils, a laboratory note book, a laminated copy of the interview protocol, and a ring binder containing project information sheets, support information sheets, and demographic questionnaires. All interviewers were provided with ample supplies of water throughout the day and food was provided at lunchtime.

A semi-structured interview protocol was developed, based on that used by the Bushfire CRC Research Taskforce following the 2009 Victorian bushfires (Whittaker et al 2009). Residents were asked about their awareness of bushfire risk, fire plans, awareness of official and informal warnings about the fire, and actions on the day of the fire. Interviewers were also encouraged to ask further probing questions or deviate slightly from the protocol, where appropriate, so as to elicit more detailed responses.

Procedure

Planning. All data were collected during the period January 18 – 21, 2011. On each day, all taskforce members who were rostered to work met at the home base at an agreed starting time. The taskforce members that were rostered for that day were then divided up into pairs. At no stage did any pair comprise two individuals from FESA as it was considered very important that the research be seen by participants as being at arm's length from the emergency services authority. At all times, one member of each pair wore a blue tabard with "Researcher" appearing in clear lettering.

Each day was divided up into two three-hour blocks: a morning block (10am-1pm) and an afternoon block (2pm-5pm). Pairs were mixed so that no two individuals worked together for more than a single block in order to randomise any systematic researcher effects that may have emerged. Prior to the commencement of each time block, each pair was assigned a

list of addresses to visit in sequence during the time block. All addresses were selected on the basis that there existed homes which had come under significant fire threat on the day. The taskforce then drove to locations near the assigned addresses and the research pairs began visiting their assigned addresses.

Interviews. All participants were approached in their properties. Where the home was undamaged, a door-knock approach was used. In some cases, residents of homes which were destroyed were seen within the bounds of their properties and, where appropriate, they were approached directly by the researchers. In almost all cases, residents agreed to be interviewed at the time, though some asked if they could reschedule their interviews. Only two residents declined to be interviewed, although one other individual requested that his/her interview not be digitally recorded. One participant was willing to discuss the events of the day but did not wish to be formally interviewed.

Before commencing the formal interview, residents were informed of the purpose of the study and that, though they would be recorded, all responses would be de-identified and presented in an aggregated form only. Residents were also advised that they could terminate the interview at any time they wished and had the right to refuse to answer any question. Within each research pair, one member acted as the lead interviewer and in all cases, this person was an employee of a research institution. Where it seemed appropriate, participants were advised that, if they so desired, the FESA representative would be willing to exit the interview, thereby allowing the participant to freely express any opinions about FESA. None of the participants took this option, but all seemed to appreciate it. At the conclusion of the interview, all participants were provided with information on the support services being offered.

A total of 40 interviews were conducted, involving 52 adults (at 12 properties two adults participated in joint interviews). The 52 interview participants were 21 men and 30 women (one 'not recorded'). Their mean age was 54 years and ages ranged from 26 to 77 years. The 40 households comprised 24 with no children; and 16 households with a total of 32 dependent children: an average of 2 per household, range 1 – 4. Not all interviewees were asked how long they had resided at the property, however, of those provided the information, their period of residence ranged from 2 to 26 years. A division was evident between a group of long-time residents who were retired and a somewhat smaller, younger group of mostly couples (and a few single parents) with children who had moved into the area relatively recently, largely for family lifestyle reasons.

Results and Discussion

Analytical Strategy

Each interview was transcribed by a third party organisation and each transcript was content-analysed via a coding system. The coding system was developed so as to capture participants' fire plans, their actions on the day, the outcome, the degree of exposure to threat, their level of preparation, their awareness of the fire danger weather, their physical readiness on the day, their fire knowledge, their awareness of the fire and readiness to respond, and the sources of information they referred to during, and prior to, the event. Transcripts were also analysed for evidence of the processes that governed participants'

decision making during the event, and any issues they had encountered unexpectedly. Community members' attachment to their community/neighbours as well as their own homes was also coded as appropriate. Note, however, that not all participants discussed all topics, thus the numbers reported in the following sections do not necessarily add up to the total number of interviews.

Results (note that full results are available in McLennan, Dunlop, & et al., 2011)

Awareness of Bushfire Risk. Of the 28 participants who provided information about past experience with fires, 12 reported that they had received training or been exposed to fire in the past. In most cases, the training had taken place at their workplaces. Information about bushfire safety also appeared to be reaching many community members with 24 of 31 reporting that they had read at least some of the materials published by FESA and distributed by the local council. Only four interviewees, of the 17 who discussed the topic, exhibited extensive knowledge of bushfire safety, though almost all of those interviewed believed that the area they lived in was at risk of bushfire (though it should be noted, with caution, that these responses are made in hindsight, after a fire had struck).

Preparedness and Readiness for a Fire. In only one of the interviews was there strong evidence of extensive long-term preparedness for bushfires while 18 people were only minimally prepared, if at all. Nonetheless, almost all of those interviewed reported that they had sufficient levels of insurance, though eight respondents felt they were under-insured. On the day of the fire, only two of the 27 participants who discussed the topic were aware of the high fire-danger weather conditions, and almost all (30 out of 33) reported that they were ill-prepared to respond effectively to the threat as it emerged. In only three of 35 interviews was the interviewee able to provide detailed descriptions of the fire's approach, whereas 15 people reported either no awareness at all, or only that they knew there was a fire somewhere in the area.

Fire Plans/Intentions and Resulting Actions. Clear evidence of fire plans/intended actions emerged in 37 of the 40 interviews conducted. Most participants (26) reported intentions to leave their homes early in the event of a fire. In fact, 19 of these individuals left their homes late. Three of the four households who had planned to remain and defend their homes did so, with the fourth leaving late. The remaining seven households either had no plan, or planned to wait and see what the fire was like before taking action. Of these, two stayed to defend their homes, two left late, one left early and two were absent just by chance.

Sources of Information about the Fires. The sight of smoke was the most oft-cited cue which alerted residents to the fire threat in the area. In addition to this, it appeared that many residents were receiving phone calls from family and friends. Only five interviewees indicated that they received information from the radio and another five were contacted directly by local police and/or emergency services personnel.

Factors that Contributed to, and Potentially Compromised, Survival. Interviewees described many factors which they thought may have facilitated their capacity to make sound decisions during the bushfire threat. Most often cited was practical assistance

received by family, friends, and neighbours (21 interviewees), though it was also clear that having information about the fire also contributed to survivability for many people (17 interviewees). Twenty-eight percent noted that it was important to be able to regulate their emotions, controlling their fears and anxiety, whilst one-quarter of interviewees stressed that maintaining a focus on survival-related tasks was critical. Many of the interviewees (31) indicated that *not* knowing about the location of the fire would likely have impinged on their ability to survive, whereas nine interviewees reported that panicking would also be counterproductive to survival.

Discussion

The analyses of the interview transcripts suggested a worrying 'awareness-actions' gap: despite reporting a great deal of concern about bushfire risk, few residents had formulated a detailed fire plan, and few had undertaken significant preparations for a possible fire. Whilst information about bushfire safety seemed to be received by community members, it appeared that many residents had a very different understanding of "leaving early" to that of community bushfire safety professionals. Many residents reported that their decision was "always to leave early", but on the day they waited until they could see flames before hastily quitting their properties. The few residents who chose to defend their homes appeared to be reasonably well-prepared, but those interviewed seem to have behaved at times in such a way as to have risked death or serious injury. These findings appear consistent with the outcomes reported following the events of Black Saturday and the Roleystone/Kelmscott fires (Heath et al., 2011).

While the Lake Clifton community was distressed as a result of the bushfire incident, the community members responded to the research project in an overwhelmingly positive manner, as evidenced by the very low turn-down rates experienced. Many of the participants also expressed gratitude for being given the opportunity to articulate their thoughts and provide their perspectives on the events of the day. While some participants shared some frustrations with the responses of the emergency services authorities on the day, this did not prevent them from speaking candidly to the interviewers. We therefore believe that this research project provides a useful template from which to undertake field research in bushfire affected communities, in collaboration with emergency services authorities.

Limitations

Whilst the method of undertaking community research following bushfires presented here is robust, some caution is suggested. Chiefly, it is critical to note that interviews are imperfect data collection devices. Interviews rely on participants' ability to accurately recall past events, whereas it is well known that memory is fallible, particularly when individuals have experienced distress (see McLennan, Elliott, & et al., 2011). Consequently, without being probed on specific areas, a participant might neglect a critical component of his or her story, thus the statistics presented here may under-represent the true population statistics. It is suggested here that future researchers in this area utilising interviews also develop a set of specific probing questions so as to ensure all participants are presented with primers to facilitate the recall of information. As a second limitation, because it was impossible to interview all residents, the generalisability of the observed results to the broader study

population remains questionable. Whilst, in the present case, a high degree of coverage of the study population was achieved, it would have enhanced the generalisability of the results if more attention had been assigned to households that were near to the fire scar, and thus exposed to fire-related warnings, but not directly affected by the fire itself.

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