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**A Study Of Civilian Deaths In
the 1983 Ash Wednesday
Bushfires Victoria, Australia**

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ABSTRACT

Significant losses of life occur in bushfires in Victoria. More than 300 deaths have occurred this century. This study investigates the circumstances surrounding the 32 civilian deaths that occurred during the 1983 Ash Wednesday bushfires, in Victoria, in order to assist the development of strategies to minimise the future loss of life. Details of individual deaths were available from the State Coroner's Inquests. The study has identified three categories of victims, suggesting ways to address deficiencies in the manner individuals respond to the fire threat. They are:

** Victims who recognised the real threat to their safety with enough time to save their lives, but chose an ineffective survival strategy;*

** Victims who did not recognise the real threat to their safety in time to implement an effective survival strategy; and*

** Victims who were physically incapable of implementing an effective survival strategy.*

Community groups who have taken responsibility for their own bushfire safety have become the focus of the Country Fire Authority's (CFA) bushfire safety program. Given the deficiencies in these victims' survival strategies, this study concludes that there is scope for reducing the number of deaths through bushfires by establishing and supporting these community groups.

KEYWORDS

fire safety, community groups, bushfire deaths, Ash Wednesday

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INTRODUCTION

Since the Country Fire Authority (CFA) was formed in 1945, its fire-fighting resources have expanded enormously, and significant gains have been made in reducing the impact of fire. Despite these gains, Victoria continues to suffer significant life and property losses during the major fires that occur once or twice a decade.

The concept of disasters as manifestations of vulnerability has won favour with researchers in recent years. For example, the office of the United Nations Disaster Relief Co-ordinator has defined disaster as "a measure of the vulnerability of [a] community to a specific hazard" (Salter,1992,2). Similarly, De Marchi argues that there is no such thing as a natural disaster for vulnerability is a function of the human system, and can only be increased or diminished by human action (Salter,1992).

This human-focussed approach to understanding hazards can be applied to the Victorian experience of bushfire disasters, in order to explain why significant life and property losses continue to occur at regular intervals. To assess the extent to which people can influence their vulnerability to bushfire, it is first necessary to accept that bushfires are an integral part of our physical environment. This is the fundamental tenet of Pyne's (1991) fire history of Australia. He argues that fire has shaped the life of anything and everything that exists in Australia, from the composition and geography of our native vegetation, to the character and lifestyle of both the Aborigines, and the European settlers.

While it is impossible to expunge fire from rural Australia, by their behaviour people can dramatically influence whether or not they, and their assets, will survive the passage of a major fire. Certainly, a community that relies completely on the CFA for protection will be particularly vulnerable during a major fire. The experience of major fires has shown that no suppression force is capable of halting, or even hindering, the progress of a major fire (Silberbauer,1990). Similarly, the network of strategic and tactical firebreaks constructed by the CFA to protect rural communities are unable to impede major fires, such as those experienced on Ash Wednesday. On that day, the CFA observed that "normal fire prevention had little effect ... on the forward spread of the fire. The fires jumped two or three chain roads with full width ploughed firebreaks on two sides" (Country Fire Authority,1983,66). It is also clear that during a major fire the CFA will not be able to provide every person and home with individual protection. Thus, if rural communities are to become less vulnerable to major fires, individuals will need to develop their own bushfire safety strategies, instead of relying entirely on the CFA.

Many researchers believe that the most effective bushfire safety strategies will be developed by people taking responsibility for their own bushfire safety and, by working together as a community group, developing the strategies most appropriate to their specific situation (see e.g. Whelan,1987 ; Silberbauer,1990). This approach to bushfire protection has been adopted by the CFA. They are currently developing a program which will enable the CFA to facilitate the formation of these community groups, and to provide technical and resource support so that these groups, and their members, can develop informed bushfire safety strategies.

If the CFA is to pursue this community group approach in order to reduce vulnerability to major fires, it critical that members of these community

groups, and the people offering their support to these groups, understand why people die in bushfires. Research in this area has been limited. A study of people subjected to the Ash Wednesday fires at Mount Macedon demonstrated that people who shelter in their homes have an excellent chance of surviving a major fire, whilst late evacuation is fraught with danger (Wilson and Ferguson, 1985). Packham (1992) agrees that buildings offer excellent protection from bushfire. He supports this with the observation that of the apparently large numbers of people caught in the fire zones during the Ash Wednesday fires, the vast majority of people survived (Packham, pers. comm.).

This paper will expand on this research by analysing all the circumstances surrounding the deaths of civilian bushfire victims, in order to identify any similarities in the way these victims responded to the fires. This analysis will then be used to determine: (a) whether these deaths could have been averted by implementing an appropriate survival strategy; and (b) whether the community group program could have assisted in the development of these survival strategies.

PROJECT METHODOLOGY

This study was limited to civilian (rather than fire-fighter) bushfire deaths, as our investigation was aimed at assessing the vulnerability of the general community. Each death was investigated as a separate case study. The cases were then reviewed as a group to see if there were any similarities in the victims' responses to the fires. While similarities were identified, the circumstances surrounding each death were unique. It is important to note that an analysis of case studies is a purely empirical study of a limited number of events and care should be taken when drawing implications from this research to a broader sample.

This investigation was hindered by the lack of detailed information in the coroner's reports about the circumstances surrounding the deaths of the victims. First, the barristers involved in the coronial inquests did not appear to have a solid understanding of fire behaviour, which hampered their ability to elicit useful information from the witnesses. Secondly, a lack of witnesses limited the amount of information regarding some of these deaths. Finally, the evidence of some witnesses was contradictory. These inconsistencies were often not resolved.

RESULTS

SUMMARY OF RESULTS

An analysis of the manner in which civilians died on Ash Wednesday divulged three categories through which to address the deficiencies in the way the victims responded to the fire threat. They are:

1. Victims who recognised the real threat to their safety with enough time to save their lives, but chose an ineffective survival strategy.
2. Victims who did not recognise the real threat to their safety in time to implement an effective survival strategy.
3. Victims who were physically incapable of implementing an effective survival strategy.

Table One indicates how we categorised each of the victims (where the victims are denoted by V1,V2 etc.):

CASE STUDY	CATEGORY 1	CATEGORY 2	CATEGORY 3	
1	V1 V2			
2	V1			
3		V1	V2	
4	V1			
5	V1			
6	V1 V2			
7	V1 V2 V3 V4			
8		V1		
9	V1			
10			V1	
11	V1			
12			V1	
13		V1 V2	V3	
14		V1 V2		
15		V1 V2		
16			V1	
17		V1		
18		V1		
19		V1 V2		
20			V1 V2	
TOTAL	13	12	7	32

DISCUSSION OF RESULTS

VICTIMS WHO RECOGNISED THE REAL THREAT TO THEIR SAFETY WITH ENOUGH TIME TO SAVE THEIR LIVES, BUT CHOSE AN INAPPROPRIATE SURVIVAL STRATEGY

This group of people were aware of fires burning in the area, and recognised that they may become personally involved. These people probably had time to implement effective survival strategies, but chose an ineffective strategy. Of the 13 people in this category, five died attempting a late evacuation, five were caught just outside their homes, two deliberately entered the fire area to take photographs, and one was found inside his house.

Persons Who Died Attempting A Late Evacuation

These five people became victims of the bushfires because of a poor choice of survival strategy, i.e. last minute evacuation by vehicle. Packham (1984;1992) and Wilson and Ferguson (1985) argue that fleeing a fire by vehicle is a dangerous strategy, and that staying in a house dramatically improves the chance of personal as well as house survival. This is because the principle threat to survival is the radiant heat produced by a bushfire, rather than the flames. Exposure to high levels of radiant heat can cause the body's cooling system to fail, leading to heat exhaustion and heart failure, and ultimately death by heat stroke (Country Fire Authority,1988). A house provides much better protection from radiant heat than a car.

Aside from risking exposure to the heat, late evacuation has many other associated hazards. Surviving witnesses mentioned the confusion, poor visibility, loss of orientation and conditions hazardous to driving that were present prior to the arrival of the fire. Evacuation was made even more difficult by the fact that people did not know where the fire was, and which roads provided access to safety. It is apparent from this subset of case studies that if a decision is made to evacuate, it must be made EARLY to avoid being caught in the fire.

This is illustrated by the experience of the victims of Case Study 1 who deliberately went into the fire area some hours before the arrival of the fire to help an elderly relative protect his home. A last minute decision to evacuate failed, and the two victims perished on the road beside their car. Their deaths could have been averted had they chosen to either stay with the house, or to arrange the early evacuation of the relative.

Both of the victims in Case Study 6 were aware of fires in the area during the afternoon, but the mother chose late evacuation when it became obvious that her house was in the path of the fire. This decision led to herself, her son and an adult male passenger being caught out on the road in their car as the fire front passed. The mother died as she fled from the car into the fire, while the other two sheltered in the car until it caught alight. These two then ran down the road to safety but unfortunately the son died later that afternoon from burns sustained during the fire.

A similar situation occurred in Case Study 11, where four people were caught

in their car. Again, the victim ran out into the fire while the other three survived the main fire front which passed over their car while they were inside it.

Persons Caught Just Outside Their Homes

Five of these thirteen victims died in the immediate vicinity of their homes. Of these five, four were caught outside while shifting stock, unaware of the impending wind change. Had these people understood the implications of the wind shift on fire behaviour, and received some information on the timing of the change, they may have chosen to stay inside their homes. The ferocity of the wind change on Ash Wednesday was extreme, and caught most people unaware. With the benefit of hindsight it is evident that successful survival strategies require an understanding of the importance of the wind change. In fact, of the 47 deaths on Ash Wednesday, 46 died from injuries sustained immediately after the wind change (Packham and Pierrehumbert, 1990).

However, even with this understanding of the importance of the change, people need to realise that information regarding the wind change may not be communicated to them. Consequently, as they may not be aware of the exact position of the fire, it is most important to stay inside their homes.

This is illustrated by the victim of Case Study 4. He had been aware of the fires for a considerable time. In fact, he had been fighting the fires earlier that day, and had carried out fire protection work on his house prior to going out to collect stock on horseback. Subsequently, he was caught out in the yard when the wind changed, driving the fire front through the yard. It would have been more appropriate to stay inside the house, dealing with his stock earlier in the day. The victim of Case Study 5 died in similar circumstances. Two of the victims of Case Study 7 (V1 and V2) were also caught out while herding their cattle to safety on horseback. These victims unsuccessfully sought shelter in a passing car (see following section).

The other victim who was caught outside was that of Case Study 2. He had known about the fires for some hours and had chosen not to go to the recognised safe area in the neighbourhood. The victim was caught standing outside in his yard while his house survived the passage of the fire. Had the victim had a better understanding of the severity of the wind change and the associated violent turbulence, he may have been better prepared for the fire front and chosen to shelter in his house.

Persons Who Deliberately Entered The Fire Area

The other two victims of Case Study 7 (V3 and V4) decided to leave the safety of town to take photographs of the fire. Certainly, a lack of understanding of fire behaviour and the wind change contributed to their deaths.

The decision by V3 and V4 to enter the fire area by vehicle may reflect a belief that it is possible to shelter safely in a car during a major fire. This belief may be based on the experience of the 1969 Lara fires, where people who fled their cars on the Geelong Road died. This experience needs to be put into context. While it is preferable to remain inside a car than to be caught outside during the passage of a bushfire, a far more successful strategy is not

to be caught out driving in the vicinity of a fire.

Person Found Inside House

It is unclear why the victim of Case Study 10 died in his house. The literature on house survival (e.g. Ramsay et al. 1986, Barber and Morris 1983, Wilson 1985) suggests that by implementing a variety of fire protection strategies, people can survive a major fire by sheltering in their homes, and can subsequently save their homes after the fire has passed through.

This victim appeared to implement many of these strategies. For example, his house had been built to be fire-safe, he was wearing protective clothing and was prepared to put out spot fires around his house.

In this case more information is required to allow an analysis of the victim's survival strategies. Unfortunately, he had been told by the police NOT to use any more water. Thus, he was not able to spray down the outside of the house and the surrounding vegetation as planned. The availability of water has been found to be an important factor in determining whether people are able to save their homes (Lazarus and Elley, 1984).

Choice Of Survival Strategy

Of all the thirteen victims who had sufficient time to save their lives, only one died inside his house. This death illustrates the fact that simply staying inside a house will not guarantee survival. The house survival literature recommends a number of house protection strategies to enhance the likelihood of a house surviving a fire, but there is no simple recipe of strategies to guarantee survival. Similarly, a review of the survival strategies of two towns threatened by floods demonstrated the danger of placing too much faith in a single preparedness strategy. In this review, Keys argued that Nyngan suffered substantially more damage than Warren because its community focussed all their energies into one strategy - raising the levee banks - which subsequently failed (Keys, 1991a). The citizens of Warren recognised that minimising flood damage required a multifaceted approach, and consequently implemented a range of strategies which enabled them to reduce the impact of the flood in the event of the levee banks breaking. Similarly, the circumstances of every fire are different, so people preparing for a bushfire need to implement a range of strategies.

An understanding of the physical processes of fire behaviour will provide the flexibility to implement the most appropriate survival strategies. This is supported by Keys (1991b) who found that people had difficulty responding to a disaster situation if they lacked an understanding of the hazard involved. Salter (1992) also claims that to enable citizens to cope with a disaster they must be provided with knowledge and skills.

Similarly, this understanding of fire behaviour will give people more confidence in the strategies they have chosen. In a study of household occupancy during the Ash Wednesday fires at Upper Beaconsfield, Lazarus and Elley (1984) found that the considerable trauma involved with staying in a house during the passage of a bushfire was increased if people were not confident that their house would withstand the fire.

**VICTIMS WHO DID NOT
RECOGNISE THE REAL
THREAT TO THEIR SAFETY
IN TIME TO IMPLEMENT AN
EFFECTIVE SURVIVAL
STRATEGIES**

Twelve of the Ash Wednesday civilian deaths occurred because the victims did not appear to recognise the real threat to their safety in time to implement an effective survival strategy. This lack of warning was also identified in a survey of residents of Upper Beaconsfield after the Ash Wednesday fires. This survey found that the respondents "had little or no warning or information about where the fire was, the rate at which it was moving and the predicted wind change" (Lazarus and Elley,1984,22).

It follows that if people do not receive a warning in time to implement effective survival strategies, a good understanding of bushfire safety is immaterial. Lazarus and Elley argued that people "must have adequate warning of the approach of the fire and knowledge of how to act in the circumstances" (our emphasis) (Lazarus and Elley,1984,21).

Inadequate warning is a feature of most major disasters. In a review of flood warnings, Heatherwick suggested that the rare, severe major flood, or the flood that surpasses the previous record height, "usually results in much less than the appropriate warning response". He argued that this was because such an event is beyond the experience of those people and organisations responsible for warning vulnerable communities (Heatherwick,1990,8).

This argument also applies to the CFA. The CFA is unable to provide every person and home with individual protection during a major fire, as its resources are stretched simply trying to impede the progress of the fire. Similarly, in every major fire event not everyone will receive an official warning, especially if the power fails. Packham agrees that it is almost impossible to warn everyone in an hour or so of an approaching bushfire. He notes that strategies for mass warning will fail because "there is not enough strategic intelligence around that could operate quickly enough and that can be "on line", for that one day every 20 years when a bushfire disaster strikes" (Packham,1984,31).

However, the concept of warning is not as simple as whether or not the victims were given an official warning. Whether a person perceives a risk to their safety, and responds accordingly, depends on both the information they receive, and factors internal to that person, such as their understanding of fire behaviour.

A model illustrating how people perceive risk was developed by Mileti and Fitzpatrick (1991). They believe that people perceive, and respond to, a communicated risk, i.e. a warning, if they: (a) understand the communicated risk message; (b) believe the communicated risk message; and (c) personalise the risk.

The extent to which people understand, believe and personalise a risk depends on a number of factors that fall into two distinct categories - information factors and public factors.

Factors That Relate To The Characteristics Of The Warning

Mileti and Fitzpatrick argue that the substance and form of the communicated risk information "plays a dramatic role in determining the perceptions which people form and their subsequent behaviour" (Mileti and Fitzpatrick,1991,22). Characteristics of communicated warnings, or information factors, that influence risk perception are listed in Figure Two. None of the victims discussed in this section had any formal warning from a member of the emergency services. However, we could argue that communicated risk need not be restricted to warnings from official sources, or even warnings from other people. While these victims had no formal warning, many did receive information that may have caused other people in the same situation to perceive the risk to their safety.

For instance, it can be presumed that most of the victims were aware that 16 February 1983 had been declared a day of Total Fire Ban (TFB). A TFB declaration is generally perceived as a ban on lighting fires in the open air. However, a TFB day should serve as a warning to the general public to be more fire conscious. CFA volunteers, for example, will monitor their radios in anticipation of a fire on a TFB day. In fact, many of the victims, such as the those in Case Studies 8, 14, and 19 were even aware of fires burning in their area, but they did not perceive a risk to their safety and consequently did not respond.

The victims in Case Study 15 and V2 in Case Study 19 also received phone calls from concerned relatives well before the fire arrived. Additionally, V1 in Case Study 15 had tried to pick up his daughter from a nearby railway station, only to find the roads blocked because of the fire. V1 and V2 in Case Study 13 were actually watching the fire from the balcony of V1's home, with the rest of their family, less than an hour before the fire struck. They took no evasive action as the fire was burning away from them. In fact, none of these victims implemented any bushfire safety strategies before the arrival of the fire because they did not perceive themselves to be at risk on the basis of the information they had received about the fires.

The only warning that evoked a response from these twelve victims was evidence of the imminent arrival of the fire, such as the shower of sparks and burning debris. Unfortunately, for these people there was not enough time between the recognition of the perception of risk and the arrival of the fire to respond with an effective survival strategy. The victim in Case Study 18, for example, had only a few minutes warning of the arrival of the fire and decided to evacuate. While early evacuation is a valid survival strategy, the dangers of last minute evacuation are now well documented (Wilson and Ferguson,1985,8). Among the dangers is the fact that smoke reduces visibility to almost zero, increasing the risk of involvement in a road accident for those fleeing their homes. This was the fate of the victim in Case Study 18, who drove off the road and was subsequently caught in the fire.

Factors That Relate To The Individual's Understanding Of Fire Behaviour

The second set of factors that influence an individual's perception of risk are described as public factors (Mileti and Fitzpatrick,1991,23). These factors illustrate how characteristics personal to the individual receiving the warning will influence perception of risk. Among these public factors are what Mileti and Fitzpatrick refer to as 'pre-warning perceptions'. They argue that people "filter risk information to conform with their existing views, thereby engaging in selective perception" (Mileti and Fitzpatrick,1991,23). These pre-warning perceptions would include an understanding of bushfire safety, and in

particular, the physical processes involved in a bushfire event. If the victims discussed in this section had possessed this understanding, they may have perceived the risk to their safety well before the arrival of the fire, despite the lack of official warning.

For example, V1 in Case Study 13, and the victims of Case Study 15, may have lived if they, or their other family members, had understood the influence of a cold front on a fire. If this had been the case, they would have realised that a fire can change direction abruptly, and that even though the fire was burning away from them they were not necessarily safe.

VICTIMS WHO WERE PHYSICALLY INCAPABLE OF IMPLEMENTING AN EFFECTIVE SURVIVAL STRATEGY

The third group we identified were those people who appeared to be physically incapable of implementing an effective survival strategy, regardless of whether or not they perceived the risk to their safety with enough time to implement a strategy. This category may include the elderly, the physically or mentally handicapped, and the infirm, as well as those people who may have been under the influence of alcohol or drugs.

The victims of this group include V2 of Case Study 3, who was found with a blood alcohol content of 0.34. There were no witnesses to this death, and the body was found lying on the road. In Case Study 10 the victim had been warned about the fire, but chose to stay at home, only to decide at the last minute to drive away from his property. He was apparently disoriented and in fact ran his car off the road, dying some metres from his car. He had a blood alcohol reading of 0.225. This may have caused him to drive erratically, or have effectively prevented him from carrying out any survival strategies. The victim of Case Study 12 was alcohol dependent and physically and mentally unstable. She was requested to evacuate, but chose not to. It is doubtful whether she would have been able to apply any effective survival strategies as witnesses noted that she was drunk. The victim of Case Study 16 was aware of the fires, but did not want to leave her home. Whilst many elderly people survived the fires, this victim's age, 86, presumably meant that she was unable to implement many survival strategies. The victims of the final Case Study, 20, were both found inside their home. One of them was an invalid, the other was caring for him. They could not implement any survival strategies themselves, and in fact the able bodied victim was waiting for external assistance.

Elderly people were over-represented among the dead on Ash Wednesday. Packham notes that while people have an excellent capacity to survive bushfires, "elderly people have three times the risk of perishing in fires than younger people" (Packham,1992,11). Perry (1990) found that the elderly are just as likely to comply with evacuation warnings as the rest of the population. This suggests that while many elderly people may be more than capable of looking after themselves, their over-representation in the deaths statistics is partly the result of an inability of some elderly people to implement effective survival strategies.

THE ROLE OF COMMUNITY GROUPS

This paper has sought to identify the deficiencies in the way individuals responded to the Ash Wednesday fires that resulted in the loss of life. Given that the CFA has shifted the emphasis of their fire protection efforts to community groups, this section discusses how residents, working together as a community group, can address many of these deficiencies to reduced the vulnerability of the community to bushfire.

Victims Who Recognised The Real Threat To Their Safety With Enough Time To Save Their Lives, But Chose An Inappropriate Survival Strategy

These people did not have an adequate understanding of bushfire safety and the physical processes involved in a bushfire event. The community group approach may provide a better forum for learning than conventional publicity media.

Traditionally, the CFA has encouraged the adoption of effective bushfire strategies by the community through the use of television advertisements and printed leaflets. However, there are two flaws to this approach to bushfire safety. First, Silberbauer notes that it "is apparent that passive approaches (i.e. those in which the public are not engaged in reciprocal action, but are passive recipients of information) require a great deal of reinforcement before any significant change in perception or behaviour (Silberbauer,1990,9). Consequently, he believes that CFA publicity has produced poor results despite the high quality and good distribution of this publicity material (Silberbauer,1990,9). Secondly, the most appropriate bushfire safety strategies will vary according to each individual's particular circumstances. Thus, many people may not feel that the information supplied by the CFA applies to them.

Community groups may be able to overcome these deficiencies. If people realise that the CFA cannot be relied on to assist them in a major fire, they may take some responsibility for their bushfire safety, and be eager to learn how they can protect themselves. As a group, these people may find it easier to initiate contact with people who can answer their questions about bushfire safety. Similarly, the CFA can provide technical and resource support more efficiently to groups than to individuals. An important part of this support is getting people to understand some aspects of fire behaviour so that they can develop the most appropriate strategies themselves.

Victims Who Did Not Recognise The Real Threat To Their Safety In Time To Implement An Effective Survival Strategy

It has been shown that in a major fire the communication of information will breakdown so that many people will not be warned of an approaching fire. While organisations like the CFA, and the State Emergency Service (SES) remain responsible for the communication of risk, the deficiencies in the warning process can best be overcome if the people themselves also take some responsibility for obtaining information. This is best achieved if people work together as a community group to develop strategies for the transfer of information to members of the community. In the same way that individuals should take responsibility for their own bushfire safety, they should also take some responsibility for their own warning.

Mileti and Fitzgerald support this, noting that social ties tend to increase the

perception of risk and the probability of a response (Mileti and Fitzgerald,1991,23). Similarly, Salter argues that a basic tenet of risk communication in a democracy is that people should participate in the decisions that affect their lives (Salter,1991,14). Salter compared the strategies of risk communication developed for residents neighbouring industrial sites in Altona and Port Adelaide. He found that the Port Adelaide model was far more successful because the warning system was developed with the community. Consequently, the warning system had become part of the community culture, and the planning process used to develop the warning system enjoys "substantial credibility and integrity in the eyes of the community at risk" (Salter,1991,14).

Risk communication strategies developed by the community group may include members of a group purchasing a listening set, and keeping others in the group informed of the progress of any fire. They may also include establishing a community radio station, or working with an existing community radio station, that could be used to keep the community updated in the event of a fire. The community group and the station could devise a strategy whereby the members of the group know they can rely on the station to broadcast fire information when required. Alternatively, it might be possible for the community group to arrange for one of its members to liaise with the local brigade or regional office in the event of a fire, in order to keep the other members informed.

Victims Who Were Physically Incapable Of Implementing An Effective Survival Strategy

People who fall within this category rely on other people to assist them in the event of a fire. This is illustrated by Case Study 20 where V2 seemed astounded that nobody was coming to her rescue. However, it has been shown above that many people will be on their own in the event of a major fire. Many of the people who would not be able to implement effective survival strategies could best be identified by members of a community group. If they were incorporated into the strategies developed by a community group there would be a greater chance that the needs of this special group would be addressed.

SUMMARY AND CONCLUSIONS

Recent studies of disaster state that disasters are simply manifestations of the vulnerability of a community to a hazard. In this analysis of the 32 civilian deaths on Ash Wednesday, we have identified three senses of vulnerability. The victims of these fires died because they (a) implemented an ineffective survival strategy; (b) had insufficient warning; or (c) were incapable of implementing an effective survival strategy without support. We believe that these deficiencies are not being adequately addressed by current bushfire safety practices. This paper has demonstrated that an alternative approach that may effectively deal with these strategies is one based on community groups. Members of these groups can work together to develop bushfire safety strategies that best satisfy their particular needs.

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APPENDIX 1

In these case studies, the notation W1, W2 etc refers to Witness 1, 2 etc, and V refers to Victims.

THE COCKATOO FIRE

Case Study 1

On Ash Wednesday the two deceased, V1, aged 29, and V2, aged 24, decided to go to V2's grandfather's (W1) home after work. They aware of fires burning in the area and wanted to assist the elderly man. V1 climbed up onto the roof of W1's house to clear the gutters, fill them with water, and to hose the house with water. At about the same time there was a sudden wind change, resulting in smoke and sparks which severely reduced visibility. At about this time the police helicopter flew overhead with its siren blaring.

Presumably, this prompted V1 to get down off the roof and tell V2 and W1 that it was time to get out.

W1 got into one car, V1 and V2 into another. W1 lived in the area and was familiar with the roads. He also believed that the other two were quite familiar with the area as both had visited him extensively over many years. W1 managed to get into a stream of departing cars, and safely evacuated the area. V1 and V2 took a different route. On the way they picked up two passengers, W2 and W3, who were also evacuating the area.

W2 stated in evidence that when the car was confronted by a wall of flame, she advised the driver, V1, not to drive into the flames. She was worried about his driving capabilities as he had been driving rather wildly. The four sat in the car, not knowing what to do, until V1 told them to get out. They all huddled face down in a shallow ditch at the side of the road, V1 and V2 under a synthetic blanket and W2 and W3 under a wet woollen blanket. W2 said in evidence that she had heard V1 and V2 talking to each other, but after a while the talking stopped, and she knew that they were dead. W2 also said that during the time she was huddled under the blanket she was still expecting someone to come and help them. In fact, it was only later when she and W3 actually stood up (perhaps an hour later) that she realised they 'were on their own'.

W2 and W3 then got back into the car. As it would not start, they allowed it roll downhill until their passage was blocked by a fallen log. They got out of the car and walked to a nearby house that had survived the fire. They entered this house through the open back door, wet themselves with water, and proceeded to put spot fires out around the house and verandah. After a while they sat outside near a shed with some water and put out more fires until the police arrived at about 1 a.m the following morning.

The two deceased were wearing summer clothing and only had a synthetic blanket with them. None of the persons involved had been advised to evacuate. W1 was aware that children should be taken to the kindergarten and W2 said that she was aware that neighbours had been voluntarily evacuating.

Case Study 2

V1, aged 68, was telephoned by his son (W1) at about 6.30 p.m., but there was no reply. At about 9 to 9.30 p.m. V1 called W1. During evidence W1 stated that V1 sounded concerned as he did not know where the fire was, although there were sparks and smoke around. He said that he had no water as his electric pump had failed. He also commented that he was too old to be fighting fires and that he would stay with his house.

V1 had discussed evacuating to the 'spud patch' with some neighbours, as it was generally agreed to be the safest place in the area. A neighbour of V1 thought that V1 would not go to the spud patch as he was the type of person to stay with his house. Another neighbour drove to the spud patch and, when passing by V1's house, observed that he saw him standing in the front yard. The wind change was thought to have arrived at about that time. V1 was found lying in the same place that the neighbour had seen him standing. He may have been trying to get to, or may have been coming back from, his shed which was 200 metres from the house. The shed contained tank water, and was also used to store V1's paintings.

While there was evidence of very strong winds (there were many uprooted

trees in the area), V1's house survived the fire. Note that V1 had a dam 100 metres from his house, and was wearing long sleeved clothing.

Case Study 3

V1, aged 30, and V2, aged 22, were residents of an art gallery. There was heavy bush opposite the gallery which had a garden of introduced species. Two hundred metres from the gallery was a full dam.

At about 7 p.m., V1 walked to a nearby house to ask the occupier (W1) to sell him some car parts, as he was trying to fix his car. W1 believed V1 had been drinking. He did not sell him any car parts and V1 left, hitching a lift before he even got out of W1's front yard. V1's body was found lying on the road between W1's property and the gallery. He was wearing shorts, a top and boots. While his blood alcohol content was 0.19, this was not considered to have contributed to the cause of death.

V2 was found lying on the road some distance from the gallery. There were no witnesses to his death. While there were varying reports as to what he was wearing when he was found, he was probably just wearing shorts. His blood alcohol content was 0.34.

THE CUDGEE/BALLENGEICH FIRE

Case Study 4

V1, aged 63, and his son, W1, came home from fighting nearby fires to look after their own homes, which were located near each other. Both carried out some protection work around their homes, such as plugging downpipes and filling the gutters with water. W1 and his wife, W2, drove to the paddock in their four wheel drive to collect their cattle. W2 was driving. V1 also came along on his horse. Whilst they were driving the cattle, they saw the fire getting closer. The son ran home. He initially ran towards his father's house as he could not see where he was going, but he was guided to his own home by his wife's voice.

V1 was subsequently seen riding his horse toward the cypress trees behind the chook pen. W1 said in evidence that he thought his father may have been heading to open a gate when the horse bolted and threw him. The horse has scars showing he ran into a wire fence. V1 ran back to the house. When his son saw him next he was in difficulty, down on one knee on the verandah of his house. He was delivered to an ambulance but died in hospital on 18 March.

Case Study 5

V1 and his nephew, W1, were at the nephew's farm (leased from V1) on the day of the fires. W1 went off to fight the fires whilst V1 stayed at home to keep an eye on the property. W1 came home during the afternoon as he feared his own house may be affected by the fire. When the fires appeared to be two and a half to three miles away, V1 decided to go over to the shearing shed to open a gate to allow some stock to come through. W1 discouraged him from doing this as he felt it was too dangerous. At that time it looked as though the fire would pass to the south of their property.

Shortly after V1 left for the shearing shed there was a sudden wind change

and fire engulfed the entire area. The body of V1 was found the following day, approximately 100m from the house, in the direction of the shearing shed.

The fire came from the south into the property under the influence of the wind change. It appears that neither V1 or W1 suspected this wind change. Note that the house was saved.

Case Study 6

V1, aged 32, her son, V2, aged 13, and her daughter, W1, lived opposite the local primary school. On the afternoon of Ash Wednesday, V1 and W1 were talking outside the school with the school teacher, W2. The school had been evacuated earlier. V2 was at home. While V1 and W2 were talking, the wind started swirling and it appeared that a fire front may be approaching them. V1 told W2 to take her daughter and drive to Terang, while she would fetch her son and do the same.

W2 and W1 drove off and were soon confronted by fire. W2 turned the car around and drove into an irrigated paddock that she had noticed when they first drove past. W2 jumped out of the car to wet a blanket in a trough at the entrance to the paddock. The wind change arrived during the time that she was out of the car. She ran back to the car and huddled under the blanket with W1. They waited there for some time until they were escorted back to town by a CFA tanker. W2 described herself as a country girl who had been brought up on the philosophy that it was best to stay in the house in the event of a fire. She had intended doing this until the wind started to swirl. She was aware of the danger associated with a wind change, but prior to the swirling wind she had thought that the fire might pass them by.

W3, a salesman travelling through the area, had been involved in fighting fires nearby until the people with him decided it was time to return to their homes. He was at an intersection when V1 and V2 drove up. He spoke to them and then hopped in to get a lift. They went a short distance down the road when flame engulfed the road in front of them, and then the road behind them. The car stalled, and they closed the windows and huddled down.

Soon the windows exploded and flames started to come into the car. V1 said "I've got to get out of here". W3 said in evidence that he told V1 that would not help and she replied "I don't care, I can't stand it". She hopped out of the driver's door and ran.

V2 and W3 got out of the car as the interior started to burn. The boy was badly burnt and W3's clothing was partly on fire. They were found staggering up the road by a policeman who extinguished the fires burning on their clothing and bodies. They were put into his police car to be taken to hospital. The passage of the car, and a tanker that had joined them, was halted by the fire. Another car collided into the back of the police car, necessitating the transfer of V1 and V2 to another police car that had arrived at the scene. V1 died in this car in the driveway of the hospital. W3 survived but at the time of the inquiry was still seriously ill, although he had just been released from

hospital.

W2 said that when she was talking to V1 outside the school, V1 had only been wearing shorts, a top and thongs. V1's body was found about 50 metres from her car, her thongs stuck to the road about 30 metres from her car.

Case Study 7

A witness, W1, saw V1, aged 46, and V2, aged 22, on horseback herding cattle. A few minutes after the sighting, flames engulfed W1's house. He waited until the flames had passed (about 15 minutes) and then went outside to look around. He saw two riderless horses standing calmly and apparently unburnt. He noticed that W2, wife of V1, was standing at the back of their house putting out a small fire, and that V1 and V2 were nowhere to be seen. W1 and W2 got into a car to drive to Terang but their passage was stopped by a burnt bridge. One mile up the road from V1, V2 and W2's house they passed a burnt out car. W1 investigated and saw what he thought were three bodies.

Another witness, W3, said she saw V1 driving cattle. At about the same time the wind changed so she got into her car. As she was getting into her car she saw a blue car speeding past and heading into the fire. W3 then backed her car up and down the road in order to avoid the worst of the fire front. W3 said she saw the blue car a number of times, apparently trying to find an escape route.

Another witness, W4, met V3, aged 51, and his son, V4, aged 28, parked on the road. V3 was in their (blue) car waiting V4, who was taking photographs of the nearby fire. W4 drove on and met V1 and V2 on horseback. He remarked that even though the smoke was very thick, V1 and V2 did not seem concerned.

After the passage of the fire the burnt out blue car of V4 was found with four bodies inside. The windows were wound up and the front seats were reclined. V1 and V2 must have sought shelter in V4's car, although no-one witnessed this.

THE OTWAYS FIRE

Case Study 8

V1, aged 51, was working as a Telecom linesman. On Ash Wednesday he departed from Lorne at 3.20 p.m. and was on his way to Colac to 'knock off' work there at 4.30 p.m. He was driving a Toyota Hi Lux utility. He was advised by a work mate that the quickest way back to Colac was via the Deans Marsh road.

Numerous witnesses saw the Telecom vehicle driving through an intersection at which they had all been asked to stop by the police. It is not clear why this vehicle was not prevented from proceeding through the intersection. However, a policeman, W1, on his motorcycle did manage to catch up to V1 and wave him over to the side of the road.

W1 told V1 about the fire front further down the road and 'ordered' him to turn his vehicle around and follow him back to Lorne. Consequently, V1 made a U-turn and started to follow W1 down the road to Lorne. Soon they were confronted by fire. W1 thought the fire was a 'spot fire' and less intense than

the main front which was still behind them. He told V1 to 'come on' and follow him through the fire. W1 then lay down on his motorcycle to get protection from the wind shield and drove through the fire in third gear. During his passage through the fire he had to swerve around a fallen down tree, but he thought there was sufficient room for a vehicle to get around this obstruction. W1 got through to the other side of the flames and waited some time for V1. When V1 did not arrive in the Telecom vehicle W1 assumed that he had changed his mind and turned around to go back the other way as he had been reluctant to follow him anyway. He thought that there would be no trouble as V1 should have been fairly well protected from the flames in his vehicle.

The Telecom vehicle was found on the road, facing toward Lorne, in about the place where W1 thought he had driven into the flames. The vehicle was assumed to have stalled. The body was found beside the car, lying on the road facing the open driver's door.

Case Study 9

V1, aged 64, was the husband of W1. During the afternoon of Ash Wednesday, W1 went into town with her daughter, W2, to pick up her grandchildren from school and take them to Fairhaven beach. They came home when they noticed the smoke cloud on the horizon. At home they filled buckets and spouts with water, wet blankets and bags, and sealed up the house.

In evidence, W1 stated that "we knew that we lived in a fire prone area and we were well aware of the procedures to prevent our property burning. We had discussed this many times in the past. We got protective clothing, that is woollen hats, long trousers, boots etcetera for everybody, the children included. We proceeded to pack the cars, attach the caravan..." and to keep an eye out for the fire. At 5.30 p.m., W2 decided to evacuate into town with her children. The fire was still not in sight.

V1 and his wife continued to prepare the house. The police arrived at their house and told them to turn off their water and evacuate. W1 told them that she would leave as soon as they saw the fire coming over the hill, but that V1 would probably stay with the house. They then had a cup of tea and thought that perhaps the fire might pass them by. W1 went out to the car to listen to the 7 p.m. news. She then went back inside, got her wet blanket, and made sure her husband knew where his was.

The fire came over the hill from the north west. W1 testified that she and V1 "saw this giant cloud and heard a roar behind the ridge, the roar got louder". She then said to her husband that they had to go. V1 did not want to. As she was departing, V1 said "I've got to get the rest of my protective clothing". W1 drove to Aireys Inlet, and was then evacuated to Anglesea.

V1's body was found in the kitchen of V1 and W1's burnt out house. V1 had built the house out of treated pine. It had a cement sheet roof and a fire wall at the rear of the garage. V1 was very proud of it and was very aware of the bushfire threat. W1 and V1's previous house at Lara had burnt down, and they believed it was because they were not present to put out the small spot

fires, as a neighbour had saved his house by putting out these small fires as they started.

V1 and W1 had been told by the police to turn off the water. Because of this request, V1 had not wet the house and surrounding area down as he had intended doing. W1 noted that she had tested the water and there seemed to be plenty of pressure.

Case Study 10

While she was helping to evacuate a neighbour, W1 spoke with V1, aged 61. V1 told them that he would stay with his house.

It appears that V1 was with his house as the fire approached and made a last minute decision to leave his property in his car. At some stage during his evacuation dash he was warned by a witness that he was going the wrong way.

His car was found 30 metres from the beach, off the road. He appears to have driven off the road, possibly misjudging a turn off. His body was found 10 - 15 metres from his car, closer to the beach. His blood alcohol content was 0.225.

THE BELGRAVE HEIGHTS/UPPER BEACONSFIELD FIRE

Case Study 11

V1, aged 20, and his father were involved in fire-fighting when his mother, W1, and two sisters, W2 and W3, arrived in their car with refreshments. Another fire-fighter, having heard of the approaching wind change, thought it was a good idea for V1 to go home with his mother.

It is unclear exactly what happened then as the evidence is confusing. It seems that V1, W1, W2 and W3 got into their car with two other fire-fighters and drove some distance to where a tanker was stopped. W1 was very concerned about her husband but was told by a fire-fighter on the tanker that he was safe. The wind change arrived at about this time and conditions became very dangerous. V1, W1, W2 and W3 jumped back into their car and drove down the road into an atmosphere filled with smoke and burning debris. V1, who was driving, slowed the car down with the handbrake, left the ignition on, and while the car was still rolling slowly, got out of the car and ran into the smoke. He was slapping his thighs and bottom as if to put out a fire although he was not on fire at the time. He was last seen by W1 and W2 disappearing into the smoke.

V1 was found lying face down on the front lawn of a house. The owner of this property had just entered her home as the conditions had become unbearable. She was looking out of her kitchen window and saw V1 running across her front lawn. His back and hair were on fire.

After V1 jumped out of the car, W1 took over the driving. She drove a little further until the car stalled. W1, W2 and W3 ran for their lives along the road. They all survived but received serious burns. None of them could understand

why V1 got out of the car. He said nothing to them at the time. The last thing V1 said when they jumped back into the car after the change hit was something like - "we're going home to pack". V1 was in perfect health, although he was not an experienced fire-fighter.

Case Study 12

V1, aged 50, lived alone in a three bedroom fibro-cement house, which was surrounded by half-an-acre of lawn. While there were a number of trees growing around the lawn area, the area in the vicinity of the house was well maintained and kept free of foliage.

V1 owned a car which she very rarely drove. Consequently, a neighbour was always charging the battery for her. According to witnesses, V1 was an alcoholic, drinking approximately one bottle of whiskey a day. Just after 5.00 p.m. on Ash Wednesday a neighbour warned V1 that the fire was approaching and urged her to evacuate. At this time she was obviously drunk. At V1's request, the neighbour turned on the sprinklers around the house and left. V1's son-in-law arrived at V1's house just after the wind change to find that the house had burnt to the ground. V1's remains were found in the bedroom of the house.

Apart from her alcohol dependency, V1 also suffered from bouts of depression, and suffered from severe lobar pneumonia. As a result of complications resulting from this disease V1's doctor testified that she was "not as precise and careful in her judgements as she had been formerly". He also noted that V1 was fiercely possessive of her property, which would have resulted in her refusing to evacuate.

Case Study 13

At 8.30 p.m. on Ash Wednesday, W1 was sitting on the back verandah observing the fires with his wife, V1, aged 50, his three sons, W2, W3, and W4 (aged 22, 19 and 9 respectively) and his auntie, V2, aged 80. V2 lived on one side of W1 while his mother-in-law, V3, aged 74, lived on the other side. Shortly after 8.30 p.m. V2 returned to her home. At 9.00 p.m. the wind changed, and in four or five minutes W1's house had caught fire - the ignition point being underneath the house. Just prior to the arrival of the fire, V1 had gone over to her mother's house, V3, followed a couple of minutes later by her son, W2. At this stage W2 observed that the heat from the fire was terrific, and that it was hopeless trying to put out the spot fires with his blanket.

When his house began to burn, W1 got his car and ran back inside to fetch his two youngest sons. To get into his house he had to knock down the front door, sustaining burns in the process. He carried his sons to his car, and then drove out onto the road, looking for his wife, son and mother-in-law. They stayed in the car with the engine running and the air conditioner on until it was possible to get out of the car. At this point V3's house was not yet alight, apart from a small fire in the eaves.

As soon as it was possible, W1 knocked in the front window of his mother-in-law's house and got inside. He then opened the bedroom door, where he thought his wife, son, and mother-in-law might have been

sheltering, and was confronted by flames. W1 then ran back to his car.

Meanwhile, W2 had found his mother and grandmother walking towards him from V3's house. W2 grabbed his mother and grandmother and put them into the back of his Holden panel van, which was parked within six feet of a large tree. He closed the door and got into the front passenger's side of the van as it was too hot to get into the driver's side. W2 covered himself with the lambswool seat covers and knelt on the floor, putting his face on the seat. That was the last thing he remembered. He could not remember if the fire had reached either his or his grandmother's house when he reached the panel van.

After fleeing V3's house, W1 waited in his car for about five or ten minutes to see if they might emerge. He then drove back to his front gate where he saw his son's panel van. W2 was half in and half out of the car, apparently unconscious. W1 picked him up and put him into the back of the car and noticed that V1 and V3 were in the back of the panel van. With the help of his son, W3, W1 managed, with a bit of trouble, to get the back of the van open. He put V1 and V3 into his car and "got the hell out". He came across a tanker who escorted him to Akoonah Park where he located an ambulance.

The ambulance officer found V3 to be dead. V1 died later from injuries received in the fires.

The family had not thought that evacuation was necessary because the fire was burning away from them and no-one had informed them of the need to evacuate.

The remains of V2 were found in her home the next day. According to W1 she was stooped, deaf, and "inclined to bandy a bit".

Case Study 14

W1 left his wife, V1, aged 40, and daughter, V2, aged 17, at 5.15 p.m. on Ash Wednesday in order to fight the fires. W1 returned home at midnight to find his home completely burnt out. He found the family car, but could not find his family. He made another unsuccessful search at 1.45 a.m., and then returned at 7.00 a.m. the next morning to find their bodies about six feet out from the front door in the direction of the car. They were cuddled up together.

A CFA volunteer recalled visiting W1's house on the night of Ash Wednesday in order to warn the occupants of the approaching fire. However, he did not remember talking to either V1 or V2, although he thought V1 looked familiar when shown a photo of her.

W1 doubted very much whether his wife or daughter would have heard someone knocking on the door to warn them on the night of Ash Wednesday. He noted that the house would have been in darkness, as the electricity had been cut off, and the blinds would have been down. V2 would probably have been in her bedroom studying, while V1 was deaf in one ear and would not have heard anything unless the sound was pretty close.

Case Study 15

V1, 62, and V2, 56, were husband and wife and lived in a four-bedroom weatherboard house on twenty acres. The house was located in a cleared

area, but a large number of native trees were located on the west side of the house and the surrounding area was well covered by natural undergrowth.

V2 received a phone call from her son-in-law at 4.00 p.m. on Ash Wednesday. V2 informed her son-in-law that the fire was burning at the bottom of Guys Hill, and that they were safe. At 7.00 p.m. V2 received a phone call from her daughter. At this time V1 was endeavouring to pick up their younger daughter from Beaconsfield Railway Station, but was having difficulty getting through as the roads had been blocked. At this stage V2 still believed that they were safe. V2's daughter suggested that she get some clothes together in case the fire came closer, but V2 informed her that it was not necessary.

At 8.30 p.m. the son-in-law again rang V2 to inform them that the younger daughter was still at Beaconsfield Railway Station and would return home as soon as she could. V2 still expressed no concern of the bushfire burning in the area. The son-in-law lived at Deer Park which had already received the wind change at that stage. He testified that he may have mentioned this to V2, but she certainly had not alluded to any impending wind change.

V1 and V2's neighbour, W1, was able to arrive home at about 10.30 p.m., just in time to extinguish fires burning in his front fence, the fernery and the rear shed. W1, a policeman, then returned to Upper Beaconsfield to offer further assistance. At 11.30 p.m. he returned home and walked through the rear of his property to V1 and V2's house. The house had been destroyed in the fires. On reaching the rear of what remained of the house, W1 looked towards the eastern end of the house where he discovered V2's body lying between the outdoor wash-house and the carport and fernery.

Stunned by this discovery, W1 drove to Berwick police station to regain his composure. He then returned to Upper Beaconsfield and returned to V1 and V2's house in the company of two other policemen. The body of V1 was found in the entrance to the fernery on the west side of the carport, some fifteen feet or so from his wife's body.

V1 and V2 were both of reasonable health with no physical disabilities. When questioned, W1 noted that most of the people in the surrounding area had stayed with their homes and survived the fire.

THE EAST TRENTHAM/MACEDON FIRE

Case Study 16

W1 received a phone call from V1, aged 86, at approximately 6.25 p.m. on Ash Wednesday, informing W1 that V1's sister had suffered a stroke. W1 warned V1 that there was a fire burning in the area and, although she was not yet in any danger, she could be later that night. She replied "I'm all right, don't worry about me". V1's remains were subsequently discovered in the early hours of 17 February in her burnt out house. She appeared to be sitting in a chair in the laundry.

W1 described V1 as a very independent lady. It can be assumed that she was reasonably mobile, as she was seen walking home from the shops that afternoon.

Case Study 17

Just before W1 planned to go to bed on the night of Ash Wednesday, he wandered out onto the verandah to look around the yard. He heard a loud, roaring noise and saw pieces of timber, sparks and ashes flying through the air. He sent his wife and children off in a car to Kyneton, and evacuated himself a short time after. The following morning he returned to his house to find a fire burning in the extension to the house, which he promptly extinguished. Later that afternoon he decided to check on his neighbours. V1, aged 55, lived alone about 250m from W1's house. His house had burned down. W1 was standing in the front yard of this house when he saw what he thought was a statue three feet away from him. On closer inspection he realised it was V1's body. V1 was lying on his back with his feet facing the house. He appeared to have a blanket over his head, but this had melted and burned off, except for a little bit on the side of his face. There was a sheet of corrugated iron near his left side, which he may have used to cover his body.

V1's body was not in the path between the house and the car in the garage. It was located more towards the road. The policeman believed that V1 may have chosen to shelter in the cleared area of his property, as far as possible from the burning house, car and surrounding bushland.

Case Study 18

On the night of Ash Wednesday, at approximately 10.15 p.m., a neighbour visited V1, aged 62, at his home in Mt Macedon. V1 was dressed in his underwear, but was preparing to get dressed and leave straight away. Another neighbour had just telephoned V1 to advise him that the fire was close and that he should be ready to evacuate. This neighbour was not yet alarmed by the fire, and had not began to evacuate herself, thinking that they would be warned if evacuation was necessary.

Another witness evacuated his family when vegetation on their nature strip caught fire. They passed V1's stationary car on Salisbury Road. W1 observed that V1 appeared to be bewildered and did not know which direction to take. Due to the urgency of the situation, the witness did not have time to stop and guide V1.

The following day the witness saw V1's car in a clump of trees at the intersection of Salisbury and two other roads. The car did not appear to have hit any trees of significance. In fact, it appeared to the witness that V1 had become totally disorientated and had got lost in the heat and smoke and ran off the bitumen. A policeman who found V1's body in the car, noted that the car was straddling a large fallen log. Thus, it appeared to him that the car had left the roadway at sufficient speed to run up over the log but was thereby effectively prevented from any further movement in any direction. Another policeman attending the scene noted that a shallow depression appeared to have been dug by the spinning of the rear side passenger wheel.

Case Study 19

W1 was sitting at home at approximately 10.00 p.m., doing some paperwork, while his wife, V1, was in bed. V1, aged 57, came into his bedroom and said "We'll have to go, there's sparks coming down". This was the last time W1 saw his wife. W1 attempted to gather together some paperwork, then put on some slippers before going out to the car. He looked around for his wife but could not see her. He screamed out a number of times "V1, where are you?"

At this stage the wind was fierce and the sparks were falling horizontally. W1 walked towards the front gate and saw a car in V2's driveway next door. However, he did not conclude that V2 was still home as she often went to the city with her children without the use of the car.

As W1 walked back to the car, he noticed flames five or six feet high at the back of his property. He grabbed his dog, and jumped into the car. Believing that his wife had been picked up by a person passing by on the Mount Macedon Rd, W1 evacuated. About a quarter of a mile down the hill he was instructed to shelter with a fire tanker and approximately eleven other cars. An hour and a half later, W1 was guided to the Counter Disaster College, where he commenced making inquiries into the whereabouts of his wife.

W1 testified that while he was aware that there had been a fire burning in Trentham that day, he and his wife had received no warning of the approaching fire. W1 estimated that the time delay between V1's warnings and the time W1 left the premises was approximately 90 seconds.

V1's body was found the following morning with the body of V2, aged 68, in V2's burnt out home. V2's son, W2, phoned V2 at approximately 5.00 p.m. to see if she was aware of the fire burning at Trentham. She was unaware of that fire, but at that stage neither she or her son thought that she was in imminent danger. In fact, W2 described the phone call as basically social. At approximately 7.30 p.m. W2's wife, W3, phoned V2 to ensure she was still alright. W2 and W3 were beginning to become more concerned because of the number of fires burning throughout the state. They were not aware of any particular threat to Mt Macedon. At 10.30 p.m., W2 heard on the news that fire was sweeping down on Macedon. W3 immediately phoned V2 while W2 prepared to leave for Mt Macedon. W3 passed the phone over to her husband, telling her husband that his mother was in a panic.

W2 does not clearly remember the conversation, but he does remember his mother telling him not to come. She said that she had filled the bath with water, and she had V1 with her. W2 told her to get out and go over the top of Mt Macedon. V2 had a car and could drive, although not very well. However, V2 did not think she could get out over the top. She repeatedly insisted that W2 stay at home, and remarked that the fire situation was grim, although she did not make any reference to being able to see the fire.

W2 subsequently called a neighbour of V2's, whom W2 described as hysterical - screaming about the fire all around. W2 asked the neighbour to look after his mother if she could, but the conversation was very confused due to the urgency of the situation. W2 later learned that the neighbour's husband had attempted to get to V2's house, but was stopped by a wall of flame. The neighbours fought the fire from their house, and survived.

W2 arrived at his mother's house the following morning with his brother to find it flattened. He found V1's body, and shortly afterwards the police found the body of his mother.

W2 noted that during the fires of 1 February, his mother anticipated being told to evacuate. She had the car pointing down to Gisborne, and a bag of valuables beside the door, ready to evacuate if told to do so.

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At 10.00 or 10.30 p.m. W1, the older sister of V1, aged 62, heard on television that Macedon was under threat. She immediately thought of V2, aged 60, who was V1's sister-in-law, and who lived with V1 in Mt Macedon. W1 subsequently rang V2. V2 said that she was packed and ready to go, and that V1 was sitting in the passage. She repeatedly remarked that nobody was coming to fetch her, and that she would not leave V1. W1 asked V2 if she could evacuate down a nearby track. V2 answered that they could not as the track was on fire. V2 then said that she could see a light, and that someone was coming so she hung up the phone.

Here the evidence of W1 and her son-in-law, W2, contradicts slightly. According to W1, she rang V2 back shortly afterwards. V2 answered and said that nobody had come to save them and that "No one's going to come!" V2 then said the front of the house was on fire. W2 then took the phone and told V2 to stay calm and that they were coming. V2 then called out that the windows were exploding and there was not another sound after that. W2 thought that he heard the phone drop. According to W2, he saw that his mother-in-law was upset, and had collapsed and put the phone down after her first conversation with V2. W2 then called V2. W2 tried to get V2 to contact someone to help her. He put the phone down, then rang back shortly after. W2 described his conversation with V1 as substantially the same as that W1 described. V2's last words were "I've got to go, the house is on fire. I've got to go. Oh my God, the windows have blown out." The line then went dead.

W2 then phoned 000 and was put in contact with a policeman who promised to dispatch a car to V1 and V2's house. W2 learned the following day that a police car had attended, but the house was on fire and the police could not get in. Note that V1 was an invalid and was unable to walk unaided.