

# COUNTRY FIRE AUTHORITY POST-FIRE QUALITATIVE RESEARCH



*– A final report on the analysis  
of Community Fireguard Group  
members' experiences of the  
2009 Victorian bushfires*

FINAL REPORT

Research conducted by:

**Dr Lisa Gibbs<sup>1</sup>, Associate Professor Colin MacDougall<sup>1,2</sup>, Rachel Clark<sup>1</sup>, Maree Kulkens<sup>1</sup>**

1. Jack Brockhoff Child Health and Wellbeing Program, McCaughey Centre: VicHealth Centre for the Promotion of Mental Health and Community Wellbeing, School of Population Health, University of Melbourne
2. Discipline of Public Health and Southgate Institute for Health, Society and Equity, Flinders University

In partnership with:

**Alan Rhodes<sup>1</sup>, Dr Danielle Clode<sup>2</sup>, and Eli Niall<sup>3</sup>**

1. Manager of Research and Evaluation, Community Safety, Country Fire Authority
2. Psychological Preparedness Project Officer, Community Safety, Country Fire Authority
3. Community Development Coordinator, Community Safety, Country Fire Authority

And with the assistance of:

**Helen Wostizky**, Community Fireguard Coordinator, Country Fire Authority

Acknowledgement:

The authors gratefully acknowledge the generosity of the research participants in sharing their time and experiences during a period of great stress.

Draft copy of final report submitted for discussion October 2009.  
Final version submitted April 2010.

## EXECUTIVE SUMMARY

---

This report has been prepared for the Country Fire Authority (CFA) to analyse how involvement in the CFA Community Fireguard Program affected members' fire experiences on Saturday 7 February 2009 (Black Saturday). This is the second of two reports written as an outcome of qualitative research conducted by a team led by the University of Melbourne. This report should be considered in conjunction with the preliminary report provided to the CFA - "A descriptive analysis of Community Fireguard Group members' experiences of the 2009 Victorian bushfires: Preliminary Report August 2009".

On 7<sup>th</sup> February 2009 major bushfires swept through Victoria on what became known as 'Black Saturday'. These fires resulted in 173 fatalities and many more injured and traumatised. An excess of 450,000 hectares burned across forty townships, damaging or destroying more than 3,500 buildings including 2,059 houses.

There is significant evidence that bushfires can have a major impact on the physical and mental health of individuals and communities living in affected areas. Therefore the implementation of effective strategies to prepare individuals and communities for fire is vital. Promoting bushfire preparedness in Victoria is multi-layered and consists of a number of elements, one of which is the Community Fireguard (CFG) program.

This study aimed to understand the experience of CFG members during the February 2009 bushfires and how the CFG program impacted on their fire preparedness and ability to respond. It also sought to identify areas where the CFG program worked, didn't work or could be improved in terms of increasing protection from fire.

This final report provides the outcomes of further data analysis undertaken following the preliminary report. It provides a more in-depth conceptual understanding of the processes identified in the CFG groups and compares this to the existing literature and social theories to determine if the themes that emerged reflect broader patterns.

The findings align closely with theories on social capital which explore the relationships within and across groups in society. The findings demonstrate how social capital theory explains the operation and benefits of CFG membership, particularly in relation to bonding social capital and transforming this social capital into physical and psychological fire preparedness, subsequently reducing risk.

The findings also suggest that the CFG program should be widely supported as a vital part of the Victorian fire response strategy. The training components and messages were found to meet CFG group requirements for psychological and physical

preparedness. However, the program is not always implemented as intended and requires program improvements in relation to reach, fidelity, dose and assessment of understanding.

Our research suggests that the benefits of CFG participation could be further enhanced by closer links with local, State and Commonwealth agencies. Many branches of these agencies impact upon the effectiveness of community bushfire preparedness, particularly in relation to warning systems and vegetation removal on private, Council and Crown lands.

The consistency of the study findings with the existing literature, previous reviews of the CFG Program and, in particular, with social theory, demonstrates the broad applicability of the findings.

# CONTENTS

---

EXECUTIVE SUMMARY .....	3
CONTENTS.....	5
INTRODUCTION .....	6
SUMMARY OF THE PRELIMINARY REPORT.....	7
RESEARCH FINDINGS – FINAL REPORT .....	9
Background .....	9
Political context.....	9
‘Black Saturday’ .....	10
2009 Victorian Royal Bushfires Commission.....	11
Literature on bushfire preparedness.....	12
Research objectives .....	15
FINAL ANALYSIS .....	16
Bonding .....	18
Bridging .....	19
CONCLUSIONS .....	23
Funding.....	23
REFERENCES.....	24

# INTRODUCTION

---

This is the second of two reports written for the Country Fire Authority (CFA) as an outcome of qualitative research led by the McCaughey Centre, University of Melbourne. The research was conducted to gain insight into Community Fireguard (CFG) group members' experiences and perceptions of the CFG program particularly in the context of the post-fire period following the Black Saturday fires in Victoria, Australia on 7 February 2009.

Details of the research study design, methodology and preliminary descriptive analysis were provided in the Preliminary Report (CFA Post-Fire Qualitative Research – a descriptive analysis of Community Fireguard Group members' experiences of the 2009 Victorian bushfires: Preliminary Report August 2009). The Executive summary from the Preliminary Report is contained in the body of this report and the full Preliminary Report attached for reference (Appendix I).

This final report on the research findings builds on the descriptive findings of the preliminary report. The nature of a descriptive analysis, such as that provided in the preliminary report, is to describe the data and discuss the patterns and themes evident. It is not possible on the basis of a descriptive analysis to make recommendations for changes to practice or policy other than to report changes proposed by the participants based on their experiences.

Following the preparation of the preliminary report, additional time was spent further analyzing the data and developing a conceptual understanding of what was happening in the CFG groups and then comparing this to the existing literature and social theories to determine if the themes that emerged reflected broader social patterns. It was found that the findings aligned closely with the existing bushfire literature, previous reviews of the CFG Program and also with theories on social capital which explore the relationships within and across groups in society. This is evidence that the nature of the CFG networks and their embedded relationships are consistent with what is known about bushfire and social organization more broadly. Therefore recommendations addressing these networks and relationships can be made with confidence about their applicability beyond the specific groups who participated in the research.

This final report includes an overview of relevant research and social capital theory. It then provides an overview of the alignment between the research findings, the existing evidence base, and social capital theory and the implications in terms of policy and practice.

## SUMMARY OF THE PRELIMINARY REPORT

---

This report has been prepared for the CFA to provide an analysis of the impact of the CFG program on members' fire experiences on Saturday 7 February 2009 (Black Saturday). The report brings together major themes from focus group discussions with 47 members of seven CFG groups in one of the fire-affected areas. The findings will inform ongoing improvements in the CFG program.

The bushfires varied in intensity and outcomes across the areas represented by the seven groups. These variations enable this report to capture a broad range of fire experiences: being away from properties at the time of the fire, evacuating late, and actively defending homes against the fires. The research participants told of many ways in which their CFG groups assisted them to prepare for the bushfires physically and psychologically. As a result, participants said that they had increased their chances of protection from fire, and as a consequence their chances of survival. For these groups, the CFG program achieved its objectives.

All groups experienced varying degrees of loss of property, and one had lost a number of its members. The experience of the fire, while described as terrifying and at times mesmerizing was also seen as manageable for those who survived: manageable because of the self efficacy and sense of control CFG group participants reported having gained from the CFA's training, which enabled them to focus on implementing their fire plans. While these fires were clearly traumatic and distressing, participants had drawn on their experiences and training to refine their plans and to preparedness for potential future fires. The contrast between the panic reaction of visitors without training and the focused, active response of CFG members, is a testament to the merit of the program when it is being implemented as intended. An unanticipated, yet understandable, positive outcome of the program was the promotion of social connection in the majority of the groups interviewed.

The analysis of participants' accounts support the view that the CFG program should continue, but could be improved as follows:

- Ensure that a consistent standard of CFG training is provided across groups so that all groups receive the same information
- Hold more regular meetings for groups to ensure they receive all aspects of training and include practical components that apply theory and best practice to members' properties and their individual plans
- Give consideration to developing a quality assurance process for plans developed within the groups using peer assessment and sign off by CFA
- Incorporate problem-solving components into training to contextualize and translate complex key messages: such as planning to leave early, the need for

- multiple fire plans, the nature of warnings, and active defense when sheltering indoors
- Wide promotion of a “*plan for all possibilities*” message to replace the current simplistic notion referred to in the media as “*stay or go*”
  - Further promotion of the CFG program to achieve wider membership in communities
  - Make completion of training a condition of CFG membership
  - Develop CFA guidelines and recommendations regarding equipment standards – e.g. generator powered pumps, diesel fuel, CFA goggles

In contrast to the strong support for the CFA and the CFG program, there was a consistent expression of anger and betrayal across groups about what they saw as barriers by local councils that prevented general fire management, such as regular clearing of vegetation that comprised fire hazards. In addition, there were concerns about barriers to effective fire protection on private, Council and Crown land that participants said affected their individual and collective capacity to prepare and implement fire plans.

This research can be considered alongside the CFA report, “*A review of the role of Community Fireguard in the 2009 Victorian bushfires: Interim report 2009*”, mapping fire outcomes for CFG and non-CFG homes to inform judgments about the CFG program’s outcomes. It is likely that participants’ responses reflected their current stage of recovery and response to the fire experience. Ongoing research-based assessments of the implementation and reach of a revised CFG program would also provide insight into the factors that affect the program at different stages of post-fire recovery and preparedness, contributing to ongoing program improvements and maximizing the program’s potential in increasing community safety.

*The full preliminary report is attached – Appendix 1*



# RESEARCH FINDINGS – FINAL REPORT

---

## Background

Bushfires are natural phenomena, although sometimes triggered by human action/devices, which cause major loss of life and property in Australia.<sup>1</sup> A combination of drought, climate change and high fuel loads resulted in the unprecedented 2009 bushfires in Victoria. There is significant evidence that natural disasters, including bushfires, can have a major impact on the physical and mental health of individuals and communities living in affected areas.<sup>2</sup> The increasing threat and occurrence of bushfires is therefore of considerable concern, and implementation of effective strategies to prepare individuals and communities are vital.

### *Political context*

In 2004, the Australian Federal Government presented a vision for bushfire in Australia to be achieved by 2010.

*“All Australians understand, accept and respect bushfires and know that they will continue to occur. We have drawn on Indigenous, local and scientific knowledge in learning to live with bushfires. Communities understand that the risk, and the responsibility for bushfire mitigation and management, is shared by individuals, landholders, communities, fire and land management agencies, researchers, and governments.”<sup>3</sup>*

This vision extended to the ways in which decisions about bushfire mitigation and management should be contextualised within a risk-management framework which essentially considers i) research, information and analysis, ii) risk modification, iii) readiness, iv) response and v) recovery.<sup>3</sup> The concept of preparedness was developed further as a direct result of an inquiry prompted by the bushfire season in 2003-2004, to become one of five key components of disaster management adopted in Australia, referred to as the 5Rs framework. The five components are i) research, information and analysis, ii) risk modification, iii) readiness, iv) response and v) recovery.

### The 5Rs: A risk management framework for bushfires <sup>3</sup>

<b>Research, information and analysis</b>	<ul style="list-style-type: none"> <li>▪ Risk management cannot be applied effectively without some prior knowledge and relevant data and information</li> <li>▪ Planning and management cannot be improved without analysis of past events</li> <li>▪ Research provides valuable insights into critical factors and causal relationships</li> </ul>
<b>Risk modification</b>	<ul style="list-style-type: none"> <li>▪ Risk avoidance: land use planning for fire-prone areas;</li> <li>▪ Risk limitation: limiting the number of ignitions by reducing the incidence of arson</li> <li>▪ Risk reduction: reducing the hazard (eg. fuels) and reducing vulnerability of assets through building design and construction regulations</li> </ul>
<b>Readiness</b>	<ul style="list-style-type: none"> <li>▪ All residents and property owners need information on which to base effective preparation and make informed decisions in the event of a bushfire</li> <li>▪ Fire services and recovery agencies also engage in readiness actions, independently, in association with other public and private sector organisations and residents</li> </ul>
<b>Response</b>	<ul style="list-style-type: none"> <li>▪ The firefighting role of the fire and land management Agencies</li> <li>▪ Well-prepared residential and rural property owners who deploy effective measures to defend their properties</li> </ul>
<b>Recovery</b>	<ul style="list-style-type: none"> <li>▪ Complexity of dealing with social, economic, physical and environmental rehabilitation</li> <li>▪ Should be an integral part of the whole process and a conscious consideration at each other stage of the process</li> <li>▪ Calls for a recovery strategy and an operational plan</li> </ul>

This vision and resultant frameworks for action reflect the shift of government focus following the Ash Wednesday fires in 1983, to a greater reliance on community responsibility for bushfire preparedness. In Victoria, community response to bushfire is guided by a policy that directs residents to Prepare, Stay and Defend or Leave Early, more commonly known as the ‘stay or go’ policy. This policy informed the formation of the CFG program in 1993.

#### *‘Black Saturday’*

On 7<sup>th</sup> February 2009 major bushfires swept through Victoria on what became known as ‘Black Saturday’. The scale of the fires resulted in 173 fatalities and many more injured and traumatised. An excess of 450,000 hectares burned across forty townships, damaging or destroying more than 3,500 buildings of which 2,059 were houses.

The system for promoting community preparedness for fires in Victoria is multi-layered and co-ordinated by a number of agencies with differing firefighting responsibilities:

- Metropolitan Fire Brigade - government funded and staffed firefighting service for metropolitan fires
- Department of Sustainability and the Environment - government funded and staffed firefighting service for bushfires that affect parks and reserves
- Country Fire Authority (CFA) - government and insurance levied funding for management, education and administrative staff and a predominantly volunteer firefighting service throughout rural Victoria responsible for bushfires that occur on private and non-DSE land.

These organizations work collaboratively to promote community preparedness for fires under the Fire Ready Victoria umbrella. Programs range from broad media campaigns, internet, print and video material, school education, and information sessions, such as Bushfire Blitz street meetings in high risk areas. The CFA's Community Fireguard program involves informing neighbourhood groups in fire behaviour and preparation and facilitating informed decision-making about bushfire survival plans.

*“Community Fireguard is a community development program designed to reduce the loss of lives and homes in bushfires. CFA cannot provide every person and home with individual protection during a major bushfire and recognizes that many people may have to face a fire without the support of CFA. Bushfires are survivable if people take responsibility for their fire safety and prepare themselves for the event of a bushfire in their area. Community Fireguard assists community groups to develop bushfire survival strategies that suit their lifestyle, environment and values.”<sup>4</sup>*

The CFG program is facilitated by the CFA but driven by CFG members. The CFA only delivers training if invited by the members of the CFG group. The timing, organization and nature of program delivery are therefore influenced by the time and facilities made available for training by each group.

### **2009 Victorian Royal Bushfires Commission**

In 2009 the Victorian Government established the Royal Bushfires Commission to conduct an independent public review of the Black Saturday bushfires and the respective roles and responsibilities of government and government agencies. An interim report was released in August 2009 with conclusions and recommendations focusing on changes to be implemented prior to the 2009/10 bushfire season.

## Literature on bushfire preparedness

The majority of the literature on bushfire preparedness comes from Australia and the United States. Terms do vary for fires and include *bushfires*, *wildland fires*, *forest fires*, *wild fires*, and *grass fires*. For the purposes of this report, the term *bushfires* will be used. There is little published literature in this field, but some useful indications of findings from conference presentations, data from government reports, and CFA reviews of the CFG program have been accessed. In Australia, and for the most part internationally, preventative and preparedness programs exist to enable individuals and communities to respond to bushfires and other major disasters.<sup>5</sup> Keim (2009) discusses 'wildfire' preparedness and highlights the key steps in preparation as being firstly fire hazard evaluation, regularly scheduled drills, contingencies for mass evacuation and shelter, and education about risk (in terms of wildfire occurrence and preparedness plan).<sup>6</sup> In Australia, preparedness programs utilise communication and education methods to build the capacity of participants. These generally include a major educational component. In many schools bushfire preparedness is included as an extra curricular activity with a heavier focus during the start of bushfire season. Education is also core at the community level, but includes a focus on shared responsibility, management of role expectations, coverage of all potential hazards (so not exclusively bushfires) and integration of community engagement strategies.<sup>3</sup>

Whilst the international preparedness programs tend to follow similar models there is one major difference in the discourse around what communities at threat of fire should do. In the US the message is simple: *Evacuate early*. The alternative is to '*Shelter in Place*' – a passive process of sheltering in fire purpose built fire-resistant shelters or a dwelling deemed to provide sufficient protection. In Australia, residents are encouraged to make a decision around whether or not they would leave or stay and defend their properties – the '*stay or go*' message, which essentially advocates individual responsibility in response to threat.<sup>7</sup> So whilst on the surface the messages appear similar, the true meaning of *Shelter in Place* differs considerably from the stay message delivered in Australia which emphasises '*active defence*'<sup>8</sup> – the notion of which truly accentuates the importance of understanding what this means, and physical and psychological preparedness to act. Whilst there is no clear evidence as to which message should be considered and adhered to, some research by Ryland 2000 has suggested that the consequence of preparing for every scenario would simply be too overwhelming.<sup>9</sup>

In addressing wildfire preparedness, Rhodes and Rheinholdt (1999) highlighted five key dimensions: awareness and recognition of risk, knowledge of fire behaviour and safety methods, planning a strategy to deal with fire occurrence, practical preparations (property, land etc), and building psychological readiness around confidence and skills.<sup>10</sup> Education programs based on this have been implemented in South Australia.<sup>5</sup> However, interestingly, in a survey of preparedness predictors

conducted in the aftermath of 2004 fires in south-east Queensland, experience of bushfires was found to be the strongest predictor of preparedness.<sup>5</sup>

In terms of program components, there has been some research into methods and activities that might enhance preparedness within training programs. Rohrmann (2000) examined the effectiveness of various communication techniques with a focus on the provision of information and education campaigns for individuals living in at risk communities.<sup>11</sup> This study employed a mixed methods design engaging with 120 residents, 12 scientists and 20 CFG program facilitators to assess the usefulness of the various educational materials used in CFG groups to communicate the key messages. Generally, visual and graphic materials were perceived to be important – to include real-life footage, along with practical advice not only about what to do, but also about what not to do. There was a tendency for group members who were less experienced in bushfires to place more value on activities that improved their confidence. In addition, it was found that “short one-issue leaflets and broad/comprehensive booklets are useful in different contexts; the use of (color) illustrations is expected, yet they seem more significant for attracting attention than enhancing understanding; graphs and drawings are less appealing but more instructive; 'fill-in-yourself' sections (e.g., checklists, agendas) are appreciated but not much utilized”.<sup>11, p14</sup> The outcome of exposure to these various measures was not assessed and so assumed link between effective communication and changed behaviours was not established. Rohrmann (2003) piloted the use of the internet for fire preparedness of community residents.<sup>12</sup> Sixteen interviews were conducted with experts, organizations and community members against a pre-determined evaluation criteria. The sites were considered useful and acceptable, but further research would be needed to examine effectiveness.

Dyer, Neller and Neller (2001) explored levels of awareness of and preparedness for natural disasters in community members in Queensland,<sup>13</sup> and revealed a clear discrepancy in terms of the link between awareness and preparedness. A cross-sectional telephone survey was conducted with a stratified sample of 800 community members. The survey was developed through qualitative work with key stakeholders and individuals involved in disaster response across a number of stages, after which it was piloted. Two thirds of respondents perceived themselves to be aware of how to prepare for a natural disaster, but less than half felt prepared enough for disaster occurrence. This potentially supports the notion that more intensive and comprehensive capacity building programs are necessary for enhancing preparedness.

The evidence base is limited although more recent studies suggest that the only effective way of reducing impact of bushfires on communities is through active involvement of community members in identifying risk, promoting self-sufficiency in mitigation.<sup>14</sup> Borgert conducted a longitudinal survey in NSW in 2001 and 2005 in the form of a binary preparedness index, the results of which indicated improved

preparedness following involvement in community preparedness programs.<sup>14</sup> Findings in this study identified the importance of incorporating problem solving components into fire preparedness training in order to assist individuals to contextualize, translate and effectively implement their knowledge of complex key messages (i.e., how to plan to leave early, need for multiple fire plans, warnings, and active defense when sheltering indoors etc). However, in terms of content and structure there is a need for further research to explore what works, for whom, in what context and why – particularly in considering the different communicative and educational strategies that exist, and characteristics of those potential participants for whom programs are intended. This relates to the diffusion of innovation model. Rogers (1983 cited in <sup>15</sup>) defines diffusion as “...the process by which an innovation is communicated through certain channels over time among members of a social system”; and an innovation is considered to be “...an idea, practice or object perceived as new by an individual”. The uptake and spread of this ‘new idea’ is believed to be influenced by five key factors; the characteristics of those individuals who will potentially take up a proposed innovation; the rate at which this occurs; the nature of the social system within which an innovation is introduced; and features of both the innovation and the individual advocating for change.<sup>15</sup> According to diffusion of innovations theory, individuals can be categorised as *innovators* (2-3% of the population first to participate), *early adopters* (10 – 15% of population more mainstream who find it easy to change), *early majority* (30 – 35% of population who could be convinced to change), *later majority* (30 – 35% of population who find change more difficult) and *laggards* (final 10 – 20% of population who actively resist new ideas).

The severity and scope in consequences of bushfires coupled with increasing threat of their occurrence presents an urgent need to address the limited evidence-base surrounding the effectiveness of preparedness programs, and indeed the inconsistency in preparedness strategies adopted. There is clearly a need to explore the implications and success of preparedness programs more fully, and progress theoretical understanding and applicability within this field. To address this gap in the evidence, the CFA formed a partnership with a research team from the University of Melbourne to conduct a post-fire study of the CFG program. Previous quantitative and qualitative evaluations of the CFG program were conducted in 1994, 1995, and 2003. These evaluations consistently reported on the members’ perceived benefits of the program and evidence of changed behaviours in relation to fire preparedness. The reports also noted the need for increased spread, fidelity and dose of the program. The evaluation included in this final report is the first to be conducted in the period following a major bushfire and will therefore provide important insights into the impact of CFG participation on members’ experience of bushfire. The research objectives of this study are detailed below. A parallel study by Dr Danielle Clode has also been conducted for CFA which provides a quantitative outcome assessment reviewing property and lives lost for CFG members in comparison to non-members in the same bushfire affected areas.<sup>16</sup>

## Research objectives

The qualitative assessment of the impact of the CFG program on group members' experience of bushfire addressed the following objectives:

- Understand the experiences of CFG members during the February 2009 bushfires
- Identify the capacity of CFG members to implement fire preparedness procedures in bushfires of varying intensity
- Identify what aspects of the CFG Program worked, didn't work or could be improved in terms of increasing protection from fire

This was achieved by conducting seven focus groups and some follow up interviews with CFG groups from areas affected by bushfire to varying degrees in term of the intensity of the fires in the area and the level of property and lives lost. This research will contribute to increased knowledge of whether the CFG program is being implemented as intended and whether it provides increased protection from bushfires. This will inform ongoing improvement to the CFG program.

The findings of this study were provided in two stages: a preliminary descriptive analysis provided in the Preliminary report August 2009 (see Appendix I) and this Final Report. Details of the research study design, methodology and preliminary descriptive analysis were provided in the preliminary report (Appendix I).

## FINAL ANALYSIS

---

This study provided important information about the influence of the Community Fireguard Program on members' experience of bushfires. In addition, the themes that emerged in the analysis of data were found to be closely aligned with social theories, in particular social capital theory and diffusion of innovation theory.

This study did not originally set out to formally measure social capital, and there is no indication in the literature that social capital theory was used explicitly in program development. In studying the CFG groups rich data was collected about the social and fire prevention aspects of groups, their links with other CFG groups and agencies, and their reflections on the outcomes of the group in relation to the recent fires. These concepts are compatible with the building blocks of social capital according to the main theorists. Consequently, the social capital literature was used to re-analyse the data using accepted theoretical frameworks in order to first explain the operation of the groups, and second to predict what could happen if changes were made to the future operation of the CFG program. Not all of the research findings from the preliminary report have been included in the final analysis and so this should also be referred to for additional insights into the experiences of the participating CFG groups (see Appendix I).

There are different theoretical perspectives of social capital but essentially it refers to community relationships and is defined by Putnam as “features of social organisation such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit”.<sup>17, p67</sup>

Implicit in the work of Coleman and Putnam is the notion that social capital can be created and built up in communities where it is lacking and ultimately transformed into other forms of capital.<sup>18</sup>

This aspect of social capital has appealed to policy makers who have turned their attention to bottom-up strategies as solutions to poverty in low income communities.<sup>19</sup> Putnam's perspective, however, reflects an underlying theory suggesting that these networks and norms can, and perhaps should, replace the investment and intervention of the state.

Alternatively Pierre Bourdieu (1986) focused on the resources that accrue to individuals as a result of their membership of social networks.<sup>20</sup> He defined social capital as ‘the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition’ (p. 248). Bourdieu has a more dynamic and less positive perspective on social capital. While agreeing with Putnam that social



capital lies in the social obligations and connections among individuals, he sees its value in the ability of individuals to convert social capital into other forms of capital, particularly economic capital. Transferring social capital into other forms is far from straightforward because the wider environment may inhibit the ability of individuals to achieve such transformations.<sup>19</sup>

It is commonly proposed that there is more than one type of social capital. Bonding social capital comprises horizontal tight knit ties between individuals or groups sharing similar demographic characteristics. Bonding capital may be exclusionary and not confer society-wide benefits of cooperation and trust. Bridging and linking social capital, on the other hand, are characterised by ties across different communities. It has been hypothesised that where there has been the recent rise of neo-liberal state policies, bonding social capital may have increased while linking and bridging social capital has declined.<sup>21</sup>

The current operation of the CFG Program is consistent with Putnam's theory that groups are formed for mutual benefit without necessarily requiring support from the state. Data from the study of the CFG Program provides many examples of those building blocks of social capital that are important to Putnam networks, norms and social trust that facilitate co-ordination and co-operation for mutual benefit.<sup>21</sup> For Putnam, these elements can combine to produce social and economic benefits that can accrue: either despite state intervention or by replacing the interventions and responsibilities that, in other circumstances, are provided by the state.

Bourdieu's (1986) theory sees the function of social capital as allowing individuals to convert social capital into other forms of capital, particularly economic capital.<sup>20</sup> In the CFG groups, this happened to some extent but, consistent with Bourdieu's formulation, was not straightforward because the wider environment inhibited the ability of the groups to achieve such transformations. Bourdieu recognizes the complexity of the social capital processes and the importance of state support to assist those groups who find it difficult to convert social capital into other forms of capital. This is described further in this report in relation of the failure of bridging links between the CFG groups and government agencies to support social capital outcomes. Although Bourdieu and other theorists concentrate on transformation to economic and social outcomes, a distinguishing feature of this study is the way that the bonds that were formed contributed to saving lives:

*“It (Community Fireguard Program) put me in much closer contact with my neighbours, who saved our lives... how much more valuable can it be?”*

Research participants told of many ways in which their CFG groups reduced their risk of injury, death, property loss and psychological trauma. From the perspective of participants, one of the greatest benefits of the program was the psychological preparedness it provided. If CFG groups are to systematically provide lifesaving,

economic and social benefits to all residents in all areas of high fire risk, we argue that the CFG program should be supported by the State as a vital part of the Victorian fire response strategy and actively and widely promoted to promote widespread *diffusion of innovation*. This may include providing the program in different formats to accommodate different learning needs and circumstances, and in different group settings. Each and every group also needs access to the best knowledge and assessment of fire risk and preparedness that is available to the state: without fear of litigation. A critical element of bridging capital for CFG groups is the CFA training. Bourdieu also argues that much work has to go into maintaining networks and bonds, and this is certainly the case for the CFG groups interviewed.

## **Bonding**

The underlying social networks in the CFG groups suggest the bonding links proposed as a part of social capital theory. These bonds were evident in the CFG groups in members' participation in meetings and social activities, and a shared approach to preparedness and to recovery. For other groups who did not have the same level of social cohesion there was evidence of connections developing following the experience of the fire. Bonding within groups seemed to be more evident when the properties were on smaller blocks and were in close proximity to each other. Where social connections developed prior to the fire, it seemed to support the ongoing cohesion of the group, mutual support in preparation for fires and in some cases when defending against the fires.

It should be noted that while the bonding capital formed within the CFG groups were valued by participants; it did not seem to be essential to the impact and effectiveness of the training. Groups that appeared to have a low level of bonding still demonstrated understanding and capacity in relation to fire preparedness. This suggests that groups with low bonding capital would still benefit from the CFG program. It should also be acknowledged that in some cases, the choice to live in rural properties may reflect a desire to be less socially engaged. In these cases the potential for bonding capital in the group may be limited. For example, in one group for which there was minimal evidence of bonding, they interpreted workers and visitors as 'intruders' to their land and noted that their privacy had been compromised since the fires.

Theoretically, social capital does not directly benefit those who are excluded from the group. This is not necessarily the case with the CFG program. It was noted that in some cases, members' efforts to save their own property also saved some of their neighbour's land and in another case prevented the likely spread of the fire to nearby houses. However, CFG members did highlight the increased risk to their properties when adjacent to properties characterized by low, or no, levels of involvement in CFG groups and which were poorly prepared for fire. There was a perception among the

participants that although there was need for more widespread uptake, each group size should be limited to ensure it doesn't become unmanageable.

There was also evidence of downsides to the development of bonding capital within the groups including a sense of belonging and solidarity influencing decisions whether to stay and defend or leave early, guilt for those who left, and increased trauma from witnessing the impact of the fire on fellow CFG group members.

Whilst specific characteristics of CFG members have not been explored fully, the importance of occupation and having enough disposable income did emerge within group discussions at a group level in terms of members' capacity to implement components of the CFG training. It was not clear how an individual's lack of resources interacted with the group's bonding capital. It is possible that those with less bonding capital felt excluded from some group discussions. However, there were also some indications of shared equipment and working bees to support the efforts of this with less financial and/or physical resources.

The involvement of children also challenged the benefits of CFG membership. There were many examples of late changes to plans in order to relocate children to a property that was perceived to be safer. This was done at risk to the adults and to the children, in some cases with fatal outcomes because of changes in fire direction. Conversely, an incident where four families, including pets, sheltered in the fire shelter on one of the CFG members' property, demonstrated how the benefits of the CFG bonding capital could extend to the whole family.

## **Bridging**

Failures in the bridges and linkages between the CFG groups and the CFA and other government agencies during the February 2009 fires were shown to undermine the social capital and efficacy of the CFG groups.

There were many participants who expressed disappointment at perceived inadequacies in fire warning systems, and a consistent expression of anger and betrayal across groups about what they saw as barriers by local councils that prevented general fire management, such as regular clearing of vegetation that comprised fire hazards. In addition, there were concerns about barriers to effective fire protection on private, Council and Crown land that participants said affected their individual and collective capacity to prepare and implement fire plans. This is a clear example of a breakdown in the linking or bridging capital needed to support the efficacy of the CFG Program. Government investment in these processes is needed to ensure the community level program is able to operate effectively. Specific problems with linkages between CFG groups and the CFA were also identified, particularly in relation to a range of discrepancies between core features of the CFG program and participants' understanding of them. For example:

## Street walks

The current CFG program outline includes a ‘street walk’ component – a practical activity led by a CFA facilitator which considers members’ property and provides an opportunity to discuss strengths, weaknesses, risk factors and options relating to properties, such as consideration of fire coming from different directions, the influence of particular types of vegetation on property risk, the influence of land formation on the speed of the fire front, and the important road access to decisions about when and how to leave. All but one of the groups (a high loss group) suggested the ‘street walk’ should be included in the CFA training but they believed it was no longer available because of CFA concerns about liability. It is possible that members were confusing individual appraisal of homes which is not available versus ‘street walk’ discussions about properties which are an ongoing component of the CFG program.

## Warnings

Participants’ fire readiness was mediated by their expectations and interpretations of the available warnings. The CFA “*Living in the Bush: Bushfire survival plan workbook*” is provided to all CFG members.<sup>22</sup> The first page of text states that “*It is likely that the first sign of fire in your area will be smoke – or even flames near your property. Do not expect an official warning. You need to be alert, have a plan and be prepared to act independently on days of high fire risk.*” However, some participants felt that there was insufficient warning of their fire risk. While some recognized the inherent risk because of the weather conditions and the extreme weather reports, others expressed anger that the warnings were not detailed enough, that the CFA website was not up to date and information lines were overloaded, or for one group, that they hadn’t been contacted by their regional CFA contact as they recalled had been instructed in training. It should be noted that reliance of the group on a call from the CFA is not consistent with the CFG program. Some participants delayed implementing their plan, waiting for that call:

*“The CFA was going to notify the head of the group and my recollection is they never called. The message in the back of your head is (the fireguard group contact person) hasn’t rang me or the fire tree person hasn’t rang me, so maybe we’re okay.”*

*“I’ll tell you something, it’s not a positive thing though. I really feel like on the day the CFA failed us in the worst possible way because I took on this role fully expecting that they were going to give me the information if we ever needed to evacuate and we never got it ... We still need to go on as a group but I don’t feel like I could ever trust the CFA for information again.”*

It was clear that while the majority of participants relied on the bonding capital of the group and their own individual preparedness, there were other members who were dependent on support provided through bridging capital.

### *Multiple plans*

While the experiences of the fires varied between CFG members, many found that the circumstances on the day were different to what they had expected and it was not possible to implement the fire plans they had intended. The potential for circumstances to change and plans to become redundant is covered in the CFA training module, which encourages people to have multiple plans to cover a range of scenarios. However, this layer of complexity did not appear to be well understood by all participants. The only participants who had multiple layers in their plans were those that had previous experience of bushfires. Even in these cases, the different levels of plans allowed for pumps not working or similar equipment failures but not for variation in individuals' movements on the day. The finding that few people prepare for enough scenarios highlights the importance of promoting a message about planning for all options. However, it should be noted that a study by Ryland et al. (2000) suggested that preparing for all scenarios might be too overwhelming.<sup>9</sup>

### *Active defense vs. passive sheltering*

There was very little mention in the groups about engaging in activities to actively defend the house while participants were inside rather than passive sheltering. It is possible that this distinction didn't come through in the discussions; wasn't relevant in the high intensity fires experienced; hadn't come through clearly in the training; or was part of the training missed by new members. It has been reported in the Victorian Royal Bushfire Commission that 113 out of 173 fatalities on Black Saturday died inside buildings. There is no evidence as yet on whether those who died in their homes on Black Saturday were actively defending or not or on individual levels of physical or psychological preparedness.

### *Leave early*

The concept of *leave early* did not seem well understood by many of the participants or to be followed according to program guidelines. Few of the participants who had planned to leave, had left early on the morning of the fires and some others who had planned to stay, decided to leave immediately before the fire arrived, in some cases because of advice from CFA officers about its size and intensity. While some understood that the recommended option was to leave on the morning of Total Fire Ban days, it was noted by participants of a few groups that this was impractical because of the number of total fire ban days over the summer. One high loss group noted that some

group members who died usually left their house on bad days and went to town, but on this day they didn't. One of the participants commented that given the unpredictability of fires, those who plan to leave early also need to have a plan and be prepared for the possibility that they will not have that option:

*“People always say that they’re going to leave. You’ve got to have a plan to leave **and** a plan to stay... You think it’s a total fire ban day so you plan to leave but then you don’t because it’s not convenient or whatever so you’ve always got to have a plan to stay. That’s why I’m against forced evacuations because people won’t have a plan to stay.”*

Although we can not be conclusive at this stage, these gaps in the bridging social capital associated with the CFG program may have arisen for a variety of reasons. These include problems in the facilitator training or facilitator delivery of the program (program fidelity), competing priorities affecting the capacity of the CFG facilitators to deliver all components of the program, insufficient time spent in training by groups (dose), and/or variations in the capacity or interest of the CFG members for the uptake and application of the program. The CFA have noted that CFG facilitators sometimes present as much information as they can in a given session because they don't know if they will be invited back to present the rest of the course because the CFG group meeting arrangements and frequency vary from group to group. It should be noted that the timing and organization of the program sessions is driven by the participants and delivered by CFA facilitators.

The differential uptake in the program content may also reflect variable patterns in motivation for change highlighted in diffusion of innovation theory that refers to *innovators, early adopters, early majority, later majority and laggards*.<sup>23</sup> It may also reflect different levels of involvement in meetings and in the differential capacity of CFG members to grasp the concepts and retain the details. There was evidence in the groups that differential uptake was strongly influenced by previous experience of bushfires. Previous experience is likely to influence uptake through increased awareness of the reality of risk, increased awareness of the nature and reasons for required action, hands-on experience with the tasks involved in defending lives and property in a bushfire. This is consistent with the findings of Gow et al, 2008 who reported experience of fire as a predictor of preparedness.<sup>5</sup>

## CONCLUSIONS

---

The findings presented here demonstrate the relevance of social capital theory to an understanding of the operation and benefits of CFG membership, in particular in relation to the benefits of the bonding social capital and the transformation of this social capital into physical and psychological fire preparedness and subsequent reduction in risk. This suggests that the CFG program should be widely supported for broader uptake as a vital part of the Victorian fire response strategy. This post-fire assessment showed that the CFG training components and messages were found to meet the needs of CFG group members in terms of psychological and physical preparedness, although it was acknowledged that in some areas the Black Saturday fires were of such ferocity and speed that in many cases they overcame any level of preparedness. In addition, it was found that the CFG program is not always implemented as intended and requires program improvements in relation to reach, fidelity, dose and assessment of uptake. Government attention and investment is also required in relation to the bridging capital to CFG groups involving local, state and Commonwealth agencies and the subsequent impact on the efficacy of the CFG program, particularly in relation to warning systems, and fuel reduction on private, Council and Crown lands.

### **Funding**

The Country Fire Authority provided the funding for this study. Dr Lisa Gibbs also acknowledges the Jack Brockhoff Child Health and Wellbeing Program for salary and operational funding support.

## REFERENCES

---

1. McAneney J, Chen K, Crompton R, Pitman A. Australian bushfire losses: Past, present and future. *Wildfire* 2007; 2007.
2. Nerea Y, Nandi A, Galea S. Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*. 2005;34(4):467-480.
3. Ellis S, Kanowski P, Whelan R. National Inquiry on Bushfire Mitigation and Management. 2004.
4. Country Fire Authority. Community Fireguard: A Bushfire Safety Program. In: Directorate CS, ed; 2004.
5. Gow KM, Pritchard F, Chant D. How close do you have to be to learn the lesson? Fire burns! Available at: <http://www.massey.ac.nz/~trauma/issues/2008-2/gow.htm>, 2.
6. Keim ME. Building Human Resilience: The role of public health and response as an adaption to climate change. *American Journal of Preventative Medicine*. 2008;35(5):508-516.
7. Rhodes A. The Australian 'Stay or Go' approach: Factors influencing householder decisions. Available at: [http://www.wildfirelessons.net/documents/Human%20dimensions%20ext%20oabst\\_Stay%20or%20Go-Rhodes.pdf](http://www.wildfirelessons.net/documents/Human%20dimensions%20ext%20oabst_Stay%20or%20Go-Rhodes.pdf).
8. McCaffery S. Applying Australia's stay or go approach in the U.S. Would it work? Available at: <http://www.wildfirelessons.net/documents/HD%20Extended%20Abstract-Stay%20or%20Go-F-%20McCaffrey.pdf>
9. Ryland HG. A piece of the puzzle: Insurance industry perspective on mitigation. *Natural Hazards Review*. 2000;1(1):43-49.
10. Rhodes A, Reinholdt S. A framework for understanding and monitoring levels of preparedness for wildfire. *Australian Disaster Conference*; 1999.
11. Rohrmann B. Critical assessment of information on bushfire preparedness for residents. *The Australian Journal of Disaster Management*. 2000;15:14-20.
12. Rohrmann B. The utility of the World-Wide-Web for fire preparedness of residents. *The Australian Journal of Emergency Management*. 2003;18(3):20 - 28.
13. Dyer P, Neller R, Neller A. Despite awareness programs residents of the sunshine coast, Australia, are not prepared for natural disasters. *Environmental Health*. 2001;1(4):89-105.
14. Borgert S. Implications of longitudinal studies of bushfire preparedness for planning community safety programs in Northern NSW. Paper presented at: Bushfire 2006, 2006.
15. Nutbeam D, Harris E. *Theory in a Nutshell: A Practical Guide to Health Promotion Theories, 2nd Edition*. Australia: McGraw Hill Companies.; 2007.



16. Country Fire Authority. *A review of the role of Community Fireguard in the 2009 Victorian bushfires. Final report — August 2009.* Melbourne, Victoria 2009.
17. Putnam RD. Bowling alone: America's declining social capital. *Journal of Democracy* 1995;6:65-78.
18. Ziersch AM, Baum FE, MacDougall C, Putland C. Neighbourhood life and social capital: the implications for health. *Social Science & Medicine* 2005;60:71–86.
19. Leonard M. Children, Childhood and Social Capital: Exploring the Links. *Sociology* 2005;39:605-622.
20. Bourdieu P. The forms of capital In: Richardson JG, ed. *The handbook of theory and research far the sociology of education.* New York: Greenwood Press; 1986:241-258.
21. Baum FE, Ziersch AM. Social capital. (Glossary). *Journal of Epidemiology & Community Health.* 2003;320:4.
22. Country Fire Authority. *Living in the Bush: Bushfire survival plan workbook. Second Edition* Melbourne, Victoria 2008.
23. Rogers EM. *Diffusion of innovations.* New York: Free Press; 2003.