

Trees and fires – a time for rational reflection

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The period after the Black Saturday February 2009 fires should be a time when we look for facts rather than opinion based on fear. Many people have promoted the notion that trees are the public enemy, and the public appear to have accepted that view. DSE and CFA have indulged those fears and set in place sweeping exemptions to clearing that are certain to impoverish our rural landscapes.

Impacts on forested areas

People who choose to live in and near our forested areas must accept that when weather conditions are extreme (temperature over 40 degrees celsius, windspeed perhaps 100 kph, low relative humidity, weeks of prior dry weather), lightning strikes are imminent, power lines clash and arsonists stir, there are dangers that cannot be removed by any amount of prior “prescribed burning”.

Much emotive comment has been made about the fuel levels in the forests but the evidence is that, once started, the fires raged through the tree canopies igniting the volatile oils and creating the fire storms. The state of the ground fuel was hardly relevant under those circumstances. If we are to maintain our landscapes and natural biodiversity we must accept that we cannot have our forests always free of “fuel”. Our small fauna cannot survive without “fuel” and there must be periods of at least 10 years between burns to provide suitable habitat for fauna and flora. That we must accept.

The amount of tree litter present in the form of wood, twigs and leaves rises sharply after fire to reach a plateau, often at about 10-15 years. It does not continue to rise thereafter because fungi, bacteria, termites and other organisms decompose the litter. If it was not so we would be buried in litter. Those who claim that forest fuel levels are high because of decades of no burning are either uninformed or intend to alarm the general public with misinformation.

If people choose to live in forested areas they must take more effective steps to protect themselves and their buildings. That does NOT mean they should destroy the trees and shrubs that induced them to live there, and which others value and need to protect as an essential part of our rich natural heritage.

New houses must be less prone to fire and there must be a “Plan B” to protect lives. That Plan B could be a bunker located near the house (in simplest form, two 2 m diameter pipes could be buried horizontally, with a covered entrance below ground, to offer a refuge from radiant and convection heat) or an early escape plan that does NOT rely on having all the roadside trees removed in case they fall across the road and trap those who only leave when the fire is upon them.

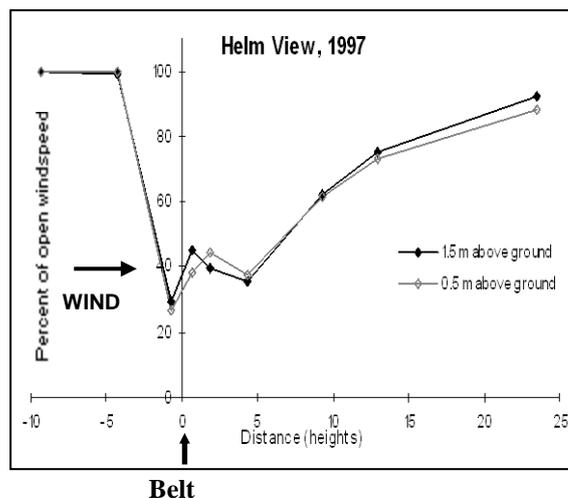
Impacts on our rural landscapes

DSE’s recent “*Making Victoria Fire Ready*” document sets out new regulations for “as of right” clearing but fails to state that trees/shrubs are, in the many rural situations seen in their list of 69 Shires, a positive factor in protecting buildings and livestock. It encourages landholders to clear native vegetation. It does not present a balanced view that will discourage unnecessary, panic clearing that is likely to achieve little except the destruction of the treed landscapes that we value.

Trees can be a major hazard in a forest setting and with particular species (e.g. Stringybark), but the danger in farmland is less than often claimed. The speed of a fire in open grassland can be dramatically reduced by a planted shelterbelt or good belt of roadside trees. While “spotting” from a clump of trees can occur, from blown leaves and bark, it takes a minute or so for that to ignite, blow downwind and then develop into a new fast-running fire. In the absence of the trees, a running grassfire would be expected to reach the same position in much the same time.

There have been many examples where houses have been saved by protective shelterbelts that substantially reduce the windspeed and fire front, reduce radiant heating and divert the flames. These belts often include pine or cypress that can also readily burn and should not be situated closer than about 3-5 belt-heights from the buildings. Such a position puts the building into the best sheltered spot while reducing the danger from heat radiation should the shelterbelt burn.

The evidence that trees reduce windspeed (and thus fire speed) was once well known – see PR Bird *et al.* (2007) *Aust. J. Exp. Agric.* **47**:727-737. Windspeed is reduced to windward (to 4 heights) and to lee (a 20-70% decrease to 20 heights), depending on the structure of the belt or block. A common example (from PR Bird *et al.* (2002) *Aust. J. Exp. Agric.* **42**: 809-830) is shown below. The figure shows on the vertical axis the percentage reduction in windspeed at various distances from the belt.



In severe fire situations (strong winds and high temperature in summer) nothing else is as effective as a shelterbelt in stopping a fire in open country. From past experience in western Victoria a ploughed break 70 m wide or a bare paddock has proved useless.

Trees can be of assistance in controlling a grassfire (fire speed is governed largely by windspeed and fuel load) and in protecting an area to the lee – see an example below from SW Victoria in Feb 1983 where areas behind windbreaks escaped the fire. From observations in other fires, the fire may creep in from the head and sides later but livestock sheltering in such areas walked out unscathed onto burned ground.



Ember drift – while trees can shelter a house from a fire they can be a hazard when alight, due to radiant heat and possible drift of embers onto houses and yards. However, on bad days even sheep manure can contribute embers. After the fire front has passed a check is needed to detect any fire started from blowing embers from any source. Trees of a lower flammability (e.g. Blackwoods and Black Wattles) can also be selected and that will reduce – but not eliminate – the problem.

Woody debris on roadsides – despite DSE currently allowing firewood to be removed from roadsides there is little evidence that such wood is a major hazard. Large wood on the ground has no influence on fire speed. Woody debris is vital for the functioning of ecosystems – without such debris to feed a host of small organisms, a large number of bird and other animal species that depend on that food supply cannot live in the area. The new rules may damage the environment to no good purpose.