

Learning to live more safely in fire-prone regions

**Firewise
Western
Australia**



Design, plant selection, maintenance and use of water are all important to reduce the risk of bushfire attack to properties. Left, pruning and removing inflammable shrubs to green waste site.

Below, a garden in coastal heathland redesigned after the Margaret River fire to be a showcase for succulents and other low flammability plants.



**Submission to the Productivity Commission on
Natural Disaster Funding Arrangements
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Vegetation Matters

in Bushfire Risk Management

A key factor

For us in the greater South West of Western Australia (including the outskirts of the Perth metropolitan area and the Perth Hills) the key factor in reducing the risk of bushfire attack to houses and other structures is the nature of the vegetation; its composition, spatial arrangement in relation to the built environment and its condition, ie whether it is kept moist and actively growing or whether it is desiccated, full of dead material and thus easily ignited.

Climate

The forests and woodlands of the South West are adapted to burn. Its mediterranean climate with little or no rain over the hot summer and the shoulder seasons (for a total of about six months) means that the landscape dries out. Any ignition either by lightning, sunlight on a glass bottle near tinder-dry grass, or by accidental or deliberate human activity can quickly flare up and spread, not only through bush, but also through the extensive grass lands of farms or reserves scattered throughout the region. The book, "Burning Issues" by Mark Adams and Peter Attiwill discusses at length this adaptation to burning.

Previously

If there were few houses in these rural areas and the houses that were there were largely in towns or on farms cleared of most of the native vegetation including large trees - as was the case up to about 40 years ago - then a bushfire posed few problems.

There is considerable evidence that Aboriginal people used fire over millennia to manage the lands over which they hunted. They helped shape the landscape and the descendants of some of the early European settlers of the late 19th Century describe how the forests were more like parklands, capable of being ridden through easily with little understory. Firewood for burning was hard to find as there was little to burn on the forest floor. The book, "The Biggest Estate on Earth, How Aborigines Made Australia" by Bill Gammage describes this earlier Australia. This view also supported in discussion with John Guest from Balingup whose forebears were pioneer farmers of the district.

Changing times

The tree-change phenomenon of the past few decades coupled with (sometimes) cheaper housing has meant that many more houses have been built close to bush at the Rural Urban Interface (RUI) and hence are affected by bushfires.

Distance from bush

A study based on the analysis of several major bushfires has shown that the distance from bush is a key factor in whether a house burns down or not. The closer the house to bush the higher the risk of the house being destroyed. "Bushfire Penetration into Urban Areas in Australia: a Spatial Analysis" Bushfire CRC 2010.

The report states that *"It is very clear that about 85% of damaged buildings occurred within 100 m of nearby bushland, a very stable result and regardless of the exclusion or inclusion of Duffy samples (N = 206), which only accounted for 8.4% of all national samples analysed. In other words, if we were to avoid building structures within 100 m, of bushland boundaries, then the majority of building damage would be avoided."*

http://www.bushfirecrc.com/managed/resource/bushfire_penetration_into_urban_areas_in_australia_crc-304-001-0001.pdf

This study has shown that clearance of 100 m or so from bush is one of the most effective ways of reducing the risk of a house burning down. It helps, too, if the house is designed or retrofitted to prevent embers from entering through gaps in the structure. Additionally if the garden or yard has wide open areas of paths or lawns with shade being provided by deciduous trees and few, if any, trees or shrubs with volatile oils in their leaves then its risk is further reduced.



Legacy housing

It may be a sensible strategy for new housing that it be built 100 m back from bush and the bush be kept at that boundary, but for houses that are already built in these areas there is a real issue of how to treat this situation. Do we shrug our shoulders and say, “Too bad”, do we provide compensation so that they can move elsewhere? Do we remove the bush to protect the landowner who built or bought there in good faith, some years back when the issue had not come to the fore.

The last idea is not as bad as it may sound. Bush near any built up area tends to degrade over time. Run off has changed at the margin, there is more or less sunlight, domestic animals frequent the area, weeds are carried into the area by wind or bird activity. So removing some trees and shrubs and creating a buffer zone of low flammability will protect houses without their having to be retrofitted to a bunker standard to be relatively safe. This type of approach could be cost-effective and certainly much less expensive than building to Flame Zone requirements.

A concerning pattern

In January 2014, 57 houses were burnt down in the Parkerville/Stoneville area of the Perth Hills. This was not an isolated incident and followed a pattern of house losses at the RUI.

In the past decade we have had several major fires with extensive housing losses. The Toodyay fire of December 2009 was the first of these large fires in recent years in which there was substantial destruction of houses, in this case 38 houses were destroyed.

The Kelmscott/Roleystone Fire of February 2011 destroyed 71 homes. This time a comprehensive review was carried out by Mr M J Keelty that made 55 recommendations. The implementation of these recommendations was carried out under the auspices of the WA state Department of Premier and Cabinet.

<http://www.publicsector.wa.gov.au/document/inquiry-perth-hills-bushfire-2011-shared-responsibility-report>

Again in November 2011 there was a major bushfire in the Margaret River region which destroyed 41 houses and chalets. Another inquiry was led by Keelty with 10 recommendations being made, mainly referring to improving the management of prescribed burns by the (now) Department of Parks and Wildlife.

http://www.publicsector.wa.gov.au/sites/default/files/documents/inquiry_-_margaret_river_bushfire_-_report_-_appreciating_the_risk_with_annexures.pdf

The latest fire in Parkerville in 2014 indicates that there is a long way to go in raising awareness about bushfires and for people to be equipping themselves with the understanding of what needs to be done and making the changes to ensure their properties are at much lower risk than they are now.

Here is a short video of the fire - it's worth viewing - an authentic piece, called “I hope our men are alive”, may need to scroll down:

<http://www.eyeonthehills.com.au>

To have two or three houses destroyed by a bushfire is regrettable and as a key performance indicator it is not too bad, but to have 57 destroyed is a measure of a massive failure of bushfire risk management systems. Here is a report on the fire. Unfortunately it does not adequately assess why some houses burnt down and others did not. This type of research could help homeowners learn to make their properties more defensible.

<https://www.semc.wa.gov.au/publicationsandresources/Pages/ParkervilleFire.aspx>

Continuing fire risk

I look around the towns of Balingup and Bridgetown and can see many properties that are at risk of bushfire attack. In fact the whole town of Balingup is vulnerable. Many homeowners have brought the bush close to their homes - native trees overhang the dwellings, thickets of bottlebrushes and other inflammable shrubs screen the house from view.

They are encouraged by the waterwise program of the Water Corporation to put in plants that need little water, but these same drought-tolerant trees and shrubs are often natives, most of which will burn readily.



Australian Government initiatives such as 20 Million Trees also add to the problem. An example:

20 Million Trees Competitive Grants Round One

The Australian Government will work with the community to plant 20 million trees by 2020, to re-establish green corridors and urban forests.

Round One of the 20 Million Trees Programme is now open and will close 2.00 pm AEDT on Thursday 30 October.

Applications for grant funding between \$20,000 and \$100,000 will be accepted from eligible groups, individuals and organisations that intend to **plant native trees and associated understorey in a range of urban, peri-urban and regional** environments across Australia. Tree plantings may occur on public or private land.

<http://www.nrm.gov.au/national/20-million-trees/competitive-grants>

Nowhere in their material is there any mention of the fact that the people planting the trees need to be aware of bushfire risk and not add to it, especially in the peri-urban area.

In parts of Margaret River where there are many houses built on bush blocks of around a hectare or so, it is hard to see the house for the trees and the understorey.

We will have more fires this coming summer and many properties are still enhancing their bush experience by revegetating their surroundings thus increasing their risk.

What to do?

We need better methods of raising awareness, providing realistic models, eg of garden landscapes that are of low flammability, of what to do and how to go about it with respect to lessening the risk of bushfire attack.

It is one thing to inform residents, but quite another to motivate them to take action: actions such as retrofitting a house to keep out embers, and redesign and reduce (or replace) the vegetation around their property.

The Rotary Project

As a member of the Rotary Club of Bridgetown, I have received some funding to purchase copies of the book, "Gardens of Fire" by Robert Kenny. An historian and writer he lives at Redesdale and was caught up in the 2009 Victorian Bushfires. He wrote movingly of his experience in trying to save his house and the very difficult time he had after his house and his library were destroyed. Reading this book brought home to me the enormity of what it is to have one's house destroyed. This book could help others to learn more and become motivated to harden their house against embers and to redesign their garden.

To help raise awareness 16 copies of the book have been sent out to libraries in the SW and Perth Hills - the fire-prone areas - and several libraries have been given a display. This display forms part of this submission.

Enlightened self-interest

The display is aimed at the homeowner and is designed to set people thinking about what they can do for themselves in their own interest either individually or at a neighbourhood level. It aims to encourage owners to be less dependent on government and for their property to be self-defensible, so that even if they are away when a fire comes the house will stand a good chance of surviving

Topics include:

- assessing the risk of bushfire attack
- retrofitting houses to lower fire risk
- designing or redesigning the garden or surrounds of the house to achieve low flammability
- types of plants to choose (or to remove, prune)

It does not cover fire fighting rather the emphasis is on risk reduction before the bushfires come (and they will).

Tossing the ball into the homeowner's court and having them spending money on mitigation up front is far more cost-effective than paying compensation afterwards both for individuals and governments. Insurance payouts and, ultimately premiums, will potentially be reduced if fires cause less destruction because of lowered fuel levels around houses.

I endorse the proposal in the draft report that there needs to be a shift in funding from the response and



recovery part of the emergency management continuum to greater emphasis and funding for mitigation.

Gaining from the US experience

The US has similar problems to southern Australia in that they are facing large costs in fighting wildfires and have the phenomenon, as we do, of people living at the Wildland Urban Interface or as we would say the RUI. People living in our RUI areas have often come from a suburban background and are unused to living near forests or grasslands. Local farmers are brought up to know what to do and usually have their properties organized to be at low risk unlike householders in these rural estates, such as exist in Margaret River and Busselton. These RUI landholders receive little practical advice as to what they can do to mitigate the fire risk to their properties.

Here is a link to a US web site which I follow that summarizes the problem quite well not only for them, but in terms applicable to the Australian scene.

<http://www.nfpa.org/newsandpublications/nfpa-journal/2014/september-october-2014/pov/first-word>

The US has developed a Firewise Communities program and a Fire Adapted Communities program. We could model some of the aspects of mitigation on these programs which are specifically designed to involve community members. <http://www.firewise.org/USA?sso=0>

Infrastructure costs

It is not only houses that suffer damage in bushfires. The photo shows the remains of Southampton Bridge across the Blackwood River burnt in the 2013 Blackwood 61 Fire. Despite the Keelty Report recommendation to be protective of important infrastructure the bridge was burnt. A few thousand dollars spent in reducing the vegetation around the bridge each year may have meant that the bridge was saved. It will cost \$3million to \$4million to replace. Were the current Federal funding arrangements a disincentive to act to reduce the hazard?



About the writer

Peta Townsing is one of a small group of likeminded people who live at the RUI in the SW or Perth Hills. Peta has a science degree in chemistry with botany as well. She taught Biology at senior high school level before working as a systems analyst in the WA state public service. She worked on projects involved in public sector reform including projects on outsourcing and competitive tendering and contracting whilst at the State Supply Commission. Now semi-retired Peta has a 1.9 Ha property and is trying to start a Bushfire Ready Group under the auspices of DFES. However, her main qualification in writing this submission is the awareness that for six months of the year she, like the others, faces the threat of bushfire. We still have a lot to learn about living safely in this country.

