

Forest Fire Victoria Inc.

Forest Fire Victoria is a group of forest and fire professionals who share more than 250 years of fire experience.

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HOW CAN WE PROTECT PEOPLE FROM BUSHFIRES?

WHAT LEVEL OF RISK WILL BE ACCEPTABLE?

This article is drawn from publications and extensive experience nationally and internationally of Phil Cheney PSM, former head of CSIRO's bushfire research unit, 1975-2001, including (among others), bushfire behaviour, mass fires, firefighter physiology and safety, heat transfer and home protection, including direct experience in California's wildfires.

INTRODUCTION

This article considers factors involved in saving people's lives and their assets, with reference to the recommendations of the Victorian Royal Commission into the 2009 bushfires and experience gained over several decades, on considering the rationale for what is an acceptable risk.

The assessment involves a layman's view, rather than that of a psychologist, of people's behaviour and attitudes in relation to bushfires; gathered over several decades, through interviews with many residents before, during and particularly after major fires. It also includes Phil Cheney's views on risk taking, with which Forest Fire Victoria Incorporated agrees, that may disturb some readers, but which we are convinced are also held by many of the people we are trying to support; vividly demonstrated by volunteer fire fighters at the public land/private land interface in the 2019/20 (among others) fire season.

ON THE BUSINESS OF RISK-TAKING

Lawyers for Victorian Royal Commission stated before presenting their interim report that they, "...had a responsibility to protect everybody including the ignorant and the stupid." Perhaps this is what you might expect from a group of lawyers who have little practical experience in bushfires other than documenting what other people tell them. However, it appears that a similar attitude is taken by some police, politicians and emergency service providers and relates not only to bushfires but to many situations, where a person puts their life at risk as in warfare, and are ordered to do so.

Bushfire is warfare. Extensive training, experience, personal aptitude and capable leadership minimises risk of injury and death.

A person should be free to choose what he or she does with his or her life, provided they do not endanger others. There may be mental anguish involved from loved ones but, in the end, they too must accept the decision and not blame themselves, or the authorities, for the consequences that have resulted from the risk their loved ones chose to take.

Government policy is firmly directed at individuals and communities taking responsibility for their resilience to bushfire. Most people will accept that – if the Government and its agencies do the same on public land. Demonstrably they do not.

There are many examples of people taking risks; such as when lone yachtsmen (or women) are lost at sea. These individuals set out very well prepared to the battle elements and should know full well that they are taking a calculated risk to their life.

They really should not expect anyone to come looking for them if they don't turn up on time. However, it is often the families who do not accept the consequences of their loved one's choices, perhaps because they may have been complicit in the decision in the first place. A similar situation is the lost bushwalker. We appreciate that accidents happen and there are emergency services to help them; but we don't stop people going into the bush. We do, however, expect them to be well prepared.

We should take some responsibility for those persons who are physically and mentally incapable of minimising their own risk. Government also has the responsibility to communicate what must be done to rationally minimise risk. Again, the community must hold the Government accountable that it ensures the risk posed by bushfire on public land is properly addressed. The evidence, however, is strongly to the contrary. But there are very few stupid people; only people with a different frame of reference to the authorities and the politicians. There are some who have absolutely no concept of bushfires like new Australians from Asia or the Middle East; there are an increasing number of people, tree changers if you like, who have little experience in fire behaviour; there are people who don't listen to warnings; and there are people who simply don't want to face up to the fact they could be burnt out by fire.

Therefore, if they decide to take risks, there is little we can do about it other than urge them to consider the innocent children who may also perish. We cannot take the children from them – that has been tried in other circumstances and very few were grateful for it.

We can, however, try to educate them. This is a never-ending task but we need to respect other's intelligence and encourage people to either change their own frame of reference or at least recognise that their actions can harm others and have them take steps to protect themselves and others from harm.

STAY OR GO EARLY

The 2009 Royal Commission in recommendation 7.1 said 'the safest option is always to leave early than to stay and defend'. They are right, but the Commission did not define early.

Let us look at what this involves and whether people are capable of assessing the danger, let alone what is required to stay.

Go early: What is early? Is the current early warning system as foolproof as possible? Where shall it apply? If the Bureau of Meteorology forecasts a day of extreme danger, we can be reasonably certain these weather conditions will prevail. However, we don't know where or when a fire will start.

The only practical definition of 'early' in regard to bushfire threat is the morning of a day when extreme fire danger is forecast and there is the presence of uncontrolled bushfire in the vicinity. Unfortunately, the call to go early fails to recognise the practical aspects of human nature. People leaving early will not happen for the vast majority unless enforced by evacuation. Every town in Australia is not going to be evacuated on the morning of an extreme day!

Leave when a fire occurs in the district: This sounds more reasonable but is an option that will be taken by only a few. People must go to somewhere that won't burn, be it the city, the ocean, the desert, or green fields. Now this option requires considerable disruption and travel and is not readily available to most people. So, most will wait to see if, in fact, they are going to be threatened by a fire, then they can decide to go somewhere the fire is not and is closer to home.

This is reasonable, but it relies on the assumption that they will be warned about the fire. What they cannot, or will not, grasp is that, in many situations, warning simply cannot be given accurately and timely to everyone.

Everyone needs to appreciate that there can be outbreaks of fire that develop so rapidly and lead to a complete breakdown of normal communications so that organizations responsible for safety will become chaotic and will not function; in this situation personal safety now becomes the individual's responsibility.

Furthermore, the declaration of this extra class of "catastrophic" will mean that many people will ignore the hype, the fire danger was over 100 for only a brief period and in Victoria on Black Saturday, Ash Wednesday, Tasmania and Canberra and in all these events most deaths occurred at FDI below 100. Extreme is plenty bad enough without suggesting that we have to wait until catastrophic before we put emergency plans into place.

Leave if it becomes dangerous: Because people don't understand the nature of the danger, this is what they do. To some, danger is a little smoke across the area, which may be reasonable – to others, it is when their garden catches fire which is usually too late. What makes the fire dangerous is the amount of fuel close to the house and whether the resident can go outside immediately the fire front passes.

Compulsory evacuation: How many times have you heard the police say that they are responsible for protecting life and property and so they will force evacuation even if the residents don't want to leave? More and more, other emergency services are adopting the same attitude. However, many country people are knowledgeable about fires; some more so than the people trying to force the evacuation. These people have a right to assess their own risk just as much as emergency service personnel. Do these people need to be identified in advance? Will they accept the consequences if they find they cannot protect their property?

NEIGHBOURHOOD SAFER PLACES

When people are planning to evacuate buildings or campgrounds in the scrub (Tidal River in Wilson's Promontory National Park is a good example) they select a fuel free area, such as car-parks, large sports' ovals, lawns or the beach. There must be predetermined areas as to what constitutes a safe place for a neighbourhood and the travel time to safely get there.

What is required is simply an area that won't burn. A sports ground is fine if maintained as green grass and is the most common facility in most towns, plus somewhere to shelter from smoke, low level heat, wind and sparks. Many people chose their cars although a strongly framed, ember-proof, steel-clad building would be better. It is not necessary, and definitely not desirable to go underground without elaborate precautions for entry, exit and sufficient clean air. All that is required is a structurally sound tin shed that can withstand reasonably high winds, in an area that is fuel free, and does not have flammable linings and is not used to store flammable materials.

However, a specific building designed as a community shelter will not be maintained for that purpose if it is not put to regular use. Because the frequency of disaster fires in any particular area is low (say 1: 50 years) it is reasonable to assume it will be used for some other purpose. It would make far greater sense to design a safe community by putting a covenant on the type of trees and garden that people can maintain

Moving in with neighbours: Generally, a good idea and particularly if the neighbour knows what he/she is doing. In pretty much all fires thoroughly investigated, groups of houses have been saved because there was one person who was a leader and directed other people to do useful work. If the neighbour has no experience and his home is in just as perilous condition, this may not improve matters, but overall, a group of people are more likely to achieve a satisfactory outcome.

STAYING AT HOME

Despite all best preparation and defensive efforts, there still remains the chance that the home will catch alight and burn. This can happen from a small ignition and develop slowly or it can happen from mass ignition and develop rapidly.

Isolated ignition and slow development: This is what mostly happens, so there is a good chance that the area this situation now depends on the density of housing and the condition of the neighbouring block. If the neighbour has decided against fuel reduction and his house catches alight, there will be difficulty of egress, and survivability now depends on the fuel and fire spread within the built-up area.

In Canberra 2003, egress was available because the majority of homes had reasonable garden fuels. Ignition within the suburb progressed relatively slowly under extreme fire weather, and the stopped spreading after it penetrated up to seven blocks. It is worth noting that the fire stopped because the fuel, i.e. houses, became too sparse and by the actions of individual residents not the fire authorities. The main areas of spread and consequent home loss within the built-up area occurred where residents had combined to form almost continuous areas of mulched native gardens. The estimated fine fuel load in these gardens was around 25 t/ha which was greater than the adjacent pine forest and far, far greater than the fuel loads in the grazed horse paddocks and open pastures that were adjacent to most of the suburban area.

Mass ignition and rapid development: This has occurred in incidents in Sydney, Canberra and the recent Victorian fires. It occurs due to structural failure in high winds, window breakage, or accident, such as opening garage doors at the time that the fire front hits. In all cases, mass firebrands entered the house and the interior of the house became involved so rapidly that the occupants had to leave the house well before the area around them was burnt out. In some cases, the residents were lucky and able to shelter in nearby buildings, others were not so fortunate and perished or suffered severe burns.

In the Oakland Hills fire California 2001 in urban bushland, the density of housing and the heavy intervening fuels (pine and eucalypt) and flammable shingle roofing resulted in very rapid ignition and house-to-house spread. Nearly 800 houses were lost in the first hour and, all up, 3354 single dwelling units and 437 apartment and condominium units were destroyed in a fire of only 620 ha. Had the residents not been evacuated the loss of life would have been much higher than 25.

The easiest home to protect is a single-story dwelling with a simple pitched roof. Multi-story dwellings of complex design are prone to catching flammable material in corners and niches and once alight are not easy to suppress in the upper floor roof structure without specialized equipment.

The reality is that a certain number of people will choose to build vulnerable houses imbedded in fuel. The only way to fairly resolve this issue is via sensible, enforceable building codes.

TAKING RESPONSIBILITY FOR MANAGING THE HAZARD

We need to recognise that different situations exist in relation to the hazard and its management. These can be categorized by the size of the block and the threat to neighbours. In some cases, management is an individual responsibility, in others, it falls on the community or may have to be imposed by Government. Once again, this places the responsibility and accountability on Government to ensure its 'house' is in order.

1. Farm homesteads on holdings > 50 ha

In the vast majority of cases farmers recognise that bushfire is a part of their business that they manage in a variety of ways. They recognise that they are at least initially and more often on their own and take practical steps to protect their major assets. Over the years we may have concentrated on this situation and failed to recognise the emergence of other lifestyles that have expanded widely in the last two decades.

2. Lifestyle residences on large blocks (2 – 50 ha)

These are the easiest to prescribe a solution. The owner of the block has enough area to determine their own destiny; reduce fuel to sufficient area on the block to ensure the safety of their home and family and carry out all the recommended actions to protect the home. Unless the dwelling is on the perimeter of the block, there is less concern about what the neighbours do, although if the neighbour reduces fuel as well, this will add to the security of the whole area.

People at most risk are those who chose a lifestyle that embeds them right into the bush. The unfortunate fact is that these people do not want to do the clearing necessary to ensure their own protection. They say they are prepared to take the risk without understanding, or even caring, what is the real risk. It is unlikely they can manage in a wildfire without ever seeing a clearing fire, or doing a burn-off themselves to gain some appreciation of how natural fuel burns.

The advice from fire authorities in the past has not always been strong enough and at times, has been misleading. For example, a government brochure on bushfire safety has illustrations of mulched gardens up to the walls of the home. Likewise, there is often little information about the hazards of having native trees near the home – not only overhanging but also within 50 m of the place. Leaf-shed of eucalypts occurs in summer and a single hot windy day may deposit a couple of tones/ha of litter around a house and in gutters etc; and fibrous-barked trees produce masses of persistent firebrands in the event of a fire, adding dramatically to the ignition load. More strenuous, coordinated efforts in recent years are helpful; but much remains to be done.

The reality for most people is that they will not be able to protect their home unless they change the vegetation in their gardens. They need to remove most native eucalypts, particularly fibrous-barked species, maintain green lawns or gravel gardens close to the house and choose plants of low flammability for garden beds.

They need to recognise that the large multi-storied houses are difficult to protect from embers and build single storied dwellings with a minimum of crevices and niches that may collect leaves and blown embers.

They must continue to be told the hard facts of life and advised that they cannot expect firefighters' protection. In the event of a sudden outbreak and particularly multiple outbreaks; it is highly unlikely that anybody can come to assist them; planned escape routes may be cut off by fire. Then they are on their own – and if they choose to ignore the advice about reducing fuel – they have to accept the consequences and not demand assistance from the government, or from anyone else for that matter. This also places a greater responsibility on government agencies to provide real time, concise advice, on the local fire situation.

3. Residences on 0.2 – 2 ha blocks in settlements and villages

These are the most vulnerable and the most difficult to manage. The blocks are usually too small for grazing or other production. Some are imbedded in tall scrub or forest with heavy fuels and are practically impossible to protect. The advice is that they must remove all flammable fuel, keep the grass hazard as low as possible by frequent mowing and plant sensible trees. Depending on the size of the block the actions taken on one block may directly contribute to the hazard on another. Consequently, the local community must cooperate with each other and deal with the weak links.

4. Residences on <0.2 ha blocks in settlements and villages

These are vulnerable because they depend on community co-operation. They are, therefore, at the will of the majority and, as we have seen in the recent fires, some councils, with green attitude dominating common sense, have ignored specialist advice and placed their community at risk. Even where an individual takes all the requisite steps to reduce fuel their efforts can be thwarted by the inaction of their neighbours who have excessive fuel close enough to be a direct threat and council policies that have allowed inappropriate tree planting and excessive build up on road verges and public parks.

Marysville was a classic example. A search on Google Earth to look at the condition of the town before the fire showed a number of streets lined by blue gums and the swards of bark, litter, and shrub growth on nature strips and road verges.

A similar but less extreme condition still exists in parts of Canberra.

In this situation, local government has to take the lead and enforce activities that limit the amount of fuel that can accumulate the type of vegetation and the separation between houses. Ban unsuitable native trees and shrubs, conifers, flammable ground cover, and mulch. Insist on deciduous trees and/or other species of low flammability, cultivated gardens and lawns. Many farmers on remote homesteads had worked that out 100 years ago and it still works.

Although it has been considered improper, if not un-Australian, to tell people what to put in their gardens, the precedent has already been set. Many local governments have tree preservation orders that have little basis for their existence other than the green members of the community seem to think it's a good idea to have masses of native vegetation; tall trees and dense shrubs in urban areas. It is time this ideology gave way to common sense in fire prone areas. Local government and bushfire agencies have a major role as do companies offering insurance against bushfire; funded in part by the fire levy.

THE ROLE OF THE VOLUNTEER FIREFIGHTER

Volunteers have an important role in advising the community. Their experience is respected, so it is important that they let residents know the facts of the situation and what can and cannot be done for them. Show them just what fuel is; many people do not understand what presents a threat to their home or life. Talk to them about how fuel burns and if at all possible, demonstrate with appropriate caution, by lighting fire on their property; even a small one. Talk about reducing fuels. If they want to stay, show them how to protect their home and where to take refuge and the dangers of leaving at the last minute.

Remember that for most of the time, most people have many things going on in their lives that are far more important to them than the possible threat of bushfire at some time in the future. Don't be discouraged, but do be honest about what you, as fire fighters, can do to protect them. Most importantly, tell them that they must be responsible for increasing their resilience for protecting themselves.