An exploration of a fire-affected community undergoing change in New Zealand

Pamela J. Jakes, Laura Kelly, and E.R. (Lisa) Langer report on the findings of a study that examined how a wildfire affects rural-urban community behaviour and perceptions.

ABSTRACT

In the first case study of a fire-affected community in New Zealand's rural-urban interface, researchers found evidence to support findings raised in other countries regarding evacuation, blaming behaviour and perceptions of risk. Differences were evident based on ownership tenure, including less awareness of wildfire risk and preparedness among those with shorter residency. The study also provides new evidence of wildfire highlighting or intensifying existing divisions within an affected community.

Introduction

On 14 December 2003 a fire swept through West Melton, a township of approximately 280 residents in the rural-urban interface 25 km west of the South Island's largest city, Christchurch (Figure 1). The cause was a fire that had been lit in a pile of horticultural rubbish in November. Although the land owners thought the rubbish fire had been extinguished, it was smouldering and reignited three weeks later as a result of extremely dry conditions and a northwest wind gusting to over 91 kph. Fire agencies managed to gain control of the fire within a few hours, but the fire's high intensity and rapid spread resulted in significant damage to the small community—grasslands, wood lots, orchards, a vineyard, outbuildings, hedges and fences, farm equipment and one house were destroyed over an area of 130 ha (Selwyn District Council 2004).

Between 1991 and 2007 New Zealand averaged more than 3,033 wildfires burning nearly 5,900 ha annually (Doherty et al. 2008). These fires are substantially smaller in area than those experienced in the United States and Australia, and rural communities generally do not incur significant damage. However, the small community was significantly impacted. In addition, there are factors that cause New Zealand fire managers to contemplate a growing wildfire danger in the future. Weather forecasts under various global climate change scenarios in New Zealand indicate a potential for more
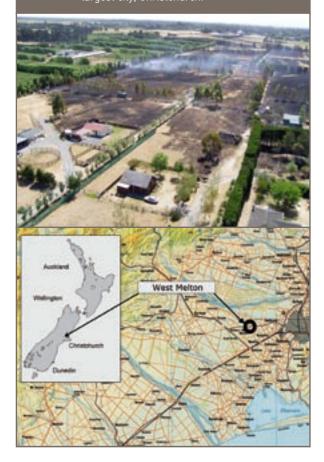
frequent days with very high or extreme fire danger (Pearce et al. 2005; Hennessy et al. 2007). Land use change will have a significant impact on the potential for wildfire. For example, in New Zealand in 2003 there were nearly 140,000 lifestyle block assessments documented, totalling over 753,000 ha with a mean block size of 5.53 ha (Sanson et al. 2004). 'Lifestyle block' is a distinctly New Zealand term introduced by real estate agents in the 1980's to describe rural small holdings purchased by people who want to live a rural lifestyle but who derive their principal income from non-farming activities (Paterson 2005). Lifestyle block development is growing steadily — approximately 6,800 new lifestyle blocks were registered annually between 1980 and 2002 which equates to just over 37,600 ha per year converted to lifestyle blocks (Sanson et al. 2004). Projections suggest that rural areas with moderate urban influence are likely to increase in population by 21% between 2001 and 2021, compared with a national average of 16 % (Statistics New Zealand 2005). An increase in population on lifestyle blocks puts more people at risk from wildfire and increases ignition potential.

The general view is that wildfires impact on communities in Australia, the western United States and Mediterranean countries rather than rural communities in New Zealand. Perceptions that the fire risk is low and that large damaging wildland fires occur infrequently mean that New Zealand communities are not well prepared to withstand a wildfire and are vulnerable as conditions change. By studying the social impacts of wildfires that occur in New Zealand today, communities and individuals can better prepare to minimise the impacts of future fires whether or not any of the factors cited above, or factors not yet anticipated, result in more frequent or more severe wildfires.

In this paper we report the findings of a study conducted to understand the varied reactions of residents to the 2003 West Melton fire (Kelly 2007). Findings are based on 20 in-depth semi-structured, face-to-face interviews with residents who were either affected by the fire or participated with the recovery, as well as emergency managers who experienced the fire. Interviews took place in the summer of 2006, three years after the West Melton fire. Participants were selected using purposive sampling, a type of non-probability sampling where participants are chosen for their knowledge and

experience in the event being studied, in this case the West Melton fire (Babbie 1998). The interviews provided much detail, but may not necessarily provide a full representative picture. We highlight findings in four areas: impacts of the fire, assessment of blame for the fire, responsibility for managing fire risk, and steps taken to reduce risk since the fire.

FIGURE 1. In December 2003 a fire swept through the West Melton township and lifestyle blocks with about 280 residents in the rural-urban interface 25 km west of the South Island's largest city, Christchurch.

Findings from the West Melton Fire

Impacts of the fire

One of the first impacts of the fire on many local residents was evacuation of the area. The evacuation was carried out by the New Zealand Police just before 2:00 pm, less than three hours after the first 111 call was made about the fire. Although no exact count is available, police estimate the number of people evacuated was between 150 and 300. People were allowed back into their homes after power was restored to most of the evacuation area the next morning. As with most evacuations, people questioned the wisdom of the action. Some people complained that the order to evacuate came too late:

The evacuation was a joke… we finished fighting the fire about 4:00 in the afternoon and then came back to the house, and then the police came and said that we've got to be evacuated, that it's a danger that we were here. This is after we spent all day fighting the fire and the fire had gone. I said there was no way I was gonna leave here, I'd sooner stay and keep my eye on things… but because I wouldn't go they came back with reinforcements but they didn't see me because I hid in the shed.

This quote points out the desire of a number of residents to stay and defend their property, some of whom had prepared for the possibility. As observed by one resident, "A lot of people have gone to the trouble to prepare themselves with fire fighting equipment and what's the point if we can't use it?"

But emergency managers' first concern is the safety of the residents and the fire fighters, which during a fire event can put them in conflict with rural people whose livelihoods may be threatened. As one fire manager explained:

If you are inside the [fire] area you either need to be part of the [fire fighting] game plan or you need to be an observer, you gotta be one or the other. If you are an observer you need to stay out of the game. The problem we have had in the past, and this is still an unresolved issue with a large section of the rural community, is how to get people out of the game or get them on the team. They want to be able to protect their own interests.

In general, West Melton residents who were relatively new to the area were more willing to evacuate because they trusted the authorities' judgment, while those who had lived in the area longer tried to stay and defend their properties.

In West Melton, there is evidence that for a time, the shared fire experience brought the community closer together. One resident offered, "Being affected by the fire seemed to cement our place in the community … [the fire] has given us a bond with a lot of people." As people thought about the fire they reassessed what is important to their lives, "It has made us realise that all we lost was stuff, it's just stuff… We don't have the same attachment to things any more, just as long as everyone is all right."

But the West Melton fire also unmasked differences between what residents characterised as old lifestylers and new lifestylers. Old lifestylers have generally lived in West Melton longer than new lifestylers, and are accustomed to deriving economic gain from working their land. New lifestylers moved to West Melton primarily seeking a rural lifestyle that focuses on leisure activities and aesthetics, and derive their principal income from work outside the community. Although membership is not always clear-cut, residents in both groups seemed to share an understanding of what it means to belong to one or the other.

Regarding impacts of the wildfire, old lifestylers described the impacts as being more significant for new lifestylers than themselves. Old lifestylers argued that they were not as adversely affected because, having more experience living in an area of high fire risk, they had taken steps to increase their preparedness. Because new lifestylers had come to West Melton more recently and were primarily from urban areas, they lacked the experience and therefore local knowledge necessary to live safely in a rural area. As an old lifestyler observed about new lifestylers, "Most people are not aware of or prepared for fire. Most come from the city and do not know farming practices or fire risk." Many new lifestylers agreed with that assessment. When asked if they were prepared for wildfire, one new lifestyler indicated that they were prepared for some civil defence emergencies but not for wildfire. Old lifestylers argued that a wildfire is a major risk for a rural area, and therefore having correct rural knowledge about how to prepare for wildfire is critical.

FIGURE 2. The fire resulted in significant damage—grasslands, wood lots, orchards, a vineyard, outbuildings, hedges and fences, farm equipment and a house were destroyed over an area of 130 ha.

Blame

In West Melton, residents assigned responsibility for the damage that occurred as a result of the fire to five agents: the people who started the original fire, New Zealand Police, responding fire crews, new lifestylers, and the Selwyn District Council. Regarding the people who started the original fire, residents said that even though there was no fire ban in affect at the time, the original fire should not have been lit because of high fire risk weather conditions which were apparent at that time. The New Zealand Police were assigned some responsibility because they enforced the evacuation order. If people had been allowed to stay and defend their property, residents claimed that fire damage would have been limited. The responding fire crews shared in the blame because they were not from West Melton but from other Canterbury communities, and residents felt that these crews lacked the local knowledge that would have enabled them to fight the fire most effectively.

New lifestylers were assigned blame because they were perceived to lack the correct local knowledge that would have prompted them to reduce the risk of wildfire around their property. One old lifestyler commented:

> Yeah there are people frequently coming and going and changing. That is one of the problems, is that there are all these new ones coming in and they don't get to understand the problem of the area.

Specifically, new lifestylers were blamed for not cutting their grass and for planting highly flammable vegetation around their homes, both of which would provide fuel to feed a fire. This behaviour of blaming new lifestylers was practiced by both old and new lifestylers. In reality, we did not document whether new lifestylers' lack of rural knowledge attributed to the damage caused by the fire, but the blaming behaviour was used to deflect blame away from the individual making the claim.

The Selwyn District Council was assigned blame for the West Melton fire based on what residents perceived as actions that should have been taken or should not have been taken. First, the Council was blamed for fire damage because one of the local fire alarms had been disconnected 10 months earlier and therefore residents had no warning of the fire, "No one knew there was a fire until it was on their back doorstep. There was no warning whatsoever." The alarms were principally there to alert fire crews to respond to an emergency. When a new paging system was put in place to alert crews, the need for the alarm no longer existed and it was disconnected. Although some nearby residents were opposed to the alarms because of the noise, others interviewed said that they used the alarm as notification that they should look outside and see if there is any sign of a fire.

Secondly, residents felt that the Council should have had a prohibited fire season (fire ban) in place in November at the time the fire was lit. In fact one of the reasons that the people who initially started the fire were not blamed as much as might have been expected is that no fire ban was in place at the time - they were within their rights to start the fire when they did. Residents felt that the Council should have imposed a fire ban because of the extreme weather conditions in November. However, emergency managers interviewed claimed that they are "damned if we do and damned if we don't" as individuals often become angry when the Council will not issue them fire permits because a ban is in place.

Thirdly, residents felt that the Council should not have allowed the West Melton volunteer Rural Fire Force to be away at training on the day of the fire. Residents argued that training should have occurred in the winter when the fire risk is lower. Some people felt that fire damage would have been minimised if the West Melton Force had been in the area, "I have no doubt that if the local fire brigade was home I don't think that the fire would have got away the way it did." Emergency managers argued that there was no time lost when other fire forces responded to the fire and that having the West Melton crew at the fire earlier would have made no difference to controlling the fire or minimising damage.

Finally, residents believed that it is the Council's responsibility to mow grass along roadways. The perception was that roadside grass generally had not been mown prior to this fire, leading residents to believe that it contributed fuel to the fire.

Managing Fire Risk

While blame was consigned to a number of agents, perceptions of responsibility for managing fire risk depended on whether a new lifestyler or old lifestyler was being interviewed. New lifestylers, having more recently moved from urban areas, generally expected the level of emergency support provided in those areas, and were more dependent on authorities and organisations or agencies to manage hazard risk. New lifestylers saw the District Council as being responsible for managing fire risk, including supporting the rural fire force so they could respond efficiently and effectively. Old lifestylers were perceived as being more self-reliant and expected to look after themselves so that the role of the Council or government is limited. They held themselves responsible for managing fire risk and felt that they had implemented preventative strategies and organised themselves in a way to limit damage.

This assignment of responsibility for managing fire risk is reflected in the steps people have taken since the fire to reduce risk. Old lifestylers stated that they did not have to make many changes to reduce risk following the 2003 fire because they possessed the correct rural knowledge and had already done what was necessary. They also spoke out against the need for new regulations because they felt that they were not the ones causing the problems that led to the fire. Some new lifestylers said that they had been more proactive in managing fire risk since the fire:

> We mow a strip now around the house, we have put in sprinklers around the house and make sure we now plant less flammable plants. No more pine trees, we won't plant pine trees again, we think [the fire] jumped between our pine trees.

Both new and old lifestylers indicated that they have reassessed their insurance. New lifestylers in particular have increased their liability insurance to cover their responsibility for the costs of extinguishing a fire on rural land and of damage to third party property as determined by the Forest and Rural Fires Act 1977 (Graham & Langer 2009). However, some recognise that they may never have enough insurance to cover possible losses. One property owner who increased their liability insurance from $500,000 to $1,000,000 stated that, "It will never be enough, if a fire started and spread all the way to Ashburton, it would never be enough."

Despite these steps, new lifestylers remained focused on what the Council should do to reduce fire risk. Suggestions for steps the Council should take included developing information packets for new residents about the risk of fire, forcing property owners to manage vegetation to reduce fire risk, and the Council managing fuels on the land for which they are responsible (including road verges).

Discussion

The social science literature on wildfire has been growing, as evidenced by a recent synthesis and compilations of research (Daniel et al. 2007; Donoghue & Sturtevant 2008; Handmer & Haynes 2008; Martin et al. 2008) and, bibliographies on international and Australasian perspectives of wildfires and communities (Bones 2005; Kelly 2005). This first case study of community impacts of wildfire in New Zealand supports many of the findings raised by researchers in other countries, while providing new evidence of wildfire highlighting and intensifying divisions within a community.

Evacuation is described in the literature as one of the most socially disruptive impacts of a wildfire (Paveglio et al. 2008). West Melton residents who refused to evacuate did so because they felt the evacuation was unnecessary or it would be more productive to stay and defend their property. Although those who owned their own fire fighting equipment felt prepared to stay and defend their property, it is questionable whether they possessed the knowledge necessary. Even if they had proper training, these residents were not part of the fire control organisation, so they would not have current information on the fire's location and behaviour, and may well have put themselves at risk by remaining to protect property. This, in turn, can impose additional risks to fire fighters who will try to protect the resident, thereby employing resources that could otherwise be used to fight the fire. The disaster research tells us that people who have survived a disaster are less willing to evacuate should the need arise again (McCaffrey & Kumagai 2007). This presents a significant challenge for emergency managers who may in the future need to evacuate West Melton or other communities that have previously experienced a disaster.

Even when a disaster may be characterised as "an act of God" people need to assign blame or hold someone responsible for the negative impacts of that event. This blaming behaviour has been evident after wildfires (Carroll et al. 2005). While residents often recognise that they are responsible for some of the damage resulting from a wildfire because of their inadequate preventative measures, they are more likely to blame someone else. Blame is often directed towards those who started the fire, towards agencies responsible for fighting the fire (but seldom towards the fire fighters themselves), and towards individuals, agencies or groups whose land management practices may have resulted in a build-up in fuels (Cohn et al. 2008). Each of these three entities were blamed by West Melton residents for the 2003 fire. Although the Selwyn District Council and West Melton Residents Association held meetings and used several communication techniques in an attempt to provide accurate information following the fire, two years later the West Melton residents interviewed still did not believe the official story. It is interesting to note that while a meeting organised by the Council and Association immediately after the fire drew capacity attendance, a meeting held the following winter to address wildfire risk and preparedness drew only a few people—the issue had lost its salience for West Melton residents.

Assigning blame for damage caused by the West Melton fire highlighted divisions within the community. Immediately after the fire, the community pulled together as residents worked cooperatively to help neighbours in need—what is referred to as a therapeutic community ((Fritz 1961; Gurney 1977; Carroll et al. 2005; Graham 2003). But differences between old lifestylers and new lifestylers began to emerge as residents not only talked about who was to blame for the damage, but also about how they perceived fire risk and what they had done to reduce risk. This is supported by other studies such as Gardner et al. (1987) who found that people who had lived in the rural-urban interface for longer had an increased awareness of wildfire hazard. Individual households' preparedness has been found to be linked to residency in the rural area with clear differences in the levels of preparedness between established residents and those new to an area who did not have access to established social networks with high levels of tacit knowledge of wildfires and felt this reduced their understanding of bushfires and therefore they were less likely to prepare for wildfire consequences (McGee & Russell 2003). Similarly another study found that an individual's experience with, and awareness of, wildfire and other disasters has been shown to influence their risk perception and willingness to take or support action to mitigate risk (Cohn et al. 2008). Whether or not an individual takes actions depends on the biophysical context, including climate, topography, and vegetation, and the social-demographic context, including spatial distribution of structures, construction features, mobility of residents, availability of fire-protection resources, and institutional factors (Daniel 2007). Personal and cultural experiences with fire, attitudes towards risk and social prohibitions and incentives have been shown to influence an individual's response to their social-demographic context. This was true in West Melton where old lifestylers, with wildfire experience and what they perceived as "correct" rural knowledge, exhibited an understanding of the community's wildfire risk and were prepared for the wildfire.

Risk is a socially constructed interpretation and response to what people consider to be a real danger (Lupton 1999). Old and new lifestylers had a different perception of the wildfire risk because they had not shared experiences and values that would lead to a common understanding of wildfire. This lack of cohesion means communication and education about wildfire risk needs to account for and address these differences. This is important because managing a community's fire risk, or increasing community preparedness for wildfire, requires collective action, with roles to be played to all levels of government, non-governmental organisations and groups and individuals (Jakes & Nelson 2007).

A second case study of a New Zealand fire-affected community is currently ongoing in the more rurally based community of Mt Somers, mid-Canterbury. Comparisons will be made between the two communities to highlight differences, similarities and lessons learned. Collecting evidence from multiple communities highlights the diversity in communities and the importance of understanding community context when dealing with wildfire readiness, response and recovery.

Acknowledgement

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