

Paper 2

BROADEN OUR UNDERSTANDING TO ACHIEVE BUSHFIRE SAFETY

If we see bushfire as a natural disaster like a tornado or hurricane that cannot be controlled, the only possible defence is to fortify the house or evacuate the victim. We then see ourselves as the victims of Mother Nature when she hurls the danger elements of a fierce bushfire at us (flame and embers).

- We call in the main tool in our defence armoury, who can deal with milder bushfire attacks - fire fighters
- We can supplement it with another tool - fortifying our homes.

But in this view of the world, Mother Nature constantly beats the fire authorities. This is why they have to get more and better fire trucks, why they pay for bigger and better water bombers, why they have us build new houses at higher design standards, why they have to evacuate us for safety.

Broaden our understanding of the bushfire

When we understand that the bushfire is not a natural disaster, that the causes of danger and destruction in a bushfire, ie, flame and embers, are totally manageable, we realise can control the scale and ferocity of a bushfire attack. We are no longer the helpless victims.

- We have now added a third tool to our armoury – fuel bed management.

We can use it to protect a property or a town.

Broaden our understanding of fuel bed management

We can use fuel bed management to control the height and duration of a bushfire flame at any location, at will.

Thus

We can control where we allow flame to occur and where we do not want it.

We can control flame height to protect our assets from radiation

We can control flame height to make it safer and easier to suppress

We can control flame height to prevent flame stretch across a fuel free barrier.

We can stop the run of a flame by controlling flame height and fuel free barrier width

We can protect our assets from flame contact by controlling flame height and fuel free barrier width

We can control flame height at the source where the embers are produced, and therefore manage ember volume and density.

The speed of the fire?

Flame rate of spread in a given fuel bed is out of our control. It is in the hands of the wind at fuel bed level and slope.

Ember attack?

Embers jump across fuel free barriers. But because we can control the fuel bed where they land, we control whether they ignite and how tall the spot fire flame grows and how far we let it run.

Broaden our understanding of the real threat to house loss

When we identify the most damaging threat – the one day inferno, we realise that is too dangerous for the fire brigade model, even if we had twice as many fire trucks and helicopters.

When we realise that although the community is being evacuated to save lives, it is really hurting them because of house loss and subsequent disruption to life.

When we realise that the bushfire attacks with flame and embers, and that the flame front seldom reaches the house, we understand that the embers are the main problem.

When we realise that houses are ignited simultaneously by ember attack and generate multiple house ignitions, and that they all begin as very small spot fires, we need to rethink our approach.

Broaden our understanding of the real keystone

We all agree that protecting the person is our priority. We propose a new approach. Evacuation might remove people from danger, but it creates more problems than it solves. Our new approach protects life and property and minimises community disruption.

PROTECT THE HOUSE from the causes of damage

Why? By protecting the house, we protect the house and the person, and life returns to normality very quickly.

Think about this. Authorities ask people to evacuate to a safe town. Instead, we urge them to ask, as we have - what makes that town safe? Then we urge them to make their town as safe. We can help them if they do not know how.

Broaden our understanding of the limitations of traditional suppression

When we realise that the fire brigade model has a limited capability, we see it cannot physically and logistically deal with some bushfires.

When bushfire perimeters grow faster than fire fighters on trucks and helicopters can build control lines by wetting them, the bushfire is out of the fire fighters' control.

The fast running One Day Inferno fire is very dangerous and consistently beats the fire brigade model.

Large long running campaign fires have large perimeters, but when the weather is mild, they usually grow slowly with low flames. When the weather becomes severe, they change into one day inferno fires.

We need to protect communities from the fast running fire with a proven tool that has the capability for worst case scenarios - defensive suppression.

Broaden our understanding of defensive suppression

Defensive suppression derives from the principles of dry fire fighting that was developed in forestry.

Defensive suppression uses passive defence measures to protect an area and facilitates suppression within it, making it a safe work place and reducing flame size within capability of the defenders.

We use fuel bed management to keep the moving flame well away from the house. We apply fuel bed management around the house to make flame free areas that prevent ember ignition and to create safe areas from which they can extinguish spot fires when small.

The embers continue to pour in on mass, but the spot fires start small and are easy to extinguish, provided enough defenders are on hand. If we need one or two defenders per house, and there are tens or hundreds of houses, we realise there can never be enough fire brigade crews. We then realise it is a safe environment for residents to remain on site and if we empower them with knowledge and skills, they can extinguish spot fires in the absence of fire fighters. We then realise that this frees up our suppression forces to tackle their number one priority, the expanding perimeter. Thus we can add two more tools to our armoury

- **Defensive suppression, which uses fuel bed management to make suppression safe and manageable**
- **Extra fire fighting resources – the residents. The victims of the threat become the defenders.**

Broaden our understanding of how to reduce the threat

We realise that each danger element, flame and embers, originates on land owned by someone. We observe that the danger elements are directly correlated to the state of management of the fuel bed on a given area of land:

- The height of flame and extent of flammable area on that land
- The ability of flame to escape from that land
- The volume of embers that generate from that land during severe weather

We realise that the condition of the land is a conscious decision of the land owner, and that the land owner has a duty of care liability to prevent the spread of flame or embers. They will want to avoid charges of negligence if their poor management is the cause of any bushfire damage.

- **We can employ a sixth tool, legal responsibility and liability.**

Broaden our understanding of insurance as an incentive to prevent house loss

If the source of the flame or ember that destroyed a house is traceable to a property, the victim or the underwriter may seek cost recovery from owner or his insurer.

- **A seventh tool may be developed**

Broadening our understanding has created a bushfire-safe environment

Thus a broader understanding of all aspects of the bushfire milieu allows us to create a future where bushfire threat is controlled by community empowerment and damage to house and neighbourhood is prevented.

These understandings lead to expectations of responsibility and accountability in the same way that road users have a duty of care to other drivers and property. They develop community ownership and empowerment. Bushfires are relegated from a threat to an irritation. The goal of community resilience is achieved. The savings in the government budget are spent in alternative areas of need.