Chapter 3 – Bushfire mitigation

Introduction

3.1 This chapter focuses on bushfire management prior to the outbreak of a fire; the actions that can be taken by land managers, fire agencies and at-risk communities to prevent the loss of life and destruction of assets from catastrophic bushfires. From the evidence taken during the inquiry three broad themes emerged:

1. Preventing fire ignition.
2. Reducing the intensity of bushfires by reducing combustible fuel before fires start.
3. Improving measures taken to protect life and assets in built areas by making communities more resilient to fire.

Fire prevention

3.2 Fire has always occurred naturally in the Australian environment so it is not possible to prevent bushfires occurring entirely. However, measures can be taken to minimise some of the human causes of fire. While education and community vigilance are important elements in reducing ignition by careless acts, evidence to the inquiry related mainly to minimising fires deliberately lit by arsonists and fires caused by faulty power infrastructure.

Arson

3.3 An important consideration when managing bushfire risk is the potential damage caused by fires deliberately lit on days when fire conditions are most dangerous. Evidence to the committee noted, though, the elusiveness of this cause and the difficulty of preventing it.

3.4 CSIRO commented that 'prosecutions relating to maliciously lit fires are rarely obtained, so it is difficult to assess their magnitude', though they quoted research suggesting that anywhere between 25 and 50 per cent of fires are deliberately lit, subject to variations depending on locations and times.[1]

3.5 The Australian Institute of Criminology has estimated that approximately half of vegetation fires are deliberately lit. Their recent report on arson prevention stated that:

---

1 CSIRO, *Submission 15*, p. 4

> Available evidence suggests that the risk of deliberate fires is higher during certain times of the year and week and that there are 'hot spots', most notably on the edge of urban areas. On known offenders there is limited research and it primarily relies on small samples of convicted arsonists. As a result situational and community crime prevention that addresses the local environment is most likely to have an impact, whilst offender based approaches have to focus on the treatment of known offenders, both adults and juveniles.[2]

3.6 The report acknowledged the difficulty of identifying cases of arson, before even being in a position to pinpoint who might be responsible:

> Arson is a relatively easy crime to commit and conceal. Many bushfires are not subject to an investigation to determine their cause, and of those that are investigated and concluded to be deliberate or suspicious, that conclusion is often due to the lack of any clear indication that the fire was natural: no lightning recorded in the area, and nothing else nearby that may have caused the ignition. It is rare for fire fighters to find some form of incendiary device that would unambiguously point to a deliberate fire. As such, it is very difficult to determine exactly how many bushfires people have lit and with what intent.[3]

3.7 The Queensland Department of Community Safety's submission referred to 'the inherent difficulties of catching and convicting bushfire arsonists'.[4] They stated that in addition to mitigating the intensity of fires that occur a co-operative approach to reducing arson is required:

> Primary prevention techniques to reduce deliberate bushfires need to rely on an understanding of the situations in which such fires occur and either changing something about the environment or the community in order to prevent it happening in the future. For example, available evidence on bushfire arson suggests that the risk of deliberate fires is higher during certain times of the year and week and often most notably on the fringe of urban areas.
>
> A cooperative approach by fire agencies, land management agencies and police is required to identify and document arson hotspots. Once an understanding of the arson pattern is established, appropriate prevention techniques can be applied in order to reduce bushfire incidents. QFRS is currently working with the Queensland Police Service through an exchange program to obtain data on the location of habitual arsonists to enable this to be and mapped along with Australasian Incident Reporting System data on suspicious fires.

---

2 Muller, D. 'Using crime prevention to reduce deliberate bushfires in Australia', *Australian Institute of Criminology Research and Public Policy Series*, No. 98, 2009, p. iii

3 Muller, D. 'Using crime prevention to reduce deliberate bushfires in Australia', *Australian Institute of Criminology Research and Public Policy Series*, No. 98, 2009, p. 2

4 Queensland Department of Community Safety, *Submission 12*, p. 13

3.8 Fire and Emergency Services Authority of Western Australia (FESA) told the committee that in Western Australia FESA, DEC and the police arson squad co-operate via web-based reporting to identify and act on series of localised incidents indicating the work of arsonists.[5] South Australian MP Dr Bob Such advocated the wider adoption of that state's Operation Nomad, where convicted and suspected arsonists are placed under surveillance by police on high risk fire days.[6]

3.9 The COAG bushfire inquiry identified arson prevention as an important strategy:

> Arson is one cause of fire that can be reduced through greater application of resources. The Inquiry found, however, that the focus on arson varies significantly across the states and territories, depending on the perceived size of the problem, community concern and identification of arsonists.[7]

3.10 The inquiry encouraged co-operation and information sharing between police and fire agencies:

> The Inquiry considers that benefit would be gained if fire and police agencies:
>
> - provided information to other services when known arsonists travel or move interstate or when there is potential for this to happen
> - shared arson research, teaching and practical advice on arson incendiary devices
> - collected nationally agreed statistics, perhaps through the Australian Institute of Criminology
> - monitored and reported on any incidents of politically motivated arson.[8]

3.11 The Attorney-General's Department submission informed the committee that the Attorney-General held a forum on the reduction of bushfire arson, the outcomes of which were discussed at the Ministerial Council for Police and Emergency Management.[9] The communiqué from that ministerial council in November 2009 noted:

> The Council agreed to a National Work Plan to Reduce Bushfire Arson in Australia including the development of a whole-of-government national strategy on best practices to reduce bushfire arson. The strategy will use the

---

5 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 75

6 Dr Bob Such MP, *Submission 10*, p. 2

7 Ellis, S. et al, *COAG National Inquiry on Bushfire Mitigation and Management*, March 2004, p. 95

8 Ellis, S. et al, *COAG National Inquiry on Bushfire Mitigation and Management*, March 2004, p. 96

9 Attorney-General's Department, *Submission 38*, p. 3

> National Work Plan as a basis for its development. An interim report on the strategy will be available to the Ministerial Council by the end of April 2010.[10]

3.12 The Australian Fire and Emergency Services Council (AFAC) incident reporting system database is an important aspect of this national approach, however AFAC's website notes that:

> Not all Australian fire services contribute to the national database, and of the fire services that have contributed, some have not included responses from the rural component of their service.[11]

Power infrastructure

3.13 Another preventable cause of ignition is faulty power infrastructure. The Bushfire Front Inc noted 'a long history' of powerlines causing fires. However, the expense of updating power infrastructure meant that preventative measures 'are generally not implemented'.[12]

3.14 The Hon. Judi Moylan MP stated that: 'The ageing power reticulation system in Western Australia appears to have been the cause of many fires'.[13] She was particularly concerned that ageing wood power poles had long passed their Australian Standard service life and their replacement has not been prioritised as part of the national infrastructure development program.[14] Ms Moylan noted that this is a potential cause of fires that can be addressed:

> The risk of fires due to ageing power reticulation infrastructure is a risk that can be almost entirely eliminated by a commitment of capital to update the system.
>
> It will require political will at both a State and Federal level for this urgent work to go ahead, but there is little doubt that putting the lives of fire-fighters and citizens at risk, due to failure to renew the system is unacceptable. The financial cost of such fires is another issue and the Government should consider a Productivity Report into the cost of bushfires with particular attention to links between ageing power reticulation systems and fire risk.[15]

---

10 Ministerial Council for Police and Emergency Management, Communiqué, Perth, 20 November 2009, accessed on 28 May 2010 at http://www.ema.gov.au/www/emaweb/rwpattach.nsf/VAP/(8AB0BDE05570AAD0EF9C283AA8F533E3)~Communique_Perth+20th+Nov09.pdf/$file/Communique_Perth+20th+Nov09.pdf

11 AFAC website, 'National Data', accessed on 28 May 2010 at http://knowledgeweb.afac.com.au/national_data__and__glossary/national_data

12 The Bushfire Front Inc, *Committee Hansard*, Perth, 29 April 2010, p. 23

13 The Hon. Judi Moylan MP, *Submission 52*, p. 2

14 The Hon. Judi Moylan MP, *Submission 52*, p. 3

15 The Hon. Judi Moylan MP, *Submission 52*, p. 3

3.15 Ms Moylan acknowledged that the privatisation of utilities had exacerbated maintenance problems:

> It is evident that power utilities once wholly Government owned and controlled have in most cases become corporate or privatised entities and, over the years, insufficient capital has been set aside to manage an infrastructure replacement program that minimises the risk of fires from this source and indeed power outages.
>
> In addition, the political issue of the cost of energy to industry and domestic consumers means that power charging policies bear no resemblance to the real cost of delivery and therefore inhibit the capacity for generators to make adequate provision for a sinking fund out of general revenue.[16]

3.16 Despite these complications, Ms Moylan argued that the risks justify Commonwealth intervention and assistance:

> Although the energy network infrastructure falls within the responsibility of the States and Territories, it could be argued that given the scope and the risks posed by the problem the Australian Government has a role in supporting the States to make the necessary upgrades.
>
> While acknowledging the difficulties confronting the State Governments and the power generators, the continuation of these practices is patently unacceptable and the re-instatement of the matter on the COAG agenda should be an urgent priority.[17]

3.17 The committee notes that the Kilmore East fire that contributed significantly to the Black Saturday disaster is believed to have been caused by faulty power infrastructure, though the fault was attributed to a failure to observe a defective fitting during maintenance inspections, rather than ageing poles.[18]

Committee view

3.18 The committee is of the view that efforts should be made to prevent the causes of ignition where it is possible to do so. In particular, arson is one cause of bushfires which may be countered by improving strategies used to identify those responsible. The committee is encouraged by reports of co-operation between fire agencies and police at the state level, as well as the work being done through the Ministerial Council for Police and Emergency Management to facilitate information sharing between the states. Such co-operation will ensure that successful strategies identified in one state are able to be adopted across Australia, as ought to be the case. The committee also considers that the national incident reporting system administered by

---

16 The Hon. Judi Moylan MP, *Submission 52*, pp 3-4

17 The Hon. Judi Moylan MP, *Submission 52*, p. 4

18 Hughes, G. 'Deadly East Kilmore bushfire caused by power line fault', The Australian, 17 November 2009, accessed on 27 May 2010 at http://www.theaustralian.com.au/news/world/deadly-east-kilmore-bushfire-caused-by-power-line-fault/story-e6frg6so-1225798543822

the Australian Fire and Emergency Services Council is a valuable tool in this process and encourages AFAC to continue to work to improve the comprehensiveness and consistency of the data collected.

3.19 The committee supports greater efforts to share arson-related information and strategies across jurisdictions and recommends that the Commonwealth co-ordinate a standing arson forum between the relevant fire and law enforcement agencies from across Australia every two years to ensure this continues.

Recommendation 2

3.20 The Commonwealth co-ordinate a standing national arson forum between fire and law enforcement agencies to be held every two years.

3.21 The committee recognises that the task of replacing ageing power infrastructure will be time consuming and expensive. It is also a difficult task for governments to prioritise when competing spending imperatives such as transport infrastructure, health and education are more visible and immediate concerns for the public. The committee also recognises that the private ownership of utilities and concerns about rising energy costs means that there is little incentive to impose on consumers significant maintenance costs for the purpose of negating an unknown bushfire risk.

3.22 However, ageing power infrastructure is a cause of bushfires that can be addressed by governments directly and leaving the situation to fester is not acceptable. Furthermore, replacement costs would be to some degree offset by the reduced cost of suppressing possible future bushfires attributable to this cause, a question that should be the subject of further investigation by the Productivity Commission.

3.23 The committee is of the opinion that the Commonwealth should, through COAG and subject to the findings of such a report, examine options for the funding of replacement of power infrastructure that presents an unacceptable bushfire risk.

Recommendation 3

3.24 The Productivity Commission undertake an examination of bushfire risk from ageing power infrastructure, including an assessment of replacement costs and likely suppression costs from bushfires caused by defective infrastructure.

Recommendation 4

3.25 Subject to the findings of the Productivity Commission, the Commonwealth examine options for the funding of replacement of power infrastructure that presents an unacceptable bushfire risk.

Fuel reduction

3.26 The issue of fuel reduction in the landscape was the most contentious and debated topic during the inquiry. Although prescribed burning to reduce fuel loads

was recognised as an effective management approach, the committee received conflicting evidence about the following issues:

- the efficacy of prescribed burning in mitigating the intensity of fires in dangerous conditions;
- the efficacy of prescribed burning in the landscape as a strategy for protecting built assets and the people within them;
- the ecological consequences of prescribed burning;
- community concerns relating to smoke and the threat of escaped prescribed burns; and
- the adequacy of responsible agencies' implementation of prescribed burning measures.

3.27 The committee also heard evidence on specific prescribed burning strategies and proposals for reform. These are considered at the end of this chapter.

3.28 The adequacy of resources to utilise prescribed burning opportunities is discussed briefly in this chapter. However, the availability of resources for all aspects bushfire management is examined in more detail in Chapter 5.

Prescribed burning in bushfire management

3.29 Even using the best fire prevention measures, bushfires cannot be eliminated from the landscape and land managers are required to take measures to reduce the seriousness of these fires and the damage they inflict. When seeking to mitigate the effects of bushfires, fuel is the only variable affecting fire behaviour subject to human intervention and control. Therefore reducing combustible material in the landscape through prescribed burning programs is a critical management tool.

3.30 CSIRO stated:

> Of the three components that combine to determine fire behaviour (fuel, topography and weather), fuel is the only one that can be modified by people to moderate the behaviour of bushfires... Reducing the fuel hazard will reduce the overall danger posed by bushfires and increase the potential that a fire may be stopped through natural or artificial means...[19]

3.31 Given the inability of humans to control weather this view was not contested. For example, the Victorian Farmers Federation (VFF) said: 'There are some things that we cannot control. We cannot control the temperature, the wind or the humidity

19 CSIRO, *Submission 15*, p. 8

but we can control fuel loads'.[20] Mr Phil Cheney also said: 'the only thing that you can manage is the fuel'.[21]

3.32 Although fuel hazards can be reduced via mechanical removal and chemical treatment, prescribed burning is the most effective approach at landscape scales.[22] CSIRO described the purpose and effect of prescribed burning:

> Most hazard reduction burning conducted in Australia aims to keep the amount of fine surface fuels (fuels less than 6 millimetres in diameter) within the range of 8-15 tonnes per hectare... Hazard reduction burning also reduces the height, mass and flammability of elevated fine fuels such as shrubs and suspended dead material and is the only practical way of reducing the fibrous bark on trees, the prime source of firebrands that cause spotting...
>
> Hazard reduction burning is not intended to stop wildfires, but it does reduce the intensity and the spread of unplanned fires, within the area treated by prescribed fire, by reducing:
>
> • the rate of fire growth from its ignition point;
>
> • flame height and rate of spread;
>
> • the spotting potential by reducing the number of firebrands and the distance they are carried downwind; and
>
> • the intensity of the fire.
>
> As a consequence, hazard reduction burning lowers the risk of crown fires developing in medium to tall forests, will limit the rate of spread and potential impact of wildfires, and makes fire suppression actions safer, more effective and thus more efficient...[23]

3.33 The CSIRO submission stated:

> Fires burning in areas that have a reduced level of fuel hazard are much more likely to be quickly contained than those that are burning in heavy fuels that are long unburnt.[24]

3.34 The Bushfire CRC noted that fuel reduction had diminished over time:

> ...the area subject to regular fire in Australia has declined somewhat over the past several decades as a consequence of changed land-use patterns, fire suppression practices and, and [sic] in many areas as a result of the

---

20 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 93

21 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 10. See also Volunteer Fire Fighters Association of NSW, *Committee Hansard*, Canberra, 12 March 2010, p. 48 and Mr Graham Brown, *Committee Hansard*, Canberra, 14 May 2010, p.36.

22 CSIRO, *Submission 15*, p. 8

23 CSIRO, *Submission 15*, p. 8

24 CSIRO, *Submission 15*, p. 12

> cessation of traditional burning by aboriginal populations. In southern Australia, urban attitudes to the use of prescribed fire in more recent years have also been a factor in the decline in its use.[25]

3.35 The causes and consequences of declining fuel reduction are examined below.

Effectiveness in different conditions

3.36 The committee received considerable evidence that there is a direct and established relationship between fuel loads in the landscape and bushfire intensity. The committee heard that while fuel reduction measures would not prevent fires from occurring, it could mitigate their intensity and assist with suppression efforts. However, some evidence suggested that reduced fuel may have a limited affect on bushfire severity in extreme fire conditions.

3.37 CSIRO's Dr Andrew Sullivan explained the effect of fuel load on fire intensity:

> ...if you take one kilogram of leaf litter out of a forest, there is the equivalent energy in that one dry kilogram of fuel to power a 100-watt light bulb for 50 hours—and it goes in 10 seconds when a fire burns it. People have that around them, but there is a disconnect between what the fuel is and what a fire will do in terms of releasing that as thermal energy.[26]

3.38 The Western Australian Department of Environment and Conservation (DEC) claimed the following relationship between forest fuel and fire:

> The fundamental relationship between fuel structure and quantity, and the speed and intensity of a forest fire, has been well established since the 1960's. Doubling the quantity of fuel doubles the speed of the fire and increases its intensity (killing power) four-fold. Reducing the amount of fuel over a significant proportion of the landscape by prescribed burning will significantly reduce the speed, intensity and damage potential of wildfires and greatly improves opportunities for safe suppression.[27]

3.39 Citing research undertaken as part of Western Australian-based Project Vesta, the department stated:

> This research demonstrated that the forward rate of spread of a fire is directly related to the characteristics of the surface fuel bed and understorey layers, with the near-surface fuel layer having the strongest effect on rate of spread.
>
> ...

25 Bushfire CRC, *Submission 7*, p. 5

26 CSIRO, *Committee Hansard*, Canberra, 12 March 2010, p. 12

27 DEC, *Submission 50*, p. 7

> The Project Vista experiments indicate that fires in fuels older than about seven years will prove difficult to control under average summer conditions of moderate high fire danger in open eucalypt forest.[28]

3.40 The Volunteer Fire Fighters Association of New South Wales claimed that increasing fuel loads by four times multiplied the fire intensity 17 times.[29] National Association of Forest Industries (NAFI) told the committee that:

> ...the higher the fuel load, the more intense the fire. In terms of fire suppression, it obviously makes it more difficult with a higher fire intensity. The research has shown that you have more spotting and faster spread of fires. So, even when you have moderate fire danger ratings, if you have a high fuel load, it is really a recipe for disaster.[30]

3.41 The Bushfire Front Inc argued that fuel was more important in determining fire severity than any potential climate change effects:

> ...increased temperature has little impact on fire behaviour. Fires become intense when it is dry and windy and fuels are heavy. A rise in temperature of a couple of degrees will have insignificant impact.
>
> Drought is an important influence on fire, but droughts occur in Australia already and always have done.
>
> Doomsday projections of "unstoppable megafires" and "catastrophic weather" are expressions of defeat. We are not powerless to face up to hotter, even drier conditions. The trick is to prepare and to take steps to minimise fire damage and make fires easier and safer to suppress.[31]

3.42 From an anecdotal perspective, the Institute of Foresters of Australia cited the Kingslake area as evidence of the effects of fuel reduction, claiming that the Black Saturday fires were less severe in areas that had been affected by a smaller bushfire three years before, which had the effect of reducing fuel.[32]

3.43 The Western Australian Department of Environment and Conservation argued that their system of broadscale prescribed mosaic burning had prevented the catastrophic fire events that have occurred in the south-east of Australia. They noted that since its introduction in 1961:

> ...there have been no forest fires greater than 30,000 hectares, no lives lost in forest fires, few injuries, and only one instance of multiple property losses. In the past 20 years, the average annual area burned by wildfires in

---

28 DEC, *Submission 50*, p. 7. See also outline of CSIRO's Project Vesta report at http://www.csiro.au/resources/VestaTechReport.html#1

29 Volunteer Fire Fighters Association of New South Wales, *Committee Hansard*, Canberra, 12 March 2010, p. 48

30 NAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 24

31 The Bushfire Front Inc, *Submission 48*, p. 3

32 Institute of Foresters of Australia, *Committee Hansard*, Melbourne, 25 March 2010, p. 84

> the south-west forest regions is about 20,000 hectares, which is less than one per cent of the forested landscape managed by DEC.[33]

3.44 In evidence at the committee's public hearing in Perth, the WA Department of Environment and Conservation gave examples of a number of successfully contained fire events that they claimed demonstrated the effectiveness of their prescribed burning regime.[34] The Department acknowledged that a more subdued topography in WA makes prescribed burning and rapid attack easier, but 'there is no practical difference in the structure and flammability of forest fuels'.[35]

3.45 Professor Neal Enright stated that the differences were in fact significant:

> [Victoria has] much more complicated topographic circumstances, higher fuel load vegetation and more extreme to catastrophic fire danger days than typically occur in the higher biomass forests of south-western Australia.
>
> A lot has been made of how well the authorities and agencies do in south-western Australia. They do a very good job here. They treat a reasonably high area per year. The record of wildfires indicates that there is a small frequency and small size of wildfire events here, relative to south-eastern Australia. I do not know that you can put that down solely to them doing it better here. I think there are the environmental circumstances of the more mountainous terrain, the much larger area of high-biomass wet forests and differences in fire weather and fire behaviour conditions that make it a more difficult problem in Victoria. They will have to throw a hell of a lot more money at it to fix it. Then, of course, there are the biodiversity issues that would be associated with trying to do that in those large areas of national parks.[36]

3.46 The Bushfire Front Inc also mentioned the contained Donnybrook fire, fanned by cyclonic winds:

> Cyclone Alby provided winds of 130 kilometres an hour from the north-west in April 1978. The fire started about five kilometres north-west of Donnybrook, a town at that time of roughly 3,000 people. It headed straight for the town coming out of private property.
>
> It came out of private property as a crown fire and then hit an area of state forest—Donnybrook block, as it used to be called. The whole block had been burnt about 18 months previously, and as a result the fire virtually stopped. It came down from the crowns, trickled around and was easily contained within a very short period of time, with minimum effort and with complete safety. If that burnt had not been done, there is no doubt whatever the town of Donnybrook would have been obliterated, because the fire had

---

33 DEC, *Submission 50*, p. 6

34 DEC, *Committee Hansard*, Perth, 29 April 2010, pp 3-4. The Department referred to fires at Mount Cooke, Mundaring-Karragullen, Dwellingup and fires associated with Cyclone Alby.

35 DEC, *Submission 50*, p. 6

36 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 85

> been running on the other side of the forest block into long grass and peri-urban areas, which always carry heavy fuel loads. That is a classic example in our case of the value of fuel reduction burning.[37]

3.47 Conservation Council of WA suggested that fires brought under control may often be due to other factors:

> When we are told that the fire stopped because it ran into a recently fuel reduced area ... we are not told that there was a change in the weather or that the wind changed, and we are never told when the fires go straight through recently burnt areas.[38]

3.48 There were varying opinions about whether reduced fuel loads would assist suppression on days of extreme fire danger. Dr Don Driscoll was of the view that weather was the overwhelming cause of major fire catastrophes:

> The weather conditions really drive the incidence of these dangerous fires. The fires that have stimulated this sort of inquiry, the Victorian inquiry and the South Australian inquiries have all occurred under extreme weather conditions. So, really, considering what happens under mild or low conditions is not very important; it [is] what happens under extreme conditions that is very important. That is why the results emerging from Project Vesta and some of these other studies that have looked at the way the fire behaviour under different fuel loads have not really got to the nub of the problem, because you cannot carry out field experiments under extreme fire conditions.[39]

3.49 Professor Neal Enright emphasised that the effectiveness of fuel reduction in certain circumstances remains unclear. He said:

> ...the relationship between the amount of fuel reduction burning and the effectiveness of fuel reduction burning is still not clear in a scientific sense. Most of the experimental research relates to fires conducted under moderate to, at most, high fire danger weather conditions. It is very difficult to actually conduct experiments under extreme fire danger weather conditions. As we move up the scale, we do not really have as good an understanding of how fuels will behave, even in fuel reduced situations.
>
> There have been a number of [case] studies ... that have been done looking at the fact that a particular wildfire may have been slowed or stopped when it encountered a fuel reduced block. That is certainly true and there are many examples of that in a number of forest types in southern Australia, particularly where the fuel reduction burns had been delivered within the previous five years. One of the main issues is that, once you get beyond five

37 The Bushfire Front Inc, *Committee Hansard*, Perth, 29 April 2010, p. 22

38 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 34

39 Dr Don Driscoll, *Committee Hansard*, Canberra, 14 May 2010, p. 10

> years and you get into high fire danger weather conditions, the value of those previous fuel reduction burns drops away quite quickly.[40]

3.50 The committee notes that Professor Enright assisted the Victorian Esplin inquiry into the 2002-2003 bushfires, which recommended that fuel reduction burning be increased, especially in the zones surrounding built-up areas.[41]

3.51 CSIRO informed the committee that the effectiveness of fuel reduction depends on manageable weather conditions when fires start:

> The degree of risk reduction will depend on fire weather. During days of extreme fire danger, bushfires will be virtually uncontrollable even if fuels are minimal. However, the number of days each year during which fires will be controllable is many times greater for lighter fuels than for heavier fuels. Thus, there will be more opportunity to suppress fires ignited in summer, and to ensure that they are extinguished before weather conditions worsen.[42]

3.52 CSIRO commented that the extent to which prescribed burning would modify fire behaviour is still uncertain:

> There are research questions as to the extent of prescribed burning required to modify fires under different fire weather conditions. We are limited in doing experimental work to fairly mild fire weather. If you wanted to make a change allowing us to light fires under extreme fire weather that would be a good thing so that we could actually study those fires at the level where they make their impact in wildfires.[43]

3.53 Nature Conservation Council of NSW claimed that fuel reduction activities can be counter-productive, by curing previously green vegetation and therefore increasing fuel loads.[44] The Conservation Council of WA disputed the notion that prescribed burning in effect replicates natural processes the environment depends on:

> Fire is presented as a natural phenomenon, but the only natural fires are those started by lightning. If you drop an incendiary from a helicopter, it is not a natural fire; it is no more natural than pivot irrigation.[45]

---

40 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 80

41 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 80. See also B. Esplin et al, Report of the Inquiry into the 2002–2003 Victorian Bushfires, accessed on 15 June 2010 at http://www.dpc.vic.gov.au/CA256D8000265E1A/page/Listing-Inquiry+into+the+2002-2003+Victorian+Bushfires-Report+of+the+Inquiry+into+the+2002-2003+Victorian+Bushfires+(Released+14+October+2003)!OpenDocument&1=~&2=~&3=~ .

42 CSIRO, *Submission 15*, p. 9

43 CSIRO, *Committee Hansard*, Canberra, 12 March 2010, p. 18

44 Nature Conservation Council of NSW, *Response to question on notice*, Appendix 3, p. 3

45 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 26

3.54 They suggested that prescribed burning may actually increase the fire prone nature of certain forests by drying out 'wet' forest areas, introducing weeds and germinating dense understory thicket.[46]

3.55 The Bushfire Front Inc rejected the notion that fuel reduction is ineffectual in serious bushfire conditions, telling the committee that this view 'flies in the face of every experienced firefighter across the nation'.[47] Similarly, the WA Department of Environment and Conservation dismissed claims that prescribed burning could not prevent catastrophic bushfires in extreme conditions:

> There have been numerous examples where the fuel reduction burning program has resulted in relatively rapid containment of bushfires and significant 'saves', even under extreme fire weather conditions.
>
> Forest fire managers who are directly involved in fire control operations have no doubt about the value of fuel reduced areas in reducing the intensity of bushfires and in providing safe conditions to apply fire suppression tactics.[48]

Effectiveness in protecting built assets

3.56 Another contentious issue was whether prescribed burning in the landscape is an effective way to protect built assets and the people within them, taking into account the potential negative ecological and social consequences of the practice, and the resources required to undertake the task properly.

3.57 CSIRO's submission suggested that this remains an open question:

> ...relatively large amounts of prescribed burning would have to be implemented in Australian forested landscapes to achieve modest levels of risk mitigation for urban and other assets. The relative benefits and costs of prescribed burning, and its effectiveness in achieving multiple land management goals in different land tenures requires more research.[49]

3.58 Professor Enright commented that: 'Fuel reduction burning is only one part of the equation'.[50] Dr Don Driscoll concurred, citing engineering and social solutions as being more effective to achieve the objective of protecting lives and assets than prescribed burning. He told the committee that prescribed burning is limited for the following reasons:

- climatic conditions are a greater determinant of bushfire severity than fuel reduction; and

---

46 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, pp 27-28 and p. 36

47 The Bushfire Front Inc, *Committee Hansard*, Perth, 29 April 2010, p. 18

48 DEC, *Submission 50*, p. 7

49 CSIRO, *Submission 15*, p. 25

50 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 85

- the influence of fuel reduction is short-lived, necessitating regular burns that are uneconomical and ecologically damaging.[51]

3.59 Dr Driscoll argued that:

> ...we would have to ask: how much money do we spend on burning the forest every three years and how effective is that? In damp and dry forest, it is going to reduce the probability of a crown fire by five to 10 per cent. Under extreme conditions—and that is from roughly 70 to 60 per cent in dry forest or 85 to 80 per cent in damp forest—how does that small reduction in the risk of crown fire translate into risk of houses burning down? I do not think we know that yet. And was any marginal gain in saving houses a reasonable trade-off against all of the other competing objectives? Is the marginal gain in asset protection of burning the forest every three years so valuable that it is worth trading off the other objectives? In this scenario, with the burning of the forest every three years, we would certainly see a loss of species throughout the forest and an increase in health related deaths and associated costs, as well as an increase in carbon emissions.[52]

3.60 Nature Conservation Council of NSW stated in their submission that 'risk management strategies should include initiatives on both sides of the interface'.[53] They commented that controlled burns in bush areas are of limited value:

> Management of fuel in close proximity to the asset, as opposed to fuel management on the bushland side of the interface, is often a far more effective strategy to achieve fire protection to a particular asset. Short of cementing over or clearing vast tracts of bushland, fuel reduction at the interface must be combined with strategies to increase the ability of a house, structure, product or other economic asset to withstand a bush fire event.[54]

3.61 Although not opposed to fuel reduction, Mr Justin Leonard from CSIRO sought to distinguish fuel reduction in the landscape and in the immediate vicinity of assets that require protection:

> ...fuel reduction burning at the interface or immediately around an asset—say, within a few hundred metres of an asset—is a vastly different process or has a vastly different outcome for that building or that small community from a broadacre burning process, which would have some impact in determining the rate at which a fire would move through the landscape and its chance of arriving at a point in the landscape that would have an impact on a structure. But it is only the last few hundred metres of a fuel load that has an impact on the magnitude of the impact of that fire and its potential

---

51 Dr Don Driscoll, *Committee Hansard*, Canberra, 14 May 2010, pp 3-5

52 Dr Don Driscoll, *Committee Hansard*, Canberra, 14 May 2010, p. 6

53 Nature Conservation Council of NSW, *Submission 8*, p. 9

54 Nature Conservation Council of NSW, *Submission 8*, p. 10

> outcome for the actual building. Separating those two issues is quite important.[55]

3.62 He commented that random chance ember attack is the biggest risk to houses:

> ...it is generally understood, from the fires that we have extensively investigated, that it is something like 90 per cent of houses being lost in the absence of a direct interaction with the fire front itself, which means it is about more insidious activity like ember attack igniting the house directly or igniting fences and other details around the house, which then have an impact on the structure itself.[56]

3.63 The contention therefore is that reducing fuel hazards at the urban interface and improving house design to withstand ember attacks are the most critical elements of protecting housing assets. Alternative mitigation strategies are explored in more detail at paragraph 3.203.

3.64 The WA Department of Conservation and Environment disagreed with the contention that only the immediate vicinity of assets is prioritised:

> ...if you do not burn the landscape to a reasonable proportion, you are going to invite very large, intense fires, with the embers that might blow kilometres ahead of the head fire. Dwellingup town itself was actually burnt before the head fire got there by the ember storm that was generated by the fire burning in old fuels. So what we attempted do is, yes, focus around a town, but not to the degree that that is the only option. We believe quite strongly that you need to burn the landscape so that you do not invite those big fires.[57]

Ecological considerations

3.65 The inquiry also attracted significant debate about the ecological consequences of prescribed burning measures. Some evidence to the committee expressed concern about the capacity of local biodiversity to recover from burns conducted too frequently. For instance, Nature Conservation Council of NSW stated that:

> NCC recognises that fuel and fuel accumulation is an integral part of the fire management process, and can influence fire behaviour and the energy released during a fire. However, the NCC considers that the use of hazard reduction burning to reduce fuels on a broadscale landscape basis without scientific information, poses a high risk to biodiversity and ecological processes ... understanding of the specific impacts of different burning regimes on different vegetation communities is not yet fully understood.

---

55 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, pp 72-73

56 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, p. 74

57 DEC, *Committee Hansard*, Perth, 29 April 2010, pp 4-5

> ...Burning forests too often poses a serious threat to biodiversity ... the cumulative effect of frequent fire may be as profound as high intensity fires.[58]

3.66 Nature Conservation Council of NSW stated that while mosaic burning methods (see below from paragraph 3.152) may comply with the NSW Rural Fire Service's environmental code, the primary objective is to protect life and property, which 'may not be optimal for the protection of biodiversity'. They suggested that burning intervals may need to be longer than nine years to maintain biodiversity values.[59]

3.67 The Conservation Council of WA told the committee that: 'Frequent fires for whatever reason, whether it is wildfire or prescribed burning, have a disastrous effect on many species of flora and fauna'.[60] Although not opposed to prescribed burns altogether, they argued that the Western Australian objective of burning every eight years is too frequent for many ecosystems to recover.[61]

3.68 Plant ecologist Professor Neal Enright provided the committee with research experience suggesting that fire regimes more frequent than 15 years in Western Australian shrublands could lead to a reduction in plant species richness, particularly where intervals are five years or less.[62]

3.69 CSIRO stated that:

> Both hazard reduction burning and wildfire can have positive or negative impacts on biodiversity. In some landscapes, there are potential biodiversity costs associated with the intervals between prescribed fires.[63]

3.70 CSIRO also noted that this is a 'developing research area'.[64]

3.71 However, the majority of evidence on this issue countered the notion that prescribed burning is ecologically harmful, particularly when the alternative to controlled fires is intense catastrophic fires that cause far more damage to local biodiversity. The Volunteer Fire Fighters Association of New South Wales noted:

> ...we are not doing the bush any favours if we allow fuel levels to reach levels where they ultimately destroy biodiversity.[65]

---

58 Nature Conservation Council of NSW, *Response to question on notice*, Appendix 3, p. 3

59 Nature Conservation Council of NSW, *Response to question on notice*, Appendix 3, pp 1-2

60 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 25

61 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 27 and p. 29

62 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 79

63 CSIRO, *Submission 15*, p. 11

64 CSIRO, *Submission 15*, p. 11

65 Volunteer Fire Fighters Association of New South Wales, *Committee Hansard*, Canberra, 12 March 2010, p. 49

3.72 Dr Christine Finlay said: 'there is nothing worse for the environment than an intense burn'.[66] Victorian Association of Forest Industries (VAFI) commented:

> ...the greatest threat to threatened species and flora and fauna within national parks, state forests or private landholdings is in fact the threat of wildfire.[67]

3.73 Mr Phil Cheney told the committee:

> In assessing any impacts of prescribed burning one has to say: what are the consequences of not doing it and what are the impacts of these high-intensity fires that in this last decade have burnt several million hectares of country in south-east Australia? From an ecological point of view, although there is variation in intensity, pretty much every hectare of that country is burnt. In 2003 and 2007 I travelled for hundreds of miles through the forest on burnt ground. It was all burnt. The consequences on our fauna are inestimable.[68]

3.74 The Western Australian Department of Environment and Conservation rejected the notion that bushfire mitigation and ecological values are incompatible:

> ... in fire-prone environments, proactive fire management is integral to, not incidental to, good conservation and land management. If wildfires cannot be managed, then it is unlikely that other land management objectives will be achieved.[69]

3.75 The department compared the effects of very large and smaller fires on biodiversity:

> Very large and intense wildfires cause high levels of mortality and damage to native plants and animals, and irreversible loss of topsoil. Post-fire recovery may take many decades, or even centuries where old-growth forests have been killed. On the other hand, low intensity, patchy fires have little long-term impact on the biota, which recovers relatively quickly from such events.[70]

3.76 The department's submission added:

> ...there is no evidence that current prescribed burning for fuel management and other purposes has resulted in any species losses or environmental degradation. In fact there is growing evidence that, implemented correctly (appropriate interval, intensity, season and scale), prescribed burning can benefit biodiversity at the landscape scale by providing diverse habitats

---

66 Dr Christine Finlay, *Committee Hansard*, Canberra, 12 March 2010, p. 95

67 VAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 50

68 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, pp 11-12

69 DEC, *Submission 50*, p. 1

70 DEC, *Submission 50*, p. 5

> (seral stages) and by reducing the size and intensity (secerity) of damaging wildfires.[71]

3.77 In verbal evidence to the committee, the Western Australian Department of Conservation and Environment referred to the need for balancing land management objectives:

> ...when you put our biodiversity and conservation responsibilities, our fire responsibilities and our community protection responsibilities on the table there are some trade-offs against the purity, if you like, of what I would like to do in biodiversity conservation. Having said that, we have a program that is based around variety in fire size, intensity, season and so on. We have studied the ecosystems—the flora and the fauna—to a very considerable degree, and we are fairly confident that our programs are not causing any undue damage to our biodiversity values.[72]

3.78 The department indicated that satellite imagery evidence from one of their prescribed burns suggests that ecological harm will be minimal:

> ...the majority of the area was burned very mildly—burns spreading out about 20 to 30 metres per hour with flames of half a metre. Any mobile mammal is going to be able to deal with that. The fact that they have dealt with it over millions of years makes me confident that, although you may get individuals that get compromised, as a community, that sort of fire treatment is in fact more likely to enhance than detract from its health.[73]

3.79 National Association of Forest Industries (NAFI) also argued that prescribed burns were not counteracting the goal of using forests as carbon stores:

> ...the argument about whether we leave our forests for carbon stores really needs to focus on what the implications are in relation to fire if we do, because the outcome could very well be that, if we leave our forests to store carbon up in that way, we are actually making them a very high fire risk. We could end up with a situation where we have a high level of emissions from fires. In their numbers, the government have calculated that the 2003 Victorian fires put out 190 million tonnes, I think it was, of CO2. That is significant when you remember the total emissions from our economy are 560 million tonnes. So it is a significant amount.[74]

3.80 Forest Fire Victoria Inc commented that it is inappropriate for the EPBC Act to describe controlled burns as a process that is threatening to forest ecosystems:

> ...without fire most of the values by which we manage forests, such as water, timber, soil protection and all the other qualities—all these processes are threatened because inevitably we get major fires. We have had fires of

---

71 DEC, *Submission 50*, p. 5

72 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 7

73 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 10

74 NAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 25

> major size in Victoria, not just a million hectares but a million hectares with 60 per cent of them burnt at the highest intensity. That is frightening. That is not good ecology, that is not managing biodiversity, that is not managing topsoils, that is not managing erosion and that is not managing water. So to call the use of prescribed fire, fuel reduction fire, a threatening process is I think very odd.[75]

3.81 Australian Forest Growers also expressed concern that the implementation of the EPBC Act to protect native species may prove an impediment to prescribed burning activities:

> ...in the context of the EPBC Act nomination of prescribed burning as a threatening process ... that is a benchmark process, and we are very concerned about that. I know you know there is enough difficulty getting a permit to undertake a prescribed burn as it currently stands without having to go through a federal licensing process as well.[76]

3.82 Responding to these concerns, the Commonwealth Department of Environment Heritage and the Arts indicated that the EPBC Act had not interfered with bushfire mitigation activities:

> The Commonwealth Government may have a role in fire management plans where national environmental matters may be significantly impacted by those management measures, such as through impacts on threatened species. In these circumstances state and territory governments submit fire management plans that take these matters into account. Since 2001, [19] bushfire management related projects have been referred under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (not including burns for research purposes).
>
> All bushfire management related projects referred under the EPBC Act have been assessed as not requiring formal assessment or approval and have not been further regulated.[77]

3.83 The department's submission sought to clarify the effect of fire regimes being nominated for listing under the Act as a key 'threatening process':

> Should the nomination be approved for listing as a KTP, there would be no reduction in the priority that the Australian Government places on the protection of life and property. Even if "Contemporary fire regimes resulting in the loss of vegetation heterogeneity and biodiversity throughout Australia" were to be listed as a KTP, such a listing does not provide any authority for the Australian Government to require any changes in prescribed burning practices in the states and territories.

---

75 Forest Fire Victoria Inc, *Committee Hansard*, Melbourne, 25 March 2010, p. 64

76 Australian Forest Growers, *Committee Hansard*, Melbourne, 25 March 2010, p. 86

77 Department of Environment Heritage and the Arts, *Submission 45*, p. 14. See also *Committee Hansard*, Canberra, 12 March 2010, p. 66

> The listing of a key threatening process has no regulatory implications other than requiring the Minister to decide whether or not to have a threat abatement plan (TAP). A TAP provides for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities. Commonwealth agencies must implement TAPs in Commonwealth areas and must not taken action that contravenes a TAP.
>
> If the process were to be listed, the Minister would need to decide whether a TAP would be an efficient, effective and feasible way to abate the threats. In making that decision, the Minister would be required to seek the advice of the TSSC as well as each of the states and territories.[78]

Community attitudes to prescribed burning

3.84 One major obstacle to land managers undertaking effective prescribed burning measures is community opposition to the practice. The following issues were raised during the inquiry:

- the effects of smoke drift on nearby communities;
- the potential for escaped burns; and
- poor understanding about prescribed burning.

Smoke

3.85 Prescribed burns generate smoke that effects nearby communities to varying degrees, depending largely on the weather conditions at the time and how predictable these have been, as well as the competence of those carrying out the burn. The Bureau of Meteorology told the committee that they had been assisting land managers predict smoke drift from prescribed burns:

> For nearly 10 years now we have been developing a system to assist the land managers with where smoke from a prescribed burn would travel. It is operationally supported by the bureau and it runs every day. The take-up in different states is variable depending on the pressure that they are under. Western Australia, Victoria and Tasmania are the most enthusiastic partners. They nominate the areas within the state where their major prescribed burning activities are likely to be and we give them a forecast smoke plume from that position for ignitions starting at several different times during the following day, and that is updated overnight.[79]

3.86 Despite the best available forecasting, smoke will inevitably cross the path of those living downwind from the burn. The Conservation Council of WA highlighted the health implications of smoke from prescribed burns:

---

78 Department of Environment Heritage and the Arts, *Submission 45*, p. 15

79 Bureau of Meteorology, *Committee Hansard*, Canberra, 12 March 2010, p. 74

> ...it is recognised that it is the particulates in wood smoke that are a very serious health problem. Efforts are made to prevent smoke over Perth, but the smoke invades country towns and rural properties and is a health hazard to the people there as well as to Perth people. So it is not just a minor nuisance to city dwellers; it is a serious health hazard.[80]

3.87 A number of witnesses commented that the smoke 'problem' needed to be kept in perspective. VFF told the committee:

> The reality is that we get enormous smoke palls when we have bushfires, but that seems to be tolerated because there are other worse impacts from the bushfire. But when there is a bit of smoke from prescribed burning, it seems like a terrible thing to occur.[81]

3.88 The WA Department of Environment and Conservation told the committee that the effect of smoke is taken into account when making daily decisions on prescribed burns, however:

> We are very conscious of those things, but the government has taken the position that the community's tolerance to some smoke has to be there because the prescribed burning program is so important, and the government has been quite strong in making those statements over the last year or so.[82]

3.89 Bushfire CRC said:

> I think there is plenty of evidence to suggest that bushfire smoke can have detrimental effects on the health of people. It is a matter of degree. It is a matter of trade-off in the types of information on warnings that we give to the communities about the smoke that is there. There is also documented evidence that smoke may have an impact on some agricultural crops—for example, grapes.[83]

3.90 The committee notes that four vineyards recently took legal action against the WA Department of Environment and Conservation for damage caused to wine grapes from prescribed burning activities.[84] The department commented that:

> That is a difficult juxtaposition of our burning opportunities or windows in the southern forests beside the times when grapes are ripening and pre-

---

80 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 26

81 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 96

82 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 16

83 Bushfire CRC, *Committee Hansard*, Melbourne, 25 March 2010, p. 21

84 The action failed on the basis that it would be unreasonable to impose a duty of care to avoid smoke damage on a public authority with responsibility for fire management in such circumstances. See AFAC website, 'Supreme Court judgment on smoke and wine grapes', accessed on 28 May 2010 at http://www.afac.com.au/news_and_media/fire_news2/news_items/supreme_court_judgment_on_smoke_and_wine_grapes

> harvest. It is a difficult balancing act for us and one that we do take seriously.[85]

3.91 Bushfire CRC also commented that smoke from prescribed burning does not necessarily add to greenhouse gas emissions:

> Smoke from bushfires, and more particularly smoke from the use of prescribed fire, is increasingly viewed in some quarters as further adding carbon dioxide and other Greenhouse gases to the atmosphere. As with much of the science associated with climate change, however, the story is more complex. New vegetation that establishes following a fire invariably grows vigorously, generally locking up considerable quantities of carbon. Similarly, any contributions to global warming that may result from prescribed fires must be balanced against the global warming effects of more frequent and more intense bushfires that will occur in the absence of the strategic use of prescribed fire.[86]

Liability

3.92 Another obstacle is the requirement for land managers to respect property boundaries when conducting prescribed burns. Mr John Gledhill noted that fuel reduction is more difficult now bush areas are more densely populated:

> ...fuel management, whilst it is very effective, is very difficult. It is particularly becoming more difficult as more and more people elect to go and live amongst the trees. Broad-area fuel reduction burning is not as easy as what it was many years ago. There are lots of risks and people are popped in the middle of them all. It is not easily undertaken. There is much greater accountability. There are a lot of barriers imposed that make fuel reduction extremely difficult to undertake in quite a few places. I know it is successfully done, and I am sure you have probably heard of the Western Australian example whereby huge areas are burnt annually. But when you look at that, the areas that are burnt do not have houses dotted in amongst them. They are large tracts of public land, whereas a lot of the public land in a lot of Australia—and I am talking particularly about Tasmania—is a mosaic of public and private land. When you mix it all together you have property boundaries running through them. Fires do not understand property boundaries. But for fuel management works you have got to respect property boundaries.[87]

3.93 Professor Kanowski agreed that liability had become a 'real issue'. He said:

> As a society we have become more risk averse in a whole range of ways it seems ... prior to the 2009 Victorian fires, the Department of Sustainability and Environment had sought to implement a greater level of fuel reduction burning. There was a burn on the Mornington Peninsula that got away and

85 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 16

86 Bushfire CRC, *Submission 7*, p. 6

87 Mr John Gledhill, *Committee Hansard*, Melbourne, 25 March 2010, p. 8

> caused a lot of adverse publicity. That sort of response to the inevitable vagaries of natural resource management is quite problematic.[88]

3.94 VFF argued that, as with smoke from prescribed burns, the issue needs to be kept in perspective:

> ...there is often an outcry if a prescribed burn escapes—and the media do not help when they seem to delight in highlighting it and it is all over the news—whereas the impact of that occurring is far smaller than the impacts of the devastation of an uncontrolled bushfire.
>
> ...
>
> I do not think we can ever expect prescribed burning to be carried out with a 100 per cent safety record. I think that is one of the problems that we have had in the past. We have assumed that we can prescribe burn without a single incident occurring. I do not think that that is possible. We have to accept that there is some risk involved. But the question is whether that risk is greater than that risk of not burning at all.[89]

3.95 Mr Phil Cheney suggested that landholders be afforded legal protection for conducting controlled burns:

> In some states of the US, Florida in particular, there is legislation that says if someone carrying out a prescribed burn follows the rules then he will not be liable if that fire should happen to escape. We need something like that for our landholders here. If they get a permit to burn from the rural fire service, the burn goes ahead, the weather changes unpredictably and they have not been negligent within the terms of their permit, then they should be covered.
>
> People that own bush blocks are dead scared of doing their own little bit of burning off, which used to be done through winter on an almost daily basis 30 years ago. Now it is, 'If the burn gets over my fence and burns my neighbour's grass, he's going to sue me.' So there is that social impact on people that makes them averse to doing anything with fire.[90]

3.96 The WA Department of Environment and Conservation told the committee that:

> We burn under very mild conditions, so if we do get an escape—and just about all burns have some minor escapes, whether they be a square metre or more—because our forces are there, those fires are put out rapidly. Occasionally a fire does get away, but the wildfires from prescribed burns represent less than one per cent of our wildfires and, as I said, they generally occur under mild conditions. It is a risky job. We have to do all the things we do to minimise that risk. Good training, good equipment,

---

88 Professor Peter Kanowski, *Committee Hansard*, Canberra, 12 March 2010, p. 36

89 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 96

90 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 15

> good science and good fire behaviour knowledge—the sort of knowledge that is available to us from the research we have undertaken—enable us to minimise that risk, without totally eliminating it.[91]

3.97 Fire and Emergency Services Authority (FESA) in WA indicated that they try to minimise escaped burns, but that some escaped burns 'would probably be something that we would have to accept' in large areas with large fuel loads.[92] Officers suggested that minimal escaped burns needed to be balanced against the task of meeting prescribed burning targets within the window of opportunity dictated by weather and moisture levels.[93]

3.98 The Rural Fire Service Association of NSW said that legal protection for fire fighters is essential:

> ...our clear policy on this is that where an individual firefighter or a group of firefighters acts in good faith in carrying out their duties, regardless of outcome they must have absolute protection under the law, and that wherever there is a legal manoeuvre or a test case for changes to that, governments must act immediately to restore that protection.[94]

3.99 The Association of Volunteer Bushfire Brigades of Western Australia told the committee that fire fighters acting in good faith and in accordance with their powers under the WA Bushfires Act are protected:

> We have not come up against a situation yet where those powers have been exceeded and volunteers have been in trouble with the law.[95]

3.100 Forest Fire Victoria Inc was of the view that there are too many restrictions on local people using their own experience and judgement:

> It is rules and regulations. The more rules and regulations you make, the fewer and fewer days are available for controlled burning, until you make so many rules that you cannot possibly do it on any day of the year because of the possible danger of something happening. ...People in the bush want more control. People in the bush know when it is a good day for burning if they have local knowledge and experience and knowledge of the local topography and the terrain. You cannot plan this three months ahead and get permits and all the other things you need.[96]

---

91 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 7

92 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 74

93 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 74

94 Rural Fire Service Association of NSW, *Committee Hansard*, Canberra, 12 March 2010, p. 90. See section 128 of the Rural Fires Act 1997 (NSW) for the protection afforded to fire fighters in that state acting in good faith.

95 Association of Volunteer Bushfire Brigades of Western Australia, *Committee Hansard*, Perth, 29 April 2010, p. 42

96 Forest Fire Victoria Inc, *Committee Hansard*, Melbourne, 25 March 2010, p. 69

3.101 The limited window of opportunity for prescribed burns is discussed further from paragraph 3.141.

Community understanding

3.102 Evidence to the committee also suggested that many people do not understand the significant effect that prescribed burning can have on mitigating bushfires. Mr Phil Cheney told the committee that there was poor understanding in the community about this relationship:

> Until there is a very firm view that this is the controlling factor, stories that there is nothing which can be done about the catastrophic end, which is really a fabrication and absolute nonsense, will persist. You cannot stop it—that is for sure—but you can do something about reducing the intensity and the impact on people and towns.
>
> We have known for decades, if not hundreds of years, that burning off, prescribed burning or removing the fuel modifies the fire behaviour. In my lifetime there has been a continual battle against certain elements of the community to convince them that it can be done, that it is ecologically sound and that it actually works.[97]

3.103 Mr Cheney suggested that much of the opposition to prescribed burning may be due to aesthetic reasons:

> ...we do have the unfortunate fact that burnt ground is black and people do not like the look of it. Often why they do not like prescribed burning is as simple as that, and they make up all sorts of other excuses.[98]

3.104 In evidence to the committee, the Conservation Council of WA noted that for tourists visiting Western Australia's forests, 'burned bush land is not particularly attractive'.[99]

3.105 The Rural Fire Service Association of NSW suggested that the passing of time affected attitudes about the urgency prescribed burning:

> ...the bottom line is that fuel management is critical for fire behaviour purposes, and it is fair to say that after the 1994 fires in New South Wales the enthusiasm was there to get on with a lot of hazard reduction work. But someone once said to me that the enthusiasm sometimes dies with the flames, and that is exactly what happens.
>
> ...
>
> Our membership went up significantly after the 1994 fires because people saw it as a critical organisation to be involved in and there was a big push for added hazard reduction. But because of the gap between major fire

97 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 11

98 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 11

99 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 26

> events the enthusiasm tends to die and it is a matter of getting on with it and trying to get people motivated to do it.[100]

3.106 Australian Forest Growers also spoke of the difficulty in maintaining momentum for prescribed burning:

> We have had lots of hearings over the last decade where there have been recommendations that have come out that we need to increase the level of prescribed burning to reduce the fuel. Everybody goes away and nods their head and says, 'Yes, that's what we need to do.' Then you get a couple of cool years and people forget what Black Saturday or the Canberra fire or whatever fire were all about and, before too much longer, Mrs Smith who complains about her washing getting smoky on the ground gets a big hearing or some environmental group that does not believe it is a natural thing to do to artificially burn land gets a say or something else happens and, for whatever reason, we do not seem to get the burning done.[101]

3.107 Dr Thornton of the Bushfire CRC suggested that there needs to be better understanding, through social research, about the motivations for resisting prescribed burns:

> We do need to better understand those values and we need to better understand how people think ... how do we do fuel reduction in an area where the community themselves do not want it but they do not want the fire either? So we need to better understand that in order to be able to get to those things.[102]

3.108 FESA spoke to the committee about winter burning program for private landholders on hobby blocks in Perth Hills, in which FESA provides field demonstrations and simple instructions on conducting cool burns. Officers indicated that initial trials had been successful and the program would be expanded.[103] FESA also suggested that the program would give the public a better understanding of fire and the need for prescribed burns that occur on a larger scale:

> ...while people are very timid around fires, when they see fire in a controlled environment in a winter burn, where the fire behaviour is very mild, they really start to understand that fire can work for them. That really helps with them understanding the way fire works. After setting a break, we just burn back. On a bigger scale, they understand what has to happen in prescribed burnings, so it is a very good offset in getting the community to understand that fire is actually a friend in many instances. That is a really good offset of it. We feel that the high profile of fire has assisted in the

---

100 Rural Fire Service Association of NSW, *Committee Hansard*, Canberra, 12 March 2010, p. 83

101 Australian Forest Growers, *Committee Hansard*, Melbourne, 25 March 2010, p. 90

102 Bushfire CRC, *Committee Hansard*, Melbourne, 25 March 2010, p. 21

103 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 68

> acceptance of the smoke around the community in this last year in particular.[104]

The adequacy of current prescribed burning measures

3.109 In addition to the limitations associated with community attitudes, the committee heard from a number of organisations citing the inadequacy of prescribed burning measures carried out by some agencies responsible for managing public lands. Australian Forest Growers stated that fewer burns were being undertaken each year, 'resulting in a gradual build up of fuel loads in native vegetation, to a point where actively managed fuel reduction has become almost impossible in some areas'.[105]

3.110 The Volunteer Fire Fighters Association of New South Wales warned: 'Canberra and Victoria are just the start of it. We are going to have bigger and worse fires unless we start to manage the fuel loads'.[106]

3.111 Indeed, the Victorian situation was the source of much concern. As noted in Chapter 2, in 2008 the Victorian Parliamentary Committee on Environment and Natural Resources tabled a report on the impact of public land management practices on bushfires in Victoria. The committee noted that:

> ...the current targeted level of prescribed burning, approximately 130,000 hectares per annum, undertaken by DSE and its partner agencies is insufficient to mitigate the impacts of future bushfires and provide the level of fire needed to promote healthy ecological outcomes.[107]

3.112 Although recognising that quantifying the effectiveness of prescribed burning is difficult, the Victorian parliamentary committee recommended that the target be increased to 385,000 hectares 'to mitigate the risks associated with future bushfires'.[108]

3.113 The Victorian government response indicated in-principle agreement, though it did not support a hectare-based target:

> The Victorian Government supports this recommendation in principle. The Victorian Government supports planned burning to improve protection,

---

104 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 72

105 Australian Forest Growers, *Submission 16*, p. 4

106 Volunteer Fire Fighters Association of New South Wales, *Committee Hansard*, Canberra, 12 March 2010, p. 49

107 Victorian Parliamentary Committee on Environment and Natural Resources, *Inquiry into the Impact of Public Land Management Practices on Bushfires in Victoria*, June 2008, p. xvi, accessed on 15 June 2010 at http://www.parliament.vic.gov.au/enrc/inquiries/bushfires/Report/report.html

108 Victorian Parliamentary Committee on Environment and Natural Resources, *Inquiry into the Impact of Public Land Management Practices on Bushfires in Victoria*, June 2008, p. xv-xvi and p. 95, accessed on 15 June 2010 at http://www.parliament.vic.gov.au/enrc/inquiries/bushfires/Report/report.html

> conservation and production outcomes. However, the annual area treated by planned burning needs to be determined based on science and risk management frameworks and be subject to suitable opportunities as dictated by seasonal conditions. Given this, the Government recognises that the amount of planned burning will vary to take into account these factors.
>
> The Government supports a move away from focusing on hectare-based targets which may lead to inappropriate planned burning programs. They do not account for differences in the effort required for small area asset protection burns (often around settlements) compared with larger scale mosaic burns in more remote areas. The latter, while not providing immediate and apparent asset protection are important for achieving multiple outcomes. A combination of both is required.[109]

3.114 Further discussion about the merits or otherwise of setting hectare-based prescribed burning targets is included below from paragraph 3.152 (methodology) and 3.174 (proposals for reform).

3.115 Victorian Lands Alliance provided a strong warning to this committee about the imperative to now get fire management right:

> No other values on public land can be managed successfully if fire management fails. There is no use talking about having a national forest strategy, management of water or management of conservation values—if you get fire management wrong then all of those other values will fail. Victoria will inevitably burn; it is our choice as to how it burns.[110]

3.116 They indicated that 'fire management is the primary task of the land manager' and argued that current approaches in Victoria fell short.[111] Victorian Lands Alliance concluded that:

> Currently in Victoria, just 2% of the forests regarded as being suitable for prescribed burning are planned for treatment each year.
>
> ...
>
> We can either burn more forest under prescribed conditions at cooler times of the year when fires burn slowly at low intensities causing little damage; or we can allow fuels to build and consequently consign our forests to greater areas burnt by periodic unplanned wildfires during hotter times of the year when they move quickly with high intensity and are infinitely more damaging to ourselves and the environment.[112]

---

109 Victorian Government, Victorian Government's response to the Environment and Natural Resources Committee's Inquiry into the Impact of Public Land Management Practices on Bushfires in Victoria, December 2008, pp 4-5, accessed on 15 June 2010 at http://www.parliament.vic.gov.au/enrc/inquiries/bushfires/government_response.pdf

110 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 39

111 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 39

112 Victorian Lands Alliance, *Supplementary submission 34*, p. 23

3.117 Forest Fire Victoria Inc also claimed that successive Victorian governments had neglected fuel management:

> ...over 2½ or perhaps three decades, successive Victorian governments have allowed fuel levels to build up on public land to levels that are quite unnatural. They are probably higher than at any time in history. They are also high on private land—also, in our view, through failures by government at various levels to tackle the problem. When those fuels get dry, as they do after a prolonged drought, and if a fire starts when the fuel is very, very dry and there is a wind blowing, you will not put that fire out even if you are standing beside it.[113]

3.118 They cited the written history of Australia, with reports of open forests with grassy understoreys allowing horse riding, as evidence of their claim about historically high fuel levels.[114]

3.119 Other organisations also cited historical landscape changes when suggesting that current approaches have been inadequate. The Mountain Cattlemens Association of Victoria argued that the high country landscape has changed considerably since Aboriginal fire practices were ceased in the early twentieth century:

> In the early days the country was similar to open parkland and this is confirmed by reports from the early explorers and settlers, writing, painting then later photographing the Australian bush.[115]

3.120 They stated that a ban on burns around 1920 had left many cattle runs overgrown and unsuitable for grazing:

> After 1920, the buildup of fuel began, especially in the non grazed areas of the High Country. The lack of patchwork burning and cattle grazing meant that vegetation grew unchecked and gradually choked the forests with scrubby understory which shaded out grasses and changed the viable landscape forever.[116]

3.121 Professor Neal Enright agreed that fire practices had indeed changed, though as a consequence of modern attitudes and understanding, rather than neglect:

> ...individuals were able to use fire much more freely back then. So you had farmers and other people in bush settings who were using fire to manage the landscape themselves in whatever way they saw fit. That is no longer acceptable and that probably has had an effect. But the question is: were they impacting on biodiversity values by doing that, and could we go back

113 Forest Fire Victoria Inc, *Committee Hansard*, Melbourne, 25 March 2010, p. 61

114 Forest Fire Victoria Inc, *Committee Hansard*, Melbourne, 25 March 2010, p. 63

115 Mountain Cattlemens Association of Victoria, *Submission 55*, p. 3

116 Mountain Cattlemens Association of Victoria, *Submission 55*, pp 4-5

> to such a procedure now? I do not think we could, on occupational health and safety grounds on biodiversity.[117]

3.122 The CSIRO also cautioned about making assumptions about historic practices:

> Indigenous Australians certainly burned some parts of the landscape, but the extent and frequency of burning, along with their impacts on native plants and animals are poorly understood.[118]

3.123 Professor Neal Enright said that the Victorian government had attempted to act on the earlier Esplin report recommendations to increase fuel reduction burn targets, but:

> ...they have had trouble in meeting any new targets, so fuel reduction burning levels are still relatively low and there have been subsequent inquiries and reports [since 2003] that have continued to recommend increases in the amount of fuel reduction burning.[119]

3.124 The obstacles faced by land management agencies attempting to meet prescribed burn targets are discussed below from paragraph 3.141. Although recognising that land managers operate different circumstances, the WA Department of Environment and Conservation said 'that there would be scope for more active prescribed burning in other parts of the country'.[120]

3.125 During the inquiry Western Australia was given as an example of a jurisdiction where adequate measures had been taken. The WA Department of Environment and Conservation indicated that prescribed burning served the dual purpose of mitigating bushfires by reducing fuel hazards, and managing ecosystems that often depend on certain fire regimes.[121] They stated that controlled burns were varied to achieve land management objectives:

> In many cases, planned burns are undertaken at landscape scales to achieve both protection and ecological management objectives by varying the seasons, fire intensities, and the interval between fires. The Department has an obligation to ensure that the condition of the public land which it manages does not pose a threat to human life and property as a consequence of wildfires.[122]

3.126 The WA Department of Environment and Conservation informed the committee that six to eight per cent of crown land in the state is burned each year,

---

117 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 84

118 CSIRO, *Submission 15*, p. 21

119 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 81

120 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 3

121 DEC, *Submission 50*, p. 1

122 DEC, *Submission 50*, p. 1

arguing that this regime had allowed fire managers to 'achieve a high level of protection for community assets and natural values on and near the lands managed by DEC'.[123]

3.127 Not all Western Australians agreed with the department's claims. WA Farmers' Federation suggested that WA Department of Environment and Conservation did not have the resources to manage all the land under their control:

> What has happened is that people like DEC have now got responsibility for fairly big areas of what we call unallocated crown land in this state. It used to be the country that we were opening up 20 and 30 years ago that did not get opened up. It is not national park; it is really just vacant public land, and that is the sort of country that DEC have a lot of problems keeping tabs on because the resources just are not there for them to be able to manage them properly.[124]

3.128 The Bushfire Front Inc told the committee that while the WA approach 'has not been as bad as in Victoria or New South Wales', prescribed burning had been wound back due to a lack of political support and was insufficient.[125]

3.129 There were a number of barriers to prescribed burning raised in evidence to the committee. NAFI referred to a variety of these:

> ...multiple land agencies and tenures with responsibilities for fire management; inadequate funding, skills and equipment; a focus on fire suppression at the expense of fire prevention; a decline in forestry trained fire managers and infrastructure from the transfer of multiple-use public forests to national parks and reserves; and a political and institutional environment that has fostered a passive approach to fuel management in conservation reserves and protected areas.[126]

Co-ordinating multiple agencies

3.130 The committee heard that effective prescribed burning requires a co-ordinated approach between adjacent land managers, recognising that the behaviour of fire in the natural landscape does not adhere to artificial ownership boundaries.

3.131 NAFI argued that a reluctance to conduct prescribed burns by one agency can affect other neighbouring landholders, even where they take appropriate measures to mitigate fire risks:

> If we look at the current situation, we have a landscape that is fragmented with a range of tenures. We have forests in state parks; we have got agriculture; and we have got an increasing number of forest reserves and

123 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 11

124 WA Farmers' Federation, *Committee Hansard*, Perth, 29 April 2010, p. 50

125 The Bushfire Front Inc, *Committee Hansard*, Perth, 29 April 2010, p. 18

126 NAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 23

> protected areas over the last few decades. One of the issues for the forest industry, in particular, and other landholders is that there has been this build-up in fuel loads in that part of the estate. Given the physical relationships when you have a high fire danger rating, we get the crossover into the other elements of the landscape, which then obviously affects the communities and the industries that depend on the natural resource.[127]

3.132 NAFI called for a more strategic risk management approach:

> There needs to be integration across the state, across land tenures and across state boundaries at the national level.[128]

3.133 VAFI also argued that land management must be 'tenure blind':

> That means that irrespective of whether we are talking about state forest, national parks or in fact private landholdings, the approach to the land management must be exactly the same.[129]

3.134 Australian Forest Growers suggested that future fire models should seek to remove the tension between agencies' land management objectives, the most difficult being at the urban interface where the mixture of tenure is most complex.[130]

3.135 Although disagreeing with many other witnesses over bushfire management strategies, the Nature Conservation Council of NSW agreed on the importance of co-operation across agencies:

> To be effective, management of bush fire across the landscape requires a tenure blind approach. While not without challenges, such a management strategy ensures that: all land management agencies (including private property) contribute to the outcomes; there is minimal bias; and inappropriate land management issues can be openly addressed.
>
> Because successful bush fire management is dependent on the participation of all property owners who experience bush fire risk, bush fire management must involve all stakeholders at a planning level.[131]

3.136 The WA Department of Environment and Conservation told the committee that their management of both state forests and national parks in WA allowed co-ordinated management across those tenures.[132] However, officers noted that the management of fuels on private lands 'is very problematic':

> ... [over the past 40 years] there has been a diminution of burning by local volunteer bushfire brigades and by landholders. Many of the farms that

---

127 NAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 24

128 NAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 24

129 VAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 50

130 Australian Forest Growers, Melbourne, 25 March 2010, pp 82-83

131 Nature Conservation Council of NSW, *Submission 8*, p. 8

132 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 12

> used [to] have the capacity to burn on their land are not subdivisions. The equipment has gone, so there has been a diminution of active fire management on private lands. We are trying to address that, working with our colleagues from FESA to see how we might be able to come up with a more coordinated program. But it is still going to be difficult to see how that can be done if the individual does not want to get involved and has not got the capacity to do it.[133]

3.137 Strategies to achieve a more co-ordinated approach to prescribed burning are contained below from paragraph 3.151.

Passive approaches to land management

3.138 A number of contributors were critical that responsibility for managing public land had been driven by an ideological approach favouring minimal intervention. For example, NAFI criticised 'an increasing trend over the past few decades for large increases in the area of formal conservation reserves with a passive approach to fire management'.[134] They noted:

> While acknowledging that fire is an inevitable part of the Australian environment, the challenge will be to move from a passive approach to fire management with high uncertainty to a more active management approach across all land tenures that shifts the focus and outcomes from extensive high intensity fires to more frequent but controlled low intensity fires.[135]

3.139 In evidence to the committee NAFI commented that a 'hands off' philosophy had been spreading:

> I think there is a philosophy there that, when you create a national park, you lock it up and leave it. Unfortunately, that sort of philosophy has permeated itself not only into national park management but also into a lot of local council managements.[136]

3.140 In evidence Mr Gary Nairn described this as the ‘lock it up and throw away the keys’ view, though he noted that attitudes had shifted somewhat since:

> I think that, over the last six or seven years, there has been some backing away from that by some of those often referred to by witnesses as the ‘extreme green’ element, when looking at land management. I think there has been some rationalisation since in that respect, but to what extent I am probably not well qualified to know.[137]

---

133 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 12

134 NAFI, *Submission 13*, p. 1

135 NAFI, *Submission 13*, p. 2

136 NAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 27

137 Mr Gary Nairn, *Committee Hansard*, Canberra, 12 March 2010, p. 7

Opportunities for prescribed burning

3.141 The committee was also told of the problems associated with achieving prescribed burn targets given the limited number of days suitable for conducting these burns, which are relatively labour intensive and require a degree of knowledge and skill. These problems relate directly to the difficulty of obtaining adequate personnel and equipment resources for the task, which is discussed in greater detail in chapter 5.

3.142 Victorian Lands Alliance said that money and personnel were major impediments to meeting controlled burn targets in Victoria:

> The primary operational constraint on meeting current fuel reduction targets is a lack of financial and personnel resources. The permanent, experienced workforce in the bush has fallen from around 2,000 individuals in the 1980s to the current level of 237. Funding is year to year. The fire prevention program funding in Victoria fell this year, down from $223 million two years ago to $198 million this year. If the land manager does not have adequate funding and does not have adequate personnel or political support for an ongoing program, then I would suggest that he has little to work with.[138]

3.143 VFF commented that a declining rural workforce meant fewer volunteers to conduct burns.[139]

3.144 Professor Enright queried whether effective prescribed burning is achievable given the constraints that exist:

> ...a large issue surrounds how much fuel reduction burning of the public estate in different parts of the country in different vegetation types can actually be done at the frequency required to deliver the wildfire suppression and life and property protection benefits that we want. If we were to deliver at that level, what would the costs of that be? Do we have the economic, manpower and time resources?[140]

3.145 The small window of opportunity for burning compounds the limited resources available for the task. Professor Enright commented:

> ...delivering the fuel reduction burns is quite problematic in terms of the window of time that is available. If you think purely of the parts of the year that are not too cold and damp or to hot, dry and windy and take out weekends, school holidays and the days within those zones in spring and autumn that are too windy or fall outside the prescription envelopes, the estimates for most places in Victoria are that fewer than 20 days a year are

138 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, pp 39-40

139 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 94

140 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 80

> available for fuel reduction burning and in some years zero days a year fall within the prescription envelope.[141]

3.146 He related the difficulty of conducting prescribed burns in the areas affected by the 2009 Victorian bushfires:

> One of the issues with some of the high impact areas in the 2009 fires relate to the vegetation types and the fact that some of these areas were high biomass, wetter eucalypt forest areas dominated by mountain ash, and these areas are probably the most difficult to fuel reduction burn because the fuel loads can become very high. At the same time the fuel moisture levels are high and tend to remain high right through the spring so that by the time the fine fuels are dry enough to allow them to burn you are probably entering weather conditions that are inappropriate or too dangerous to risk the burning of them.[142]

3.147 CSIRO also noted the constraints:

> Execution of hazard reduction burning is problematic in many areas due to constraints of smoke management, resources and opportunity (i.e. prescription 'window'). In a number of forest types, such as tall, wet montane eucalypt forests successful execution can limited by the low flammability of surface fuels in general hazard reduction prescription windows. With the expected warmer and drier conditions forecast under changed climate conditions in the future and the subsequent increase in the number of days of extreme fire danger ... it is expected that current 'windows' for applying prescriptions of hazard reduction burning will change and possibly narrow, meaning less opportunity to conduct safe and effective hazard reduction burns. This will require reassessment of the current operational limits (i.e. work hours, smoke levels, etc) of conducting hazard reduction burning.[143]

3.148 Mr Phil Cheney indicated that a proper fuel reduction program is expensive, but ultimately worth the price:

> Prescribed burning is a rolling process that is continuous. In Western Australia, for example, it occupies some 21 per cent of the annual man hours of the relevant department. So it is a big commitment that has to be put in—and it is costly; there is no doubt about that. But I believe that cost is relatively small compared to the costs of suppression...[144]

3.149 The Western Australia Department of Environment and Conservation stated that less resource intensive aerial prescribed burning had proved effective there:

---

141 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 80

142 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 81

143 CSIRO, *Submission 15*, p. 11

144 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 13

> A technique for lighting prescribed fires by dropping incendiaries from aircraft under specific conditions of fuel and weather was conceived and developed in Western Australia. Not only did this allow more area to be prescribed burnt under the desired (prescribed) fuel and weather conditions, it was much safer and less expensive than using ground crews.[145]

3.150 Issues relating to land management resources are examined further in Chapter 5.

Fuel reduction strategies

3.151 Evidence addressing specific fuel reduction strategies fell into two categories:

(i) prescribed burning methods; and

(ii) grazing as an alternative.

Prescribed burning methods

3.152 The committee heard a range of evidence on effective prescribed burning strategies, including:

- discussion on burning targets based on area by hectare or percentage of landscape;
- local risk-based approaches balancing risk to property, available resources and ecological considerations; and
- details of existing prescribed burning programs that are claimed to have been successful in mitigating the damage caused by bushfires.

3.153 Mr Phil Cheney told the committee that to be effective prescribed burning needed to be conducted at a rate of 'around eight per cent of the burnable forest per annum on a rolling basis', undertaken by 'an organisation that is pretty skilled in both understanding fire behaviour and applying prescribed fire'.[146] Mr Cheney suggested:

> ...my practical experience is—from looking at what it takes to slow down a high-intensity fire—that you need to burn around eight per cent of the burnable country per annum. That is not to say you burn everything, because there are certain ecotypes that you do not want to burn, but you should burn eight per cent of the burnable country. There is a lot of forest that falls into that category. It has to be around 70 per cent of that area burnt, and it has to be in big blocks of greater than a thousand hectares. That is the practical reality of stopping a bushfire.[147]

---

145 DEC, *Submission 50*, p. 4

146 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 13

147 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 19

3.154 CSIRO explained that the vegetation type dictated the frequency required for burns to be effective:

> The length of time fuel hazard reduction remains effective in assisting suppression of unplanned fires depends upon the number and type of fuel layers involved, and time since fire, as governed by the rate of accumulation of these fuels and the time that it takes for the key layers to build up to their full potential for the site. This 'effectiveness time' may be relatively short (less than 1 year) for fuels with a simple structure, such as annual grasses, or it may be many years in more complex fuel types such as tall forests with complex understoreys...[148]

3.155 Professor Kanowski supported increased fuel reduction burns but was reluctant to advocate a blanket target:

> ...the answer in quantitative terms is very much a question of the part of the landscape that you are dealing with. It is different in south-western WA to what it might be in south-eastern Australia and different again in Queensland.[149]

3.156 The Nature Conservation Council of NSW also cautioned against blanket targets across different vegetation types:

> It would not be eight years for every vegetation community. Some grasslands might need to be burnt more often and then you have wet sclerophyll forests that probably, for ecological reasons, need to be burnt less often. It is probable that, if you took a blanket approach to all the different vegetation communities, at least across New South Wales, you would really affect the biodiversity values of those communities and you might not alter fuel significantly anyhow.[150]

3.157 Western Australian Fire and Emergency Services Authority (FESA) said that different regions require different approaches:

> Every region has a different fuel load of vegetation... That is why we cannot just implement this statewide immediately; the fact is that we have to focus on those zones and say, 'Right, get the science right for that area and then come in and teach people and then move to the next.' It is not something that you can say that one fits all about.[151]

3.158 Officers from DEC told the committee that medium and long-term prescribed burning plans are developed on the basis of three major considerations:

1. Risk analysis: identifies values at risk, ignition potential fuel load/fire behaviour and capacity to control small fires.

---

148 CSIRO, *Submission 15*, p. 9

149 Professor Peter Kanowski, *Committee Hansard*, Canberra, 12 March 2010, p. 33

150 Nature Conservation Council of NSW, *Committee Hansard*, Canberra, 12 March 2010, p. 62

151 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 73

2. Biodiversity requirements: burn programs are tailored to suit local habitats.

3. Regeneration burns: prioritising burns made necessary following mining or harvesting.[152]

3.159 Information was provided about the 'Canobalas Bush Fire Model', otherwise referred to in evidence as a risk-planning model. A 'tenure-blind' approach is used through co-operation between a particular region's responsible fire and land management agencies, as well as other relevant organisations such as conservation groups, farmer bodies and catchment management authorities. The bushfire management committee for that area classifies the landscape, according to risk, into one of the following three zones:

- an asset protection zone around the immediate vicinity of assets;
- a strategic fire advantage zone where it is possible to reduce fuel frequently, for example through cultivated breaks or livestock grazing; or
- a land management zone covering the remaining part of the landscape.

3.160 After risks have been identified and analysed, a fuel reduction plan is formulated, implemented and then audited. The aim of the plan is to control burn to achieve a mosaic pattern of fuel reduction across the landscape regardless of whether the land is managed as national park, forestry or privately owned land, while recognising the need to prioritise the protection of areas containing assets of value.

3.161 Mr Graham Brown indicated to the committee that this risk planning approach is now being introduced to 68 zones across New South Wales, which involves bushfire management committees in each zone developing and implementing their own risk plans.[153]

3.162 The Volunteer Fire Fighters Association of New South Wales described a similar approach at Kurrajong Heights, using a cyclical mosaic burning pattern:

> Kurrajong Heights has got 18 blocks that we burn. We try to burn two of those blocks on a yearly basis, which means that it takes about nine years to get around our zone. The secret with this is to create a mosaic pattern of burning on different time frames ... the 2001 fire was the worst fire to impact at Kurrajong Heights. The fire came into [two reduced fuel] areas. Those fuel loads were four years of age and it took six days to travel five kilometres. The very same fire ran 30 kilometres in a day and burnt down homes on Blaxlands Ridge. It is just the difference between having a plan prepared and managed at the local level. It is so simple.[154]

---

152 DEC, *Committee Hansard*, Perth, 29 April 2010, p. 11

153 Mr Graham Brown, *Committee Hansard*, Canberra, 14 May 2010, pp 36-40

154 Volunteer Fire Fighters Association of New South Wales, *Committee Hansard*, Canberra, 12 March 2010, p. 49

3.163 FESA informed the committee that an interagency bushfire management committee had been established in WA to take a co-operative and tenure-blind approach to mitigation.[155] Officers stated that:

> The aspect of properly managed fuel or prescribed burning is something that we are now wanting to get a lot more cohesive and strategic about across the public and private lands, the plantations and the unallocated Crown land. That is the intention of our interagency bushfire committee, in which we are now sharing all of those values at risk.[156]

3.164 That committee is undertaking an analysis of bushfire threat areas across WA to determine what fuel management arrangements will apply in future.[157]

3.165 Forest Fire Victoria Inc advocated the national use of a publication called *Forest Fire Behaviour Tables for Western Australia*, otherwise referred to as the 'red book'. They stated:

> Until Australia adopts the red book as the way to go about your prescribed burning, we will still be stuffing it up. We will still have fires that are too hot or fires that do not burn. The red book says how you should do it. What [author George Peet] said to me as we walked across the road at Manjimup was, 'Look, all we're doing is to gather this information because the people who know how to burn have made so many mistakes in learning how to burn that we can't afford to make those mistakes anymore.'[158]

3.166 The Western Australian 'red book' contains information on fire behaviour under different circumstances, including climatic conditions, vegetation type, moisture content, fuel quantity and type, and available burning time.[159]

3.167 The Commonwealth's role in facilitating the implementation of effective strategies for conducting prescribed burns is examined later in the chapter from paragraph 3.181.

Grazing

3.168 Where prescribed burning is not appropriate or practical, some organisations proposed grazing as an alternative. Victorian Lands Alliance suggested that:

> The beneficial impact cattle grazing can have on reducing fine fuels to aid fire management on public land I do not believe has been adequately covered. Some landscapes are just clearly not suited to fuel reduction burning. Apart from mechanical removal, the only other options are grazing

---

155 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 66

156 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 73

157 FESA, *Committee Hansard*, Perth, 29 April 2010, p. 74

158 Forest Fire Victoria Inc, *Committee Hansard*, Melbourne, 25 March 2010, p. 69

159 Sneeuwjagt, R and Peet, G. *Forest Fire Behaviour Tables for Western Australia*, Department of Conservation and Land Management, 3rd Edition, 1985

> or do nothing. Noted fire ecologist Dr Kevin Tolhurst states that cattle can remove the dangerous fine fuels that drive fire intensity. Grazing is the only fuel reduction method apart from forestry activity that actually earns money to the state via licence fees. It is a fuel reduction method that pays.[160]

3.169 They particularly recommended its use in the Barmah State Forest, where red gums are very fire sensitive and very little prescribed burning is done.[161]

3.170 The Mountain Cattlemens Association of Victoria stated that cattle grazing areas of the high country were less severely affected during the alpine fires of 2003, 2006 and 2009. Their submission argued that an absence of grazing in these areas enables the buildup of long dry matted grass that 'will explode in an intense environmentally damaging fire'.[162] They noted that re-introducing grazing to the Victorian high country would not prevent wildfire, but would reduce their intensity by reducing fuel loads.[163]

3.171 The Mountain Cattlemens Association of Victoria also recommended that further research be conducted on grazing as a fire management technique:

> Given the imperative that fire management is the cornerstone of public land management in Victoria and the stated first priority of public land managers, a strong case exists for the State and Federal Government to commission a truly independent scientific study to establish an evidence based view of the link between grazing and fuel reduction on all types of public land in Victoria including National Parks.[164]

3.172 In 2005 a Victorian Government taskforce found that grazing cattle in the Alpine National Park causes environmental damage and does not affect fuel reduction and wildfire behaviour.[165] The practice was subsequently banned there in 2005, when existing national park leases were not renewed, though it has been allowed to remain in neighbouring state forest areas.[166]

3.173 Dr Richard Williams informed the committee that research he had conducted led to the conclusion that: 'there was no detectable impact of grazing history on either

---

160 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 40

161 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 40

162 Mountain Cattlemens Association of Victoria, *Submission 55*, pp 6-7

163 Mountain Cattlemens Association of Victoria, *Submission 55*, p. 8

164 Mountain Cattlemens Association of Victoria, *Submission 55*, p. 14

165 Alpine Grazing Taskforce, *Report of the investigation into the future of cattle grazing in the Alpine National Park*, Victorian Department of Sustainability and Environment, May 2005, p. 5

166 Mountain Cattlemens Association of Victoria, *Submission 55*, p. 7. See also ABC news website, 'Victoria ends cattle grazing in Alpine National Park', 24 May 2005, accessed on 15 June 2010 at http://www.abc.net.au/news/stories/2005/05/24/1375799.htm

the incidence of fire—the rough proportions were not statistically different—nor the severity'.[167]

Proposals for reform

3.174 The committee received considerable evidence on the inadequacy of prescribed burning measures being implemented by state (and to a lesser degree local) land management agencies. However, identifying practical and achievable solutions to be implemented at the Commonwealth level remains a significant challenge. Evidence to the committee emphasised that federally driven change is needed to ensure the following:

- land management agencies establish and maintain a co-ordinated, long term and considered approach to fuel reduction across the landscape; and
- the fuel reduction activities of land management agencies are subject to oversight and input at a national level.

3.175 Victorian Lands Alliance argued for a long-term, planned, prescribed burning program:

> Fuel reduction burning must be undertaken in a programmatic manner for Victoria to maximise its fire management opportunities. Fuel reduction burning over the landscape needs to achieve long-term risk minimisation and biodiversity benefits, and that cannot be successfully achieved by three-year planning, which is the current planning that we undertaken within Victoria. Ten-year adapted management programs are required, and these need political and funding support to achieve this. The planning that is required extends past one electoral cycle, and until we get past the idea that we can plan for and manage it in three years I think we will continue to fail.[168]

3.176 VFF also stressed that prescribed burning needs to be 'a long-term objective':

> ...it is no good doing a spate of prescribed burning over the next three years because there is some public pressure to do so and then ease back on it. It has to be an ongoing program.[169]

3.177 VFF's submission recognised the limitations of a hectare-based target, proposing that a risk based approach could achieve the transparency sought via such targets:

> The benefit of a hectare based target is that it is transparent and measurable; however if only token consideration is to be given to the area target an alternative system that is transparent and provides the community with

---

167 Dr Richard Williams, *Committee Hansard*, Canberra, 14 May 2010, p. 33

168 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 39

169 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 95

> detailed information of the fire risk factors within forests must be implemented.
>
> The development of a prescribed burn plan that takes a risk based approach to establish priorities and urgency of reducing fuel loads would assist in providing this transparency. Triggers for burns could be based on risk factors such as the type of vegetation, terrain, fuel load and the proximity to population and private land. The relevant Department with responsibility for managing the particular piece of land should be required to publically report a fire risk rating for discrete areas of crown land.
>
> The lower the level of risk for any particular area, the lower the priority to conduct a prescribed burn. As the risk factors increase, the priority and urgency for a prescribed burn also increases.
>
> This approach would also direct the level of risk that would be acceptable in conducting a prescribed burn. If the level of wildfire risk to private property is low, there would be time to wait for the weather conditions necessary for a prescribed burn at a lower level of risk. As the risk of wildfire to people and property increases a higher level of risk is acceptable when conducting the prescribed burn.
>
> This system also emphasises the wisdom in taking preventative measures before risk becomes too great. If burns are consistently conducted at low risk points, fuel loads are less likely to achieve high risk levels.[170]

3.178 VFF also called for broad input into management of public lands:

> An additional step that could assist would be the establishment of regional fire committees with representative from landholders, Government land managers, Catchment management Authorities and the CFA. This committee would provide recommendations, advice and guidance on the management of crown land in order to manage fire risk.[171]

3.179 The strategies above referred to above from paragraph 3.152, particularly the Canobalas Bush Fire Model, broadly reflect these Victorian perspectives about the need for a more co-ordinated, long-term and considered approach to fuel reduction, tailored for each region on the basis of local characteristics and risk imperatives.

3.180 In their submission to the inquiry the Western Australian Fire and Emergency Services Authority (FESA) commented that:

> The effectiveness of bushfire mitigation would be enhanced if the multiple agency and jurisdictional arrangements were abandoned. The principal or pre-eminent fire agency should be enabled to manage bushfire preparedness, regardless of tenure or ownership.
>
> One central agency must be made responsible through the State statutes to coordinate and approve the regional and strategic fire reduction strategies.

---

170 VFF, *Submission 28*, p. 9

171 VFF, *Submission 28*, p. 9

> The onus for developing the strategies and then implementing the strategies should quite rightly remain the responsibility of the local government and the local land owners/managers or managing authority. Where the local government, local land owners/managers or managing authority did not undertake the work the pre-eminent fire agency must have the statutory authority and resources to undertake that work in a timely manner and where appropriate recover the cost of that work from the local land owners/managers or managing authority.[172]

3.181 To ensure that land managers meet their responsibility to manage fuel loads effectively, a number of organisations recommended that the Commonwealth government be responsible for monitoring the implementation of fuel reduction measures. The Rural Fire Service Association of NSW proposed greater Commonwealth responsibility for ensuring that the states are meeting benchmarks and performance targets.[173] VAFI also called for a national framework to impose greater accountability on the states:

> ...having a national framework that looks at fuel hazards and appropriate levels of fuel reduction and which could actually compare results to plans would be of benefit and improve the transparency and accountability of land management.[174]

3.182 Victorian Lands Alliance recommended that reduction activities be monitored:

> Monitoring the benefits and impacts of fuel reduction burning and inevitable bushfire through research is essential and must be mandated and ongoing.[175]

3.183 They also suggested that targets be established to ensure accountability:

> As accountability has been an ongoing issue for the achievement of fuel reduction burning targets, clearly defined targets must be set, with a minimum target of 385,000 hectares, as recommended by the Victorian parliamentary inquiry in 2008. The government and/or the land manager in Victoria clearly have a reluctance to commit to a target. I think that the community is sending a clear signal that they want to see targets so that there is some accountability.[176]

3.184 Australian Forest Growers queried the accountability of land management agencies under the current structures:

---

172 FESA, *Submission 39*, p. 7

173 Rural Fire Service Association of NSW, *Committee Hansard*, Canberra, 12 March 2010, pp 86-87

174 VAFI, *Committee Hansard*, Melbourne, 25 March 2010, p. 52

175 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 39

176 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 39

> Where you rely on a state government agency to monitor and also to implement fuel reduction, often they get lost in their own bureaucracy. No-one is standing there saying, 'You're not achieving your goals or your performance indicators.'[177]

3.185 They proposed that the Commonwealth should have a stronger monitoring role: 'there needs to be some national organisation that looks at...the effectiveness of fire preparedness in every state'.[178] As referred to earlier as part of the committee's discussion on national co-ordination from paragraph 1.102, Australian Forest Growers recommended that a new auditing body be established to report to federal Parliament on a number of fire preparedness measures, including 'the extent of pre-season fuel reduction'.[179]

3.186 The Bushfire Front Inc stated that auditing is the Commonwealth's most important role:

> ...probably the most important thing is that the Commonwealth can provide a system of auditing and public reporting on actual performance in terms of bushfire management. The situation at the moment is that state agencies around Australia who are responsible for bushfires audit and report on themselves, or else they are not audited and reported upon by people that know anything about it. The Commonwealth could set up a system that says, 'This is an ideal bushfire management system; this is best practice; this is the way the states are performing against it.' It could provide an independent audit and make it public. That has never been done yet, and until it is done people will be able to get away with doing anything.[180]

3.187 Australian Forest Growers explained that their recommendation stemmed from frustration at previous inaction:

> ...this has arisen from an ongoing frustration that out of every inquiry you seem to get a recommendation that we need to be more careful about controlling the build-up of fuel load. Everyone nods sagely and they go back to their departments and fail to meet their own performance criteria. So, if they are not being audited at a state level, then our only other avenue seems to be the federal level. I think you can probably do that without intervening in the states' rights to manage land.[181]

3.188 Mr Nairn reiterated the select committee's call for prescribed burning activities to be published and audited.[182] The recommendation from that committee was as follows:

---

177 Australian Forest Growers, *Committee Hansard*, Melbourne, 25 March 2010, p. 83

178 Australian Forest Growers, *Committee Hansard*, Melbourne, 25 March 2010, p. 86

179 Australian Forest Growers, *Submission 16*, pp 6-7

180 The Bushfire Front Inc, *Committee Hansard*, Perth, 29 April 2010, p. 19

181 Australian Forest Growers, *Committee Hansard*, Melbourne, 25 March 2010, p. 87

182 Mr Gary Nairn, *Committee Hansard*, Canberra, 12 March 2010, p. 3

> The Committee recommends that the Commonwealth seek to ensure that the Council of Australian Governments seek agreement from the states and territories on the optimisation and implementation of prescribed burning targets and programs to a degree that is recognised as adequate for the protection of life, property and the environment. The prescribed burning programs should include strategic evaluation of fuel management at the regional level and the results of annual fuel management in each state should be publicly reported and audited.[183]

Committee view

3.189 Fuel load is the only contributor to fire intensity that land managers are able to control to any degree and prescribed burning is the most effective way to minimise fuel loads at a landscape level. Opponents of prescribed burning have not proposed suitable alternatives for reducing fuel loads and would therefore tolerate continually increasing fuel in the landscape, condemning fire prone communities and the environment to ever more serious fires.

3.190 The committee accepts that there is disagreement and uncertainty about the effect fuel reduction has on fire behaviour in extreme hot and windy weather. As the CSIRO noted, there are unanswered questions as to the extent of prescribed burning that would be required to modify fire behaviour on extreme fire days, and obvious problems with conducting fire behaviour experiments under such conditions. However, the fact that fuel loads are known to affect fire behaviour under more benign conditions is in the committee's opinion a good enough reason to recognise the value of prescribed burning programs. Reduced fuel loads can aid fire suppression efforts when fires start under moderate conditions, allowing fire fighters to gain control of them before conditions become unfavourable. Similarly, bushfires running uncontrolled during extreme conditions can be more readily brought under control when the weather moderates if fuel reduction measures have been undertaken.

3.191 There are also legitimate claims about the diminishing returns from prescribed burning over time, recognising that burns are unable to be conducted too frequently because of ecological and resourcing reasons. Even so, a long term prescribed burning program using a mosaic approach to fuel reduction will ensure that neighbouring parts of the landscape will have been burned more recently than others, assisting fire suppression efforts when fires reach those recently burned areas.

3.192 A precautionary approach must also be taken when considering the effectiveness of prescribed burning for protecting assets. Without discounting the importance of hazard reduction measures at the interface between built assets and the bush, fuel reduction measures taken to reduce fire intensity in the landscape are an important element in mitigating bushfire risk. Houses are less likely to be ignited from

---

183 House of Representatives Select Committee on the Recent Australian Bushfires, *A Nation Charred: Inquiry into the Recent Australian Bushfires*, October 2003, p. 89

random ember attack if the intensity of the fire catapulting those embers ahead of the fire front has been reduced.

3.193 The committee is firmly of the view that it is not an option to neglect prescribed burning in the landscape because its effectiveness cannot be quantified. To do so would be to allow fuel levels to reach untenable levels and make suppressing bushfires in even moderate conditions much more difficult than it should be.

3.194 The committee does not underestimate the considerable difficulties confronted by land managers trying to implement an effective prescribed burning strategy. Community resistance to prescribed burning is often unhelpful, engendering a highly risk-averse approach from land managers that counters effective strategies. Land managers in areas with certain vegetation types also have to deal with constraints imposed by short windows of opportunity in which to conduct burns, as well as having their efforts diminished by neighbouring land management agencies that do not see fuel reduction as a priority, or who do not have the resources for the task.

3.195 However, the committee is of the firm view that all fire prone communities in Australia should be part of a well considered, risk-based and co-ordinated 'tenure blind' prescribed burning program, devised on a region-by-region basis with the co-operation of all responsible land managers. Risk planning strategies recognise that different regions and different vegetation types require a tailored approach, taking into account bushfire risks to communities and the pattern and frequency of burning that can mitigate these risks, bearing in mind constraints imposed by needing suitable conditions to burn and the need to manage ecological values appropriately.

3.196 The committee realises that there may be biodiversity costs where prescribed burns of certain vegetation types are conducted on a frequent basis. These factors should certainly be taken into account when burn strategies are being developed, but need to be balanced against the ecological consequences of high intensity fires that are more likely to occur if hazard reduction burns are too infrequent or not carried out at all. There is nothing worse for protecting biodiversity than an intense bushfire tearing through the landscape. Nothing survives. Prescribed burning is therefore an important part of maintaining biodiversity in fire prone areas.

3.197 The Commonwealth's limited land management responsibilities mean that its role in developing and implementing fuel reduction programs is also limited, which is properly the role of the relevant land manager and/or fire agencies. Consequently, practical solutions on fuel reduction able to be implemented by the Commonwealth are concerned with providing technical and scientific expertise to assist with risk planning, and taking a monitoring role to ensure that the states and territories' public land management agencies are developing and implementing effective prescribed burning programs.

3.198 The committee agrees with the evidence provided during the inquiry that the Commonwealth should be more involved in ensuring that managers of public land are meeting their obligations to protect communities for bushfire risks, by monitoring

progress on the implementation of effective fuel reduction programs in high bushfire risk areas. At present, land management agencies are not adequately accountable for their bushfire preparedness, particularly in respect of fuel reduction. The committee therefore recommends that the Commonwealth seek agreement from the states and territories that would enable it to evaluate the adequacy of fuel reduction programs being applied by public land management agencies in high bushfire risk areas, and audit their implementation against the program's stated objectives. In the committee's opinion, these programs should be based on the region-by-region, co-ordinated risk planning model described above if they are to be considered effective.

Recommendation 5

3.199 The Commonwealth seek agreement from the states and territories that would enable it to evaluate the adequacy of fuel reduction programs applied by public land management agencies in high bushfire risk areas, and audit their implementation against the program's stated objectives.

3.200 The committee further recommends that the Commonwealth publish all fuel reduction plans and related audit findings on a national database, so that communities living in bushfire prone areas are properly informed about the adequacy of bushfire mitigation strategies in their surrounding landscape.

Recommendation 6

3.201 The Commonwealth publish all fuel reduction plans and related audit findings on a national database.

3.202 Finally, the committee notes that while grazing would not provide a comprehensive solution to fuel hazard reduction deficiencies, where appropriate it should be considered by public land management agencies as part of each region's fuel reduction strategy. The committee also supports further research in alpine country environments to establish the relative long term benefits to those areas of grazing, prescribed burning, or management without fuel reduction.

Additional risk management approaches

3.203 Although mitigating bushfire risk through fuel reduction is contentious, it is well recognised that additional bushfire risk management strategies are needed to protect built assets and those who inhabit them. During the inquiry, consideration of these strategies focussed on the measures that enable communities to be more resistant to the effects of catastrophic bushfires.

3.204 Australasian Fire and Emergency Service Authorities Council (AFAC) commented in their submission that communities need to accept shared responsibility:

> AFAC believes managing risk and reducing loss is a shared responsibility between government, householders, property owners and land managers.
>
> Fire agencies and some land management agencies have statutory responsibilities for managing bushfires. However, the steps that

> householders and business owners take to prepare for bushfires are crucial to the protection of their life and property. Communities need to be assisted in building their resilience to be able to better cope with bushfires.[184]

3.205 The following issues relating to community resilience were explored:

- Improving communities' understanding of their bushfire risk.
- The appropriate imposition of planning controls to protect communities from bushfires.
- Insurance arrangements that provide appropriate risk management incentives to households.

Improved risk information

3.206 One important strategy for protecting lives and built assets is to equip communities to better understand the risks bushfires present in their area. However, evidence to the committee suggested that general awareness and understanding about fire in the community was declining. Mr Phil Cheney commented on the general lack of experience with fire:

> ...fire has passed out of the consciousness of most people ... Very few people light a fire. They are often not allowed to light a fire just to burn off rubbish in their backyard, for which there are all sorts of reasons put up, most of them spurious in my view.[185]

3.207 Emergency Management Australia (EMA) also noted that changing demography has meant a poorer understanding of fire risks by those living at the urban-rural interface.[186]

3.208 AFAC commented that the task of educating people moving into fire prone areas is complex:

> We have to get past the idea that a brochure is going to change people's behaviour and that the complexity of it is a lot more than that when people have so many other things going on in their lives. A long-term and quite highly skilled approach is needed.[187]

3.209 Mr Justin Leonard argued that community understanding of the interaction between landscape risk and design risk is critical:

> The ... most important component is community education where the occupant of that structure completely understands the nature of his built

184 AFAC, *Submission 48*, p. 9

185 Mr Phil Cheney, *Committee Hansard*, Canberra, 12 March 2010, p. 15

186 EMA, *Committee Hansard*, Canberra, 12 March 2010, p. 28

187 AFAC, *Committee Hansard*, Melbourne, 25 March 2010, p. 13

> house or his design and the risk of his landscape and has the relevant tools to be able to self-assess and come up with a specific understanding of his risk in his landscape.[188]

3.210 According to Mr Leonard, the extent of this understanding would underpin a householder's 'stay or go' decision:

> ...the occupant, in order to make an effective decision about whether they should be leaving the night before or early in the morning of an impending high fire danger day, needs to understand how vulnerable they are to a fire that would arrive under those conditions. They need to understand the fundamental assumptions of fire weather intensity that were inherent in the decisions that led to their house design and how it was built. If they do not actually have that knowledge, they more or less fall into the category where they must leave well and truly ahead of any impending fire event. So a vulnerability assessment and a detailed understanding of your own circumstances are an inherent part of, or go hand-in-hand with, that policy doctrine.[189]

3.211 CSIRO's submission said that better information about risk could assist communities to make informed decisions:

> There is potential for an improved house loss risk index to be developed and used to better inform communities of the potential for a fire under given fire weather conditions to cause life and property loss. Accompanied by an integrated education policy this tool could assist individuals and communities to understand:
>
> - the potential worst case weather conditions in their region,
> - the capacity to prepare and adapt to their regionally specific weather conditions, and
> - the significance of forecast weather conditions in relation to the level to which they are prepared, so that an informed decision can be made to stay and defend or leave well before the fire arrives.[190]

3.212 Professor Neal Enright advocated a more realistic assessment of risk of asset destruction and threat to life:

> If [high fire danger] conditions are going to become more frequent then we have to look at how people assess risk and respond to risk. Some of the local councils are probably partly at fault here because they want ratepayers and they have allowed building in locations that are perhaps not particularly fire safe and do not meet building codes that are suitable for the circumstances. We need to ask what level of individual responsibility people are prepared to accept, what levels of community responsibility

188 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, p. 74

189 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, p. 80

190 CSIRO, *Submission 15*, p. 17

> local councils are going to front up and accept and what demands they are going to make on people when they move into those areas.[191]

3.213 The committee notes that the Western Australian Fire and Emergency Services Authority (FESA) has begun analysis in this area to assist fire agencies assess bushfire risks:

> In 2003 FESA developed the 'Rural Urban Bush Fire Threat Analysis (RUBTA)'. The purpose of this analysis tool is to provide a system that fire managers can use to quantify decisions associated with bush fire hazards, risks and values to determine the threat that a bush fire would pose.
>
> It is expected that the RUBTA tool will be applicable in situations where bush land and communities interface. This may include several streets in the metropolitan area, or a brigade zone, or local government authority area. The expectation is that the hazards, risks and values analysed and the resultant threat determined by use of this analysis tool can be applied with equal success in all areas. This analysis tool is not designed to be applied in isolated areas that contain little residential or commercial development.
>
> As most bush fires are caused by human activity, either by deliberate actions or carelessness, risk can be equated with human activity and available fuels. For the development of this analysis (RUBTA), a zone is any area that is being assessed. It can be a local government area, brigade area, or a subdivision.[192]

3.214 Concerns were also raised about confusion in the community about fire because of inconsistent or inaccurate use of terminology. The Bushfire Front Inc stated that:

> A major issue in community education is terminology. It is common in Australia for bushfire terms to be used incorrectly ("back burn" used to mean "prescribed burn") or vaguely ("frequent fire"). To help overcome this problem The Bushfire Front has developed a standard glossary... There is an opportunity to take a leadership role in this, and to promote the development and provide custodianship for an Australia-wide bushfire terminology, thus ensuring consistent and accurate use of critical words and terms.[193]

3.215 The Bushfire Front Inc recommended a national bushfire terminology be adopted Australia-wide.[194]

---

191 Professor Neal Enright, *Committee Hansard*, Perth, 29 April 2010, p. 85

192 FESA, *Submission 39*, p. 10

193 The Bushfire Front Inc, *Submission 48*, p. 4

194 The Bushfire Front Inc, *Submission 48*, p. 5

Planning regulations

3.216 In conjunction with households taking their own measures in response to bushfire, discussion also focussed on the imposition of planning regulations that can mitigate the effects of uncontrolled bushfires on lives and assets in high-risk areas. This includes hazard reduction at the urban interface and more fire resistant building design. In particular, there were concerns about the adequacy and enforcement of existing planning regulations and the emerging demand for bushfire bunkers.

3.217 The 2005 COAG report stated that:

> ...land use planning that takes into account natural hazard risks is the single most important mitigation measure for preventing future disaster losses (including from bushfires) in areas of new development. Planning and development controls must be effective, to ensure that inappropriate developments do not occur.[195]

3.218 The Queensland Department of Community Safety noted recent development trends and environmental constraints that had increased bushfire risk around dwellings:

> In the past, urban development was often surrounded by a cleared rural buffer. More recently, urban development is moving into rural areas and natural vegetation. Additionally, there has been a tendency to subdivide large bush blocks on the urban fringe.
>
> Environmental controls generally prevent the clearing of native vegetation. Where rural land is subdivided, revegetation with native species often creates the same bushland environment without adequate means to manage the bushfire risk. Future disasters in these areas are inevitable unless adequate precautions are taken.[196]

3.219 Mr Justin Leonard explained that trees near houses are not necessarily a fire risk in themselves, stating that 'trees on their own do not burn'. He indicated that the fuel they create needs to be managed:

> They are certainly a source of fine fuel debris and may allow accumulation of that under them, but that fuel can be managed and it can co-exist with the tree, so to speak. I certainly would not advocate having trees so close that when their branches drop in a bushfire they knock a hole in your roof, because that is not particularly effective. But in fact trees between you and a continuous unmanaged forest environment are actually quite useful in attenuating radiant heat, attenuating the wind loads and also filtering out ember attack between you and the fire.[197]

---

195 Ellis, S. et al, *COAG National Inquiry on Bushfire Mitigation and Management*, March 2004, p. xxiv

196 Queensland Department of Community Safety, *Submission 12*, p. 8

197 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, p. 74

3.220 The Planning Institute of Australia told the committee that reducing hazards at the interface reduced demands on building design:

> If we have sufficient cleared areas around buildings, the demands on the structures in terms of the techno fix are much lower. That is why we can either manage the fuel loads or increase the resistance. It is a matter of striking an appropriate balance between those two things.
>
> ...
>
> I think we do have to accept that if people want the trade-off of being closer to vegetation then they have to accept that part of that trade-off is substantially increased building costs as they move up through the AS requirements. At the end of the day, the issue is whether it is appropriate for us to mandate and legislate these things or to provide some personal discretion to people.[198]

3.221 The Institute added that the implementation of that balance could be improved with flexible arrangements:

> ...what we are trying to do is balance competing issues within the overall framework of what is affordable—because everything costs money. I think we can provide building codes and planning regimes that provide first cut at those balances in a much better and much more affordable way than we have done in the past. We know enough to do this; we are just not integrating it all.
>
> Once we do that, if somebody wants to go outside one of those solutions then they have to put their case. That is when they call in the fire expert consultant and say: 'We don't want to fit that box. We want to do this. We think we can do that safely because of X, Y and Z. We found this alternative solution that meets the objectives of the standard and the objectives of the BCA, but it's a different solution.' ...What that allows is the ability in every circumstance for an optimised solution and standardised solutions that have been worked through to provide a reasonable balance of cost versus effectiveness in the context of the risk we are trying to manage.[199]

3.222 Mr Justin Leonard told the committee that because most house losses occurred on catastrophic fire risk days where fire suppression is difficult, asset design is critical:

> ...if the issue of urban asset vulnerability and urban design is not solved then we still have a fundamental problem where fires, no matter what broadacre fuel management regime is implemented, will turn up at urban assets, and we will lose houses and we will lose lives. That is of course exacerbated by the potential climate predictions that we will see a greater

198 Planning Institute of Australia, *Committee Hansard*, Melbourne, 25 March 2010, p. 36

199 Planning Institute of Australia, *Committee Hansard*, Melbourne, 25 March 2010, p. 36

> prevalence of more days of extreme fire danger and, potentially, days when the fire danger is more extreme than we have seen historically.[200]

3.223 Requirements for the construction of buildings in bushfire prone areas are specified by Standards Australia in AS3959-2009, the purpose of which is to reduce the risk of buildings igniting while a bushfire passes through. Construction requirements vary depending on the bushfire risk the property faces, determined following a site assessment.[201] Formal implementation of AS 3959-2009 occurs through its adoption into the Building Code of Australia (BCA).

3.224 However, the Australian Building Codes Board notes that while AS 3959 provides for construction standards offering bushfire resistance in accordance with the assessed level of risk, it does not fire-proof houses built to the standard:

> ...compliance with AS 3959 will not guarantee that a building will survive a bushfire event on every occasion due to the unpredictable nature and behaviour of fire and the difficulties associated with extreme weather conditions. Construction standards are an important part of what should be a holistic approach to risk mitigation that includes planning controls, ongoing building and vegetation maintenance, occupant ability and preparedness, education campaigns and emergency response.[202]

3.225 Some evidence advocated preventing future development in fire-prone areas altogether. For example, Dr Bob Such MP stated that potential housing sites in fire-prone areas should be quarantined under planning regulations.[203] Conservation Council of WA argued that more stringent restrictions are needed:

> ...we are in a situation where there are more and more assets, homes, being built in high fire-risk areas—not just in forest but in coastal heath. In Western Australia the local governments have the ability to identify fire zones, under legislation, but they do not do it. We are getting more and more subdivisions in high fire-risk areas.[204]

3.226 In evidence to the committee the Planning Institute of Australia warned that lessons about bushfire probability were not being learned:

> We are still recreating the problems—the same thing in the same place. I cite the case of Warrimoo in the Blue Mountains of New South Wales, where some dwellings have burnt five times since 1957. When will we get the point? Some areas—and I think we must accept this—may never be able to be made safe from these catastrophic events. In Australia we have a

---

200 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, p. 73

201 Victorian Bushfires Royal Commission, *Interim Report 2*, 'Priorities for building in bushfire prone areas', November 2009, p. 10

202 ABCB website, 'Bushfires, Buildings and the BCA', accessed on 28 May 2010 at http://www.abcb.com.au/index.cfm?objectid=8BD32A94-B393-11DE-B2630050568C0CD7

203 Dr Bob Such MP, *Submission 10*, p. 3

204 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, p. 29

> history of shifting communities that get flooded—Gunnedah, Nowra, Maitland—yet we will not even go there in terms of bushfire vulnerable communities.[205]

3.227 The Institute expressed concerns about the haste to re-build in areas affected by bushfires:

> At present, there is an increasing move by governments to exempt a range of developments from planning approvals, such as in the context of post-bushfire reconstruction. The effect of this approach is that the role of land use planning in providing input into the re-building process would be removed, generally resulting in little or no regard for critical and considerations including:
>
> - the siting of a dwelling (of vital importance when one considers the impact of topography on fire behaviour);
> - access for emergency vehicles; vegetation management; the need to critique existing subdivision layouts (including the need to plan road networks to better facilitate efficient evacuation of such communities);
> - building styles and design; and
> - water supply.[206]
>
> Naturally, many people who have lost their homes through bushfire want to re-build quickly. The speed of re-building, however, can hamper efforts for a strategic analysis, giving due consideration to 'lessons learnt' and the implementation of risk management practices.

3.228 They also suggested that the Commonwealth provide assistance to owners of older dwellings in high risk areas to retrofit their homes to the existing construction standard.[207]

3.229 The Institute of Architects of Australia observed that restrictions on the rights of property owners to build as they wish are inconsistently applied:

> The community generally accepts the value of these regulations and the need for compliance to prevent the possibility of death or injury, even where the statistical risk to the safety of occupants is low, or very low.
>
> It seems inconsistent with the general policy of safety based regulation ... that the risk to occupants of bushfire, where that risk is enhanced by an extraordinarily dangerous location, could fall outside the scope of such regulation, given that setting standards of construction cannot realistically eliminate this risk.[208]

---

205 Planning Institute of Australia, *Committee Hansard*, Melbourne, 25 March 2010, p. 32

206 Planning Institute of Australia, *Submission 19*, p. 4

207 Planning Institute of Australia, *Submission 19*, p. 5

208 Institute of Architects of Australia, *Submission 30*, p. 6

3.230 The Institute of Architects of Australia indicated that a more stringent approach be taken if supported by the available evidence:

> While the Institute strongly advocates that any such decision to regulate the right to build should only be made on sound research evidence, if the Senate Select Committee finds there is such a case for more extensive regulation to be made on the basis of research, then the Institute considers it a necessary and appropriate part of protecting our community.[209]

3.231 The Planning Institute of Australia recommended that an assessment of high risk communities be incorporated into state and regional planning regulations and that vulnerable developments such as schools and aged care facilities be restricted from being built in areas where evacuation would be difficult.[210] They advocated a national position to reflect this:

> The submission also noted that consideration should be given to developing a national planning policy position regarding the location of new "vulnerable" land uses such as hospitals, aged care facilities, tourist facilities and schools, among others. That is, the establishment of these types of facilities should not be permitted within high or extreme bushfire prone areas, as evacuation of such facilities during a bushfire could prove difficult and dangerous.[211]

3.232 Mr Justin Leonard also commented that special measures are required in some instances:

> There is definitely a strong case for special consideration and a special strategy for retrofitting or building new facilities for aged care and infirm care hospitals that are defined as being exposed to bushfire risk. Because of the inherent inability of the occupants, and the fact that sometimes you get two days warning of an impending fire attack and sometimes you get two minutes warning, you more or less have to consider that the shelter strategy will have to be an important consideration in future events. So they have to have an effective, robust strategy that combines building detailed design, land management and emergency reaction.[212]

3.233 The Planning Institute of Australia advocated a national framework integrating existing bushfire mitigation knowledge into the planning and development system. This would involve seeking the agreement of the states to incorporate into their planning systems newly developed national risk management strategies for natural hazards, including bushfires.[213] The Institute was critical of the application of existing planning measures:

---

209 Institute of Architects of Australia, *Submission 30,* p. 6

210 Planning Institute of Australia, *Submission 19,* p. 3

211 Planning Institute of Australia, *Submission 19,* pp 2-3

212 Mr Justin Leonard, *Committee Hansard,* Melbourne, 25 March 2010, p. 81

213 Planning Institute of Australia, *Submission 19,* p. 2

> While planning tools exist to assess risks and mitigate against bushfire hazards, the effectiveness of such measures is limited by the enforcement, management and communication between various planning regimes, fire authorities and the community that will determine the effectiveness of these tools. From a planning perspective there is a perceivable lack of interaction, awareness, enforcement and management between various planning regimes which is threatening the efficient application of all existing planning tools regarding bushfires.
>
> ...
>
> a considered approach to risk mitigation and management forms the basis of approvals permitting development of land in high-risk areas in the first instance. PIA believes that better planning for risk identification, risk management and mitigation of bushfires requires actions at all levels of government. Specifically, the key actions relate to governance; development assessment, approval and compliance processes for subdivision, site planning and building; community education and engagement and professional education and training for those involved in planning processes across a variety of agencies.[214]

3.234 Enforcement of existing regulations was also the subject of concern. Conservation Council of WA suggested to the committee that current national standards are not being adequately applied at the local level:

> ...there are national building codes that provide for different building standards for areas that are declared as fire prone areas. Those building codes are available for implementation by local councils and by authorities, but that relies on the identification of fire prone areas. In Western Australia, I think there are only two shires that have declared fire prone areas for the application of those building codes. As a result of that, you get ... [advertisements for fire prone dwellings] with no indication to the potential purchaser that it is a dwelling in a fire prone area. There are some disincentives to the actual identification and listing of fire prone areas for the application of those building codes. It may be that it has an effect on property prices and it may be that it becomes more expensive to develop land in those areas for those reasons, but that absolutely needs to be looked at ... as a first priority.[215]

3.235 FESA provided a similar view:

> The planning and building codes in Western Australia are deficient in that the declaration of bush fire prone areas is left to the local government authority to declare areas bush fire prone. The declaration of bush fire prone areas generally occur when the local government updates is town planning or regional planning scheme. This occurs only every five or 10 years depending on the scheme.

---

214 Planning Institute of Australia, *Submission 19*, p. 6

215 Conservation Council of WA, *Committee Hansard*, Perth, 29 April 2010, pp 29-30

> In Western Australia most local governments have not declared their municipal areas or portions of the municipal areas bush fire prone. By not declaring the municipal areas bush fire prone proves problematic for building surveyors who wish to impose the "Australian Standard 3959 - Construction in bushfire prone areas" which would increase the survivability of the building if attacked by a bush fire. There are a number of local governments who have declared portions of their municipal areas bush fire prone and they should be commended. When a municipal area declares a bush fire prone area the Building Code of Australia applies, as does "Australian Standard 3959 - Construction in bushfire prone areas". It is the absence of the declaration of the bush fire prone areas that is holding back the protection of the community. By unilaterally declaring their municipal areas bush fire prone may act as a deterrent for a local government as it may lead to increase building costs, or a reduction of lots in a zone leading a reduction in rates.[216]

3.236 The Planning Institute of Australia raised the problem of local enforcement beyond initial construction:

> At the local level, issues of enforcement and compliance can impact upon land use and management in bushfire-prone regions. This can include conditions on permits not being followed up or enforced by the relevant authority. For example, screens that assist in protecting against ember attack may be removed by some residents following receipt of their occupancy permit. There is a need to ensure compliance over the life of the development in order to maintain the level of protection anticipated by the bushfire development requirements. This, however, may not always be practicable due to individual resourcing limitations of the relevant authority.[217]

3.237 The Institute stated that even best practice planning regulations have limited value if they are unable to be enforced:

> We ... recognise the perennial problem of follow-up on planning requirements. Put a requirement on a permit—fine—put 30 requirements on a permit, but who is going to check that the clearing is done, the buildings are maintained, the preventative measures are in place and that the fire planning is being done. Local government does not have the resources to do this, and this is a serious issue that we need to address: the follow-up.[218]

3.238 The committee also considered the emerging and controversial issue of private fire refuges used as a shelter from bushfire attack, or 'bushfire bunkers'. The loss of life that occurred on Black Saturday has spurred debate about the safety implications of bushfire bunkers and how they may be appropriately regulated, as

---

216 FESA, *Submission 39*, p. 14

217 Planning Institute of Australia, *Submission 19*, pp 3-4

218 Planning Institute of Australia, *Committee Hansard*, Melbourne, 25 March 2010, p. 32

there are currently no technical standards for private bushfire bunkers in the Building Code of Australia.

3.239 The Institute of Architects of Australia warned of a potential surge in demand for bunkers, without suitable understanding of their safety:

> It is imperative that the community understand that within Australia there are no prescribed standards or regulations for the construction of fire refuges. To the Institute's knowledge, there is also no known research based evidence within Australia supporting the safe design of fire refuges.
>
> We submit that this is a critical issue as it is apparent community concern is driving this issue with the potential for further disaster where people may make futile purchases or have a false sense of safety which could ultimately lead to future loss of life. The architecture profession has experienced an increase in inquiries about fire refuges for current and future projects and anecdotal evidence suggests that some businesses are already advertising 'fire bunkers'.[219]

3.240 They recommended that further 'research, testing and modelling done to determine both their effectiveness and the safety features they need to provide', which would inform an Australian standard on fire refuges.[220] The Planning Institute of Australia suggested in evidence that bunkers are most effective when incorporated within dwellings and able to be accessed from within and outside.[221]

3.241 The Planning Institute of Australia recommended that a national standard for bunkers be developed, including consideration of location, fire ratings for walls and doors, life supporting amenities, and maintenance of surrounding vegetation.[222] AFAC also supported a national standard for bunkers, with the caveat that:

> ...bunkers are not and should not be relied upon as a substitute for adequate preparation of an existing home and appropriate mitigation measures at the planning and building stage.[223]

3.242 In November 2009 the Victorian Bushfires Royal Commission released an interim report which made the following recommendation:

> The Australian Building Codes Board continue to progress the development of a standard for bushfire bunkers, that addresses matters including, but not limited to, fire resistance, structural strength, resistance to high winds, maintenance of tenable conditions, minimum functional size, maximum period of occupancy, visual communication with outside, siting, access and

---

219 Institute of Architects of Australia, *Submission 30,* p. 7

220 Institute of Architects of Australia, *Submission 30,* p. 7

221 Planning Institute of Australia, *Committee Hansard*, Melbourne, 25 March 2010, p. 35

222 Institute of Architects of Australia, *Submission 30,* pp 5-6

223 AFAC, *Submission 49*, p. 8

> egress and signage, and make it publicly available no later than 30 April 2010.[224]

3.243 Since then the Australian Building Codes Board (ABCB) has developed 'a national performance-based standard for the design and construction of private bushfire shelters'. According to the ACBC:

> The Standard has been developed as a performance-based document. Release of the document in early 2010 will enable State and Territory building regulators to use it as a basis for the regulation of private bushfire shelters prior to consideration for inclusion by the ABCB in BCA2011. The document will enable building designers and approval authorities to make informed professional judgements regarding the most appropriate means of mitigating life safety risk by the use of private shelters during a bushfire event.[225]

3.244 The ABCB have also cautioned against an over-reliance on bunkers as 'a stand-alone solution to mitigating bushfire risk'.[226]

3.245 Finally, evidence from Victorian organisations referred to potential regulatory conflicts stemming from state vegetation laws. The Victorian lands Alliance complained that local vegetation regulations regularly inhibit the protection of assets:

> Excessive regulation that restricts native vegetation removal and management overlays for activities, such as roadside burning by CFA brigades, are as effective as a total ban by preventing the practical implementation of these activities. This is prohibition by default.
>
> It is not uncommon for local CFA brigades, staffed by volunteers, filling out forms on multiple occasions, sometimes weeks in advance, seeking municipal permission for the same burn area when the weather on the nominated burn day turns unfavourable for conducting a burn. Some smaller brigades have ceased conducting roadside burns because of the paperwork and road safety compliance measures the brigade must undertake for each burn. Obviously, this is counter-productive for fire prevention in local communities.
>
> ...
>
> It is not uncommon for restrictive local council vegetation clearing by-laws, administered by over- zealous council officers to result in:
>
> - Compliance with the regulation, which results in minimal fire protection for the property in question and /or adjoining properties.

---

224 Victorian Bushfires Royal Commission, *Interim Report 2*, 'Priorities for building in bushfire prone areas', November 2009, p. 9

225 ACBC, *Performance Standard for Private Bushfire Shelters*, Part 1, 2010, p. 1

226 ACBC, *Performance Standard for Private Bushfire Shelters*, Part 1, 2010, p. 1

- No clearing of native vegetation by landowners because of the complexity and perceived low fire protection value of such regulations, which increases the risk for all in that community.
- Refusal by the landowner to abide by the regulation which can result in prosecution. Numerous Victorian landowners have suffered this fate in trying to protect their properties resulting in fines of up to $50,000 in individual cases.
- Apathy in the community from conflicting messages from [authorities], for example CFA advice to have a wide clearance around buildings from native vegetation, whereas some local councils severely restrict the amount of vegetation [allowed to be] cleared.[227]

3.246 VFF also complained that native vegetation regulations in Victoria are too cumbersome to enable property owners to take measures to reduce the risk of bushfire destroying their assets.[228]

Insurance arrangements

3.247 Insurance is an integral part of bushfire risk management, not because it protects assets from being destroyed by fire, but because it has an important effect on the risks people are prepared to take to defend their properties. By providing property owners with the knowledge that their assets will be replaced in the event they are destroyed in a bushfire, adequate insurance cover encourages people to take sensible choices about self-protection in the critical moments of a bushfire disaster.

3.248 The Queensland Department of Community Safety indicated that insurance is a personal choice for consumers and made the following suggestions for improving insurance arrangements:

> In the aftermath of natural disasters there has been much debate about whether insurance should be compulsory. Putting aside the financial ramifications for insurance companies, it is difficult to imagine any government pursuing a compulsory insurance scheme as bushfires are only one of the many natural disasters potentially impacting on communities. For many individuals, insuring their private home and other possessions is a personal choice and decisions about insurance cover are made based on a perceived level of risk and available and affordable insurance policies.
>
> There is scope to work with the Insurance Council of Australia and industry to provide consumers with more flexible insurance options that may lead to a wider public acceptance, including:
>
> - working with the insurers to explore broader cover under their policies and identify and provide consumers with access to more reliable tools for calculating rebuilding costs;

227 Victorian Lands Alliance, *Submission 34*, p. 16

228 VFF, *Submission 28*, pp 5-7

> - facilitating better communication between insurers and their clients to improve understanding of insurance coverage need; and
>
> - continued promotion of appropriate community education messages about underinsurance and non insurance.[229]

3.249 FESA suggested that insurance companies provide incentives for householders to prepare for bushfires:

> Incentive schemes for increased property preparedness similar to those related to security measures are an aspect that the Insurance industry should consider. It would be another way of assisting fire agencies to encourage appropriate community response to bushfire preparedness.[230]

3.250 Mr Justin Leonard suggested that the insurance industry, like the community generally, lacks the 'tool kit' to assess appropriate premium variations that reflect the relative risks associated with different mitigation measures taken by householders.[231] He suggested an alternative incentive mechanism, based on mandatory disclosure of a house's vulnerability when it is being sold:

> ...something like a mandatory disclosure of the level of risk that an individual has or a vulnerability assessment of them is a potential process that someone could explore. For example, legislation is coming in where you have to compulsorily declare what the energy rating of your house will be. If you do not have an assessment that says my house is a three-star or a six-star house then it is basically declared as a zero star. Whenever you sell that house, you must declare its rating. The market then becomes highly perceptive as to 'I'm going to buy a three-star minimum house when I go and purchase,' and so all of the zero star and unassessed houses lose perceived value in the market. You could certainly explore similar ways of encouraging a large uptake of a formal vulnerability assessment method so that the community starts to become quite focused on that as being a very important part of dealing with the inevitable nature of the environment they are living in.[232]

3.251 Most evidence to the committee regarding fire insurance concerned those jurisdictions that fund emergency services in large part through levies on home and/or business insurance premiums. Presently, Victoria and NSW impose a fire levy on home and business insurance premiums and the Tasmanian government applies a levy on business insurance premiums.[233]

---

229 Queensland Department of Community Safety, *Submission 12*, pp 15-16

230 FESA, *Submission 39*, p. 26

231 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, pp 76-77

232 Mr Justin Leonard, *Committee Hansard*, Melbourne, 25 March 2010, p. 77

233 Insurance Council of Australia website, accessed on 15 June at http://www.insurancecouncil.com.au/Default.aspx?tabid=1291

3.252 Evidence to the committee criticised these arrangements for creating a disincentive to insure. The NSW Rural Fire Service Association said that:

> ...taxation relief should be provided to those who choose to insure their properties. This would not only ease the burden on policy holders but will serve as an incentive to insure.
>
> Furthermore it would result in savings for the government which has traditionally in times of natural disasters supported appeals etc directed at assisting the recovery process and in fact "bailing out" the uninsured.[234]

3.253 For example, Victorian Lands Alliance stated:

> I think that all members of the community need to equitably take responsibility for insuring. With the current methods of funding, which I am sure you are well aware, the fire services levy funds a lot of the CFA activities, and that is borne by those who choose to insure. I think that if there were price signals that encouraged people to take more responsibility then that would be better than what we have.[235]

3.254 VFF were very critical of the fire services levy:

> It is totally inequitable. It actually acts as a disincentive to people to insure. It is a totally inappropriate way to fund fire services. It means that people who are paying the fire services levy are paying for those who do not, and that is a disincentive for them to insure.[236]

3.255 VFF told the committee that the funding arrangements are in need of reform:

> The Victorian Farmers Federation has long advocated reform of the funding arrangements for Victoria's fire services, in particular, the abolition of the fire services levy on fire and property insurance premiums.
>
> Victorian farmers support reforming the fire services levy because of the clear inequities of the system where the Country Fire Authority provides a protective and emergency response service for the whole community but is being paid for only by those who insure. The levy makes it more expensive for farming businesses to manage risk by raising the cost of insurance and provides an incentive for people to under-insure (or not insure at all).
>
> In addition to paying for the service through insurance, farmers experience the inequity of the current system when they serve as Country Fire Authority volunteers, donating their time and resources for the benefit of the community, including those community members who do contribute and those who do not.
>
> ...

---

234 NSW Rural Fire Service Association, *Submission 36*, pp 1-2

235 Victorian Lands Alliance, *Committee Hansard*, Melbourne, 25 March 2010, p. 43

236 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 94

> The most obvious way to increase the affordability of insurance coverage is to remove the fire services levy from insurance policies and fund fire services through a broader based and more equitable system that all who benefit from the provision of fire brigades contribute.[237]

3.256 VFF suggested Victoria adopt a levy model of the sort used in WA:

> Our preferred model would be something akin to the Western Australian model where it would be charged on a capital improved value—a site value or a capital improved value minus the site—basically ensuring that the built asset applied to all landholders, and collected through a central state body.[238]

3.257 Dr Bob Such MP submitted:

> Change the law regarding levies on insurance premiums so that all residents and property owners pay an Emergency Services Levy, as per South Australia, so that all citizens contribute to the adequate funding of emergency services, including fire fighting, not just those who insure![239]

3.258 The select committee chaired by Mr Gary Nairn also considered this issue, stating that 'taxing on premiums is an impediment to its affordability. That committee made the following recommendation:

> The Committee strongly recommends that the New South Wales, Victorian and Tasmanian Governments abolish the Fire Levy tax they impose on home and business insurance premiums.[240]

Committee view

3.259 The committee recognises that improved fuel reduction alone will not protect communities from the devastating effect of bushfires. People living in areas of fire risk need to fully appreciate the nature of the risk they face and the actions available to them to mitigate that risk.

3.260 The committee agrees with CSIRO that a useful starting point for households would be a better understanding of their own risk via a house loss risk index. On the basis of this knowledge, individual households would be better motivated to implement measures to increase the resistance of their home to ignition and make adequate preparations for a catastrophic fire passing through.

3.261 The committee is of the view that local governments in fire prone regions are best placed to provide this information to households as part of their regular

---

237 VFF, *Submission 28*, p. 14

238 VFF, *Committee Hansard*, Melbourne, 25 March 2010, p. 101

239 Dr Bob Such MP, *Submission 10*, p. 2

240 House of Representatives Select Committee on the Recent Australian Bushfires, *A Nation Charred: Inquiry into the Recent Australian Bushfires*, October 2003, p. 258

communication with their communities. Such an initiative would require Commonwealth agencies such as the CSIRO and the Bureau of Meteorology, in conjunction with relevant state fire agencies and local, state and territory government planning authorities, to assist with the development of fire risk index. Starting with Australia's highest risk bushfire regions, the committee recommends that the Commonwealth consult with local, state and territory government planning authorities on the development and dissemination of a house loss risk index.

Recommendation 7

3.262 The Commonwealth consult with local, state and territory government planning authorities on the development and dissemination of a house loss risk index for households in Australia's highest risk bushfire areas.

3.263 The committee also agrees that inconsistent use of bushfire terminology can cause confusion in the community and does not assist people in taking steps to mitigate their personal bushfire risk. The committee therefore recommends that the government work with the states and their agencies to ensure consistent terminology is used when communicating with the public.

Recommendation 8

3.264 The Commonwealth Government work with the states and their agencies to ensure consistent terminology is used when communicating with the public.

3.265 The increasing desire of people to live in close proximity to natural bushland raises a number of important issues about the development and implementation of appropriate planning regulations. In this field, the committee recognises that the Commonwealth again has a limited role, which is entirely appropriate given the local nature of planning decisions. It is not for the Commonwealth Government or its agencies to dictate where people may or may not be permitted to build houses. However, the committee encourages local planning authorities to take a prudent approach to allowing development in areas where fire poses an extreme risk and evacuation would be difficult.

3.266 Local planning authorities also need to take seriously the risks of inadequate enforcement of existing regulations, taking a rigorous approach to compliance as is reasonable within their budgetary limits. Furthermore, they need to ensure that native vegetation laws are not enforced in such a way as to limit the ability of households to take sensible bushfire hazard reduction measures in the immediate vicinity of their property.

3.267 The committee shares the concerns of the Planning Institute of Australia with regard to vulnerable land uses such as hospitals, schools and aged care facilities. Although many such facilities already exist in fire prone areas, local authorities need to consider in depth the potential implications of constructing these facilities in locations where it would be difficult for those within these facilities to reach safety if a fire threatened their building.

3.268 The committee supports the introduction of a national standard for bushfire bunkers and reiterates the view that bunkers should not be relied on as a substitute for appropriate mitigation measures.

3.269 With regard to insurance, the committee is of the view that people living in fire prone areas should adequately insure their assets against the risk of destruction from bushfires. This not only encourages individuals to make sensible choices about their personal safety, but reduces inequities between the insurers and non-insurers when post-disaster assistance is being distributed. Insurance companies could assist with a greater take-up of insurance by providing premium incentives for households that take bushfire preparedness measures in and around their insured asset.

3.270 Finally, the committee notes continuing concerns about the imposition of a fire levy on insurance policy holders in some states. Such an arrangement is inequitable and discriminates against households and businesses who take out full insurance against bushfire damage. The committee considers that it would be more equitable if fire services are funded by levying property owners directly.