



Supplementary submission on planned burning by the
Victorian National Parks Association

to the
**Royal Commission into the
2009 Victorian Bushfires**

15 February 2010

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Supplementary Submission to the Royal Commission into
Victoria's 2009 Bushfires

Planned burning for fuel reduction and ecological outcomes

Recommendations

1. Specifications for any planned burns required to have ecological benefits should, as a precautionary measure, involve a temporal and spatial mosaic specific to each EVC, designed by fire ecologists with input from botanists, zoologists, entomologists, mycologists and microbiologists.
2. All available information on the location of previous management burns and wildfire in Victoria should be assembled, and protocols established for the mapping of all future burns, including burn severity and intensity.
3. Long term monitoring protocols for the effectiveness of management burns, for both fuel reduction and ecological outcomes, should be identified, implemented and resourced with appropriate levels of expertise and secure, ongoing funding.
4. A common repository for research and monitoring data on ecological systems, including fire ecology, should be established and securely resourced, preferably within one of Victoria's leading tertiary institutions.
5. Staff resources should be boosted, in Parks Victoria and DSE, to include strong teams of fire ecologists, including botanists, zoologists, entomologists, mycologists and microbiologists.
6. There should be a clear, accountable, ecological management stream within both Parks Victoria and DSE to allow management prescriptions to be applied, supervised and clearly resourced at all levels of the agencies.
7. Recurrent staff training should be employed, to ensure fire planners and fire management staff are kept up to date with current scientific understanding of fire ecology
8. The concept of a broad hectare target for fuel reduction burning across the State should be abandoned, and replaced with more strategic targets, ensuring both ecological and fuel management objectives are achieved.
9. Broadly representative local community panels, with ready access to good ecological advice, should be developed to assist in long-term planning at a local level for management burns and other fire management issues.

10. There should be a regular and independent audit of the effectiveness of planned burns for fuel management and for biodiversity protection
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Introduction

The Victoria National Parks Association made a preliminary submission to the Royal Commission in May 2009. This is a supplement to that submission, focusing on management burning.

With respect to the terms of reference in which we claim an interest, the VNPA is broadly supportive of the current approach to fire planning and suppression and considers that it represents an appropriate balance between the needs of public safety, biodiversity, tourism and agriculture. We consider that the legislative framework is adequate, and the basic structures, processes and principles are workable and should be maintained.

We do, however, have significant concerns with the implementation of these processes and principles, and with levels of accountability. We have particular concerns about levels of expertise and resourcing, especially in regard to the understanding of fire ecology, the implementation of ecologically sound burning regimes, and monitoring.

This supplementary submission deals primarily with the need for fuel reduction burning to achieve ecological objectives.

Fire, safety and biodiversity – the problem

Many of the difficulties in managing fire in the Victorian landscape stem from the one dilemma: the bush which acts as fuel for fire is also our remarkable and irreplaceable natural heritage. Indeed 'the bush' harbors a vast number of native species in a complex series of ecological communities, many of which have been seriously depleted, and continue to be depleted, in size and/or integrity over the last 200 years.

We have a clear moral and legal obligation to protect human life and property as best we can, as well as a clear moral and legal obligation to ensure the survival of this biodiversity.

For biodiversity, anything we can do to reverse the decline in native ecosystems can help their survival into the future. Anything we do to harm these systems will hasten their ongoing decline.

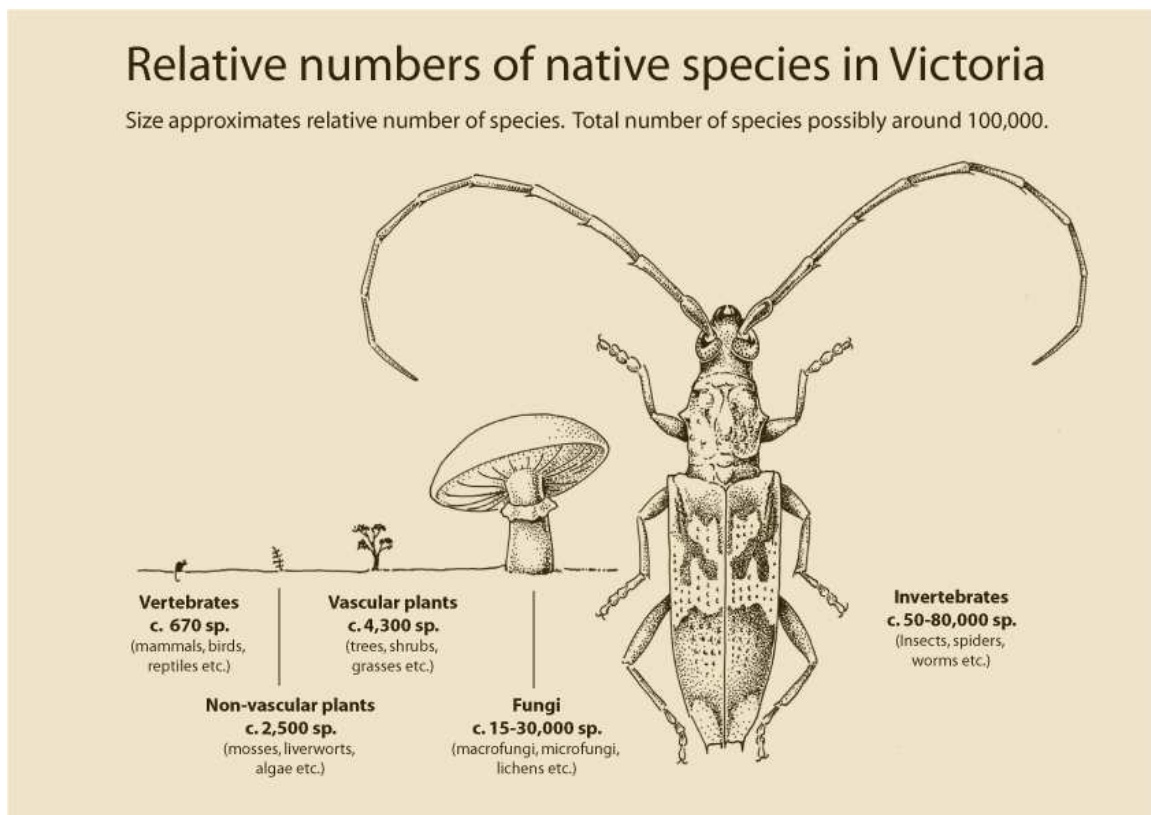
One of the most useful things we can do is increase our understanding of the long and complex relationship that the Victorian bush has with fire.

How much do we understand about biodiversity and fire?

The extent of biodiversity in native ecosystems is not always well understood. The number of *described* species in Australia is currently standing at 147,579, with the *total* number of species estimated at well over 500,000. (p. 7. *Numbers of Living Species in Australia and the World, 2nd edition*. Arthur D. Chapman. Report for the Australian Biological Resources Study. Canberra, Sept. 2009.)

This remarkable number includes vertebrates, invertebrates, vascular and non-vascular plants, and fungi. It does not include micro-organisms, which would, if included, add considerably to the figure.

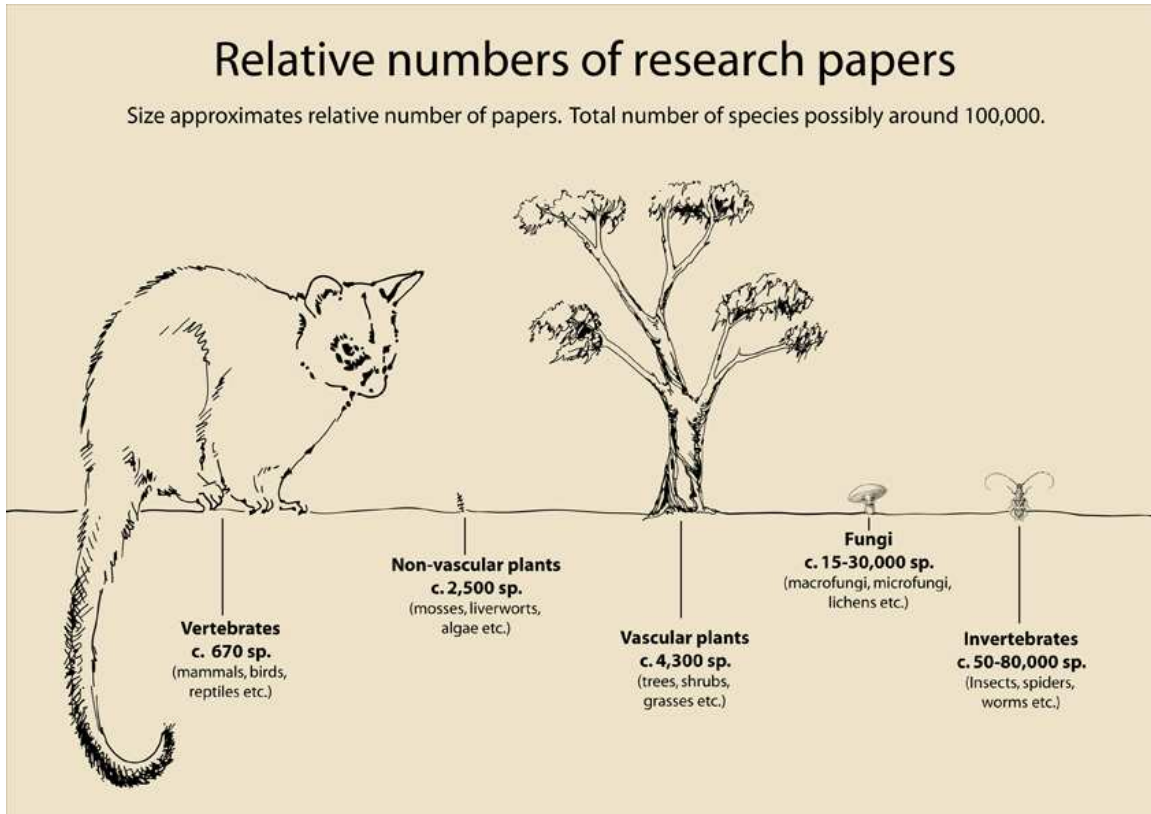
A figure of c.100,000 native species has been estimated for Victoria, based on the number of described species, and Victoria's considerable diversity of ecosystems from alpine areas to Mallee and desert communities.



Given that there is often considerable genetic diversity within individual species, this is an enormous inherited gene pool, potentially of great economic and other benefit to future generations. It is irreplaceable if lost.

The great majority of native species in Victoria (excluding microorganisms) are fungi and invertebrates and, though largely out of sight, these species are the backbone of ecological communities. Unfortunately we know very little about most of them. The following diagram,

based on a word search of papers in ecological journals, gives a rough indication of the levels of research on the same groups as the diagram above.



While there is fairly good understanding of the diversity of vertebrates and of vascular plants in Victoria's natural areas, prescriptions for planned burns are currently based on known fire tolerances for vascular plants only. The fire tolerance of populations of mammals, birds, reptiles and amphibians is largely unknown and rarely considered.

And we have a very long way to go before we really understand the complex fire responses of invertebrates, fungi and micro-organisms.

Two recent papers by leading entomologists and mycologists – one on fire and invertebrates and the other on fire and fungi – shed light on our levels of understanding of these groups, on the possible impacts of different fire regimes and on useful precautionary approaches to their management. They are included as attachments to this submission.

Both clearly state that our knowledge of the capacity of these groups to recover from different fire regimes is seriously lacking, that we must build our knowledge and, at least, include fungi and invertebrates when monitoring the impacts of planned and unplanned fire.

These papers raise a number of important points, including,

for invertebrates:

- *"In general the field [fire ecology] is one in which more scientific information and decidedly less emotion and supposition is needed in formulating practice and policy."*
- *"There is no standardised management protocol... that addresses how impacts may be measured and evaluated."*
- *"A high proportion of studies... have lacked prefire and postfire data on the same sites..."*
- *"Within forests... around 10-20% of species of some [invertebrate] groups are estimated to be restricted to 'old growth' components (such as deep humus or well-rotted logs) that take decades or centuries to accumulate."*
- *"Many invertebrates depend on plants at a given growth stage or age as a critical resource, so that providing that variety underpins management need."*
- *"There is a clear need to assess current knowledge of invertebrate fire ecology, and in particular to critically examine whether the information to hand is sufficiently robust to enable sound management plans to be made."*
- *"The scenario before us is one of concern for the impacts of fire on vast numbers of invertebrate taxa, combined with massive ignorance over the nature and consequence of those impacts and how to study and document them."*
- *"...reliable scientific evidence is accumulating that we still, through ignorance, are unnecessarily eliminating a major part of Australia's biodiversity."*

and for fungi:

- *"We do not know the precise host, habitat or substrate range for the majority of fungal species..."*
- *Studies have focused on wetter forests in southern Australia. There are little or no data on fungi and fire for many ecosystems such as grasslands, arid [and] alpine vegetation."*
- *"Fungi may have complex breeding systems with different hosts associated with different stages in life cycles. Specifics about reproduction, spore longevity and germination requirements are unknown for most Australian fungi."*
- *"There are no data from Australia on whether post-fire fungi are continuing to grow from pre-existing mycelia, newly germinating from the spore bank or recolonising from spores blown in."*

- "The age structure of the matrix around a burnt site may be critical, as could the intensity with which patches burn. All these factors should be tested experimentally."

Research gaps identified by both papers are extensive, and it will take a concerted effort over many years to significantly reverse that situation.

Both papers recommend that a precautionary fallback position should be adopted for management burns: a spatial and temporal mosaic, producing a range of relatively small scale patches within each ecological community across the landscape. There is also a clear requirement that long-unburnt areas remain, and that they are large enough and sufficiently widespread in the landscape to ensure their long-term survival.

This effectively reinforces the importance of the current prescriptions for a locally complex application of the mosaic burn principle within each EVC – prescriptions that are currently widely misinterpreted or only applied in a token manner.

And smaller isolated sites under about 5 ha, or sites with species that are listed formally under Commonwealth or State legislation as protected or having conservation significance, should only be burnt after extensive consultation with ecologists and, especially, entomologists.

It is important to emphasise that current prescriptions for mosaic burns are a *precautionary approach only*, to be applied until we have the knowledge to employ more sophisticated, evidence-based fire regimes.

Both papers make it clear that more research is needed, and that land managers should include invertebrates and fungi in current or future long-term monitoring programs, for adaptive management to be effective.

As already made clear in DSE's September 2009 Technical Report *Towards a Process for Integrating Vertebrate Fauna into Fire Management Planning*, "the complexity of the interaction between [vertebrate] fauna and fire regimes, and the dearth of related empirical studies, means that there is limited evidence to help predict how fauna is likely to respond to various fire regimes."

Clearly, we have a long way to go before we can claim to be achieving ecological objectives in regard to fire management.

Building expertise

If we are to design and implement an effective program of management burns that make a real contribution to fire safety, and demonstrably encourage the long-term well being of our natural heritage, we have to radically build expertise, and resources.

Fire history mapping

Current mapping of Victoria's fire history is inadequate. Mapping of wildfire is often inaccurate, records in many areas are poor and seldom go back more than a decade or two, if indeed that far, except for a few very large wildfires. Until recently, management burns were generally mapped as the intended burn, rather than the actual burn (which is often quite different). Fire severity is rarely recorded.

Long term mapping is important. While it can be reasonably easy for an experienced 'reader of the bush' to estimate the time since the last fire in many ecosystems, even if it was decades ago, it is much harder to gauge the history of successive fires. Given that ecological impacts are likely to be significant when there is a history of repeated fire within an EVC, long-term mapping is crucial to planning future management burns.

Land managers should establish comprehensive fire mapping of both wildfire and management burns, including fire severity, so future fire managers, and ecologists, will have long-term data to assist them in management decisions.

Monitoring

We need to establish long-term monitoring programs for:

- the effectiveness of burns for fuel reduction (especially long-term effectiveness).
- the effectiveness of burns for the maintenance of ecological systems

Monitoring for the effectiveness of fuel reduction should be long-term and look particularly at the changes in vegetation, especially for frequently burnt sites. Pest plant invasions should also be monitored.

Monitoring for changes in ecological systems should cover pest plant and animal invasions, as well as vascular and non-vascular native plants, vertebrates, invertebrates, fungi and soil microorganisms. Programs must include pre-fire and post-fire monitoring, and should be designed (and resourced) to be continued in the long term if they are to be useful.

Monitoring costs money, but good data from well-designed programs takes the guesswork and/or assumptions out of management planning, potentially producing more effective, targeted management actions and long-term efficiencies in management budgets.

Unfortunately, looking for benchmarks for programs is problematic, as the monitoring of ecological systems is not done very well anywhere in the world. While programs have sometimes been set up well initially, politics and associated funding problems generally intervene to compromise them.

One of the few places to look for examples is the United States. Their National Park Service has set up a 'Vital Signs' monitoring program, across the park system. It is set up to provide useful indicators of ecological condition across the U.S.

"Natural resource monitoring provides site-specific information needed to understand and identify change in complex, variable, and imperfectly understood natural systems and to determine whether observed changes are within natural levels of variability..."

<http://science.nature.nps.gov/im/monitor/>

However the program is crippled by a lack of ongoing funding and its effectiveness compromised by the limited usefulness of an indicator-based monitoring system.

Information management

Currently, any monitoring of or research into fire and its impacts on ecosystems is done by academic bodies, by agencies like the CSIRO, by students, by consultancies and by keen (and often very well-informed) volunteers. Most of this research also relies on data from previous studies, not necessarily fire-related, of native ecosystems, threatened species etc. which have been performed over many years.

Unfortunately there is no common repository for this information, and much of it now sits in desks and cupboards throughout universities, various government agencies, and often in private homes. Much of it is lost and continues to fall away over time, greatly compromising our capacity to identify long-term changes brought about by wild or managed fire, and by other management actions or impacts.

To give a personal example, in 1985 I was employed in the community education unit of the then newly formed Department of Conservation Forests and Lands. My prime role at that time was to edit, or write, information pamphlets on national parks across the state. In January of that year, a fire had burnt around 50,000 ha of Mount Buffalo National Park and its surrounds. To help park visitors discover the impacts of successive fires, I produced an information sheet outlining and mapping the fire history of the plateau, based on the then known history of fire in the park. I recently tried to find copies of that information sheet, but it no longer exists in the files of Mount Buffalo National Park, or the regional office of Parks Victoria. Also lost, as far as I can determine, is the information I used at the time to map pre-1986 fires on the plateau. It would be useful to have it.

To further exacerbate this problem, the professionally compiled biodiversity databases we do have are suffering. Both the Victorian Wildlife Atlas (a database of Victorian wildlife that was started by the Government's Arthur Rylah Institute in the 1980s) and the Flora Information System (a similar database of the State's plants) are now losing the respect of the scientific community. These databases were once compiled by botanists and zoologists, and lodged within a department well-staffed by scientists who continually worked to update the data. But with DSE and Parks Victoria increasingly starved of scientific expertise, these databases are

now largely managed by administrators who seem to have little capacity to maintain (or assess) the integrity of the information generated.

Though there has been some good recent fire ecology work done in the Mallee region, the words of one of Victoria's most senior botanists and ecologists remain relevant:

"Our knowledge of the distribution and abundance of flora and fauna in the Mallee region... is amongst the poorest in the state.

"An assessment of the survey effort for... the Mallee, compared with similar-sized areas in six other locations across Victoria, shows that the Mallee has the smallest number of animal and plant records...

"In practice this means that if a competent botanist or zoologist were sent to a randomly-selected site in the Mallee there is a 90% probability that the information he or she would gather from that site would have no precedent. Furthermore, if the site had been visited in the past there is a better than even chance that most of the information would be at least two decades old."

From: ***Climate Change in the Mallee***
by Paul Gullan (2007) for VOW: Viridans Biological Databases,
Ogyris Ecological Research, Wildlife Profiles
The full document is at:

<http://www.viridans.com.au/Climate%20Change%20and%20the%20Mallee.pdf>

There is every indication that this situation is widespread in Victoria.

When a series of landscape-scale fire breaks were planned recently in the Otway Ranges a report on their possible impacts was commissioned from one of Victoria's leading ecology consultancies. As usual, the funding only allowed a "desktop" study, in other words a search of existing databases. As a result, the route for the firebreak was based on data for fauna that was very sparse and decades old. It was, effectively, a token ecological impact study. And when construction went ahead there had been no attempt to gather pre-construction data for flora or fauna likely to be affected, so there is now no capacity to monitor the impact (or lack of impact) of the positioning of these large breaks across the landscape.

Further, the global information system software of the Department of Sustainability and Environment, which is responsible for these databases, is incompatible with the equivalent software at Parks Victoria, the contracted department which actually looks after our greatest natural areas (and, apparently, similarly incompatible software at the Museum of Victoria and the Herbarium compounds the communication problem). This sort of situation is symptomatic of a society that hasn't fully come to grips with its responsibility in managing natural areas. And there is no consistent statewide monitoring employed to keep our knowledge current.

Something has to be done.

One useful model for database management is the National Centre for Ecological Analysis and Synthesis (NCEAS), based at the University of California. The centre aims to:

"Organize and synthesize ecological information in a manner useful to researchers, resource managers, and policy makers addressing important environmental issues" and to "influence the way ecological research is conducted and promote a culture of synthesis, collaboration, and data sharing."

<http://www.nceas.ucsb.edu/overview>

This is not a monitoring program, but a managed repository where research data from a great range of sources can be held, assimilated, assessed and made available to government agencies, research organisations etc.

Future land managers are going to need accurate and comprehensive long-term data to manage and assess the impacts of the predicted increase of fire across the landscape.

There is a real need for a central repository like this in Victoria, and if it was initiated it could evolve to become a national repository for ecological research data, putting Victoria at the forefront of Australia's ecosystem management.

Designing and building effective monitoring programs is no small task, but given Victoria's predicament as the Australian State most cleared of native vegetation, and also one of the most fire-prone places on earth, we should be setting the bar here.

If we don't we could, instead, be setting ourselves up to be the generation that, despite abundant warnings, failed to take care of our 500 million year old natural heritage.

The need for an ecological management stream

There have been significant leaps in the understanding of ecological systems in recent years, and there is a greater understanding of the predicament of biodiversity, particularly in the face of climate change. But it is not at all clear that that level of understanding is reaching fire management on the ground.

Given that, under Victoria's National Parks Act, the protection of the natural values of our national and state parks is the prime purpose of their reservation, it is odd that Parks Victoria has no line management dedicated to the protection of ecological systems. If such a management stream were in place, charged with ensuring ecological management prescriptions were met, with monitoring the effectiveness and the impacts of fire regimes, and empowered to build knowledge and capacity in the organisation, the situation might be very different. The same applies to DSE.

Training

There is a real need for a great increase in the number of well qualified fire ecologists at the regional level, both in DSE and Parks Victoria. Within Parks Victoria, this may involve a change in an apparent policy of filling new positions from within their own ranks, rather than actively seeking well-qualified people from outside the organisation.

Within both agencies there should be a significant increase in the numbers of botanists, zoologists and fire ecologists, and it is high time to make historic initial appointments of mycologists, entomologists and soil microbiologists. It will take time to build capacity, but it is important to move from a culture of contracting any scientific advice when it is needed (or reluctantly required), to a culture where ecological knowledge is mainstream and there are strong cultural links with the broader scientific community. We would not expect hospitals to rely largely on contracted advice, nor should we expect it for the managers of complex ecosystems.

If we are to manage fire in a way that gives critical support for biodiversity, we also need to train, and retrain, fire management and planning staff locally, regionally and in Melbourne. A useful model for this might be the Graduate Certificate in River Health Management operating out of Melbourne University:

The Graduate Certificate in River Health Management, offered by the University of Melbourne with support from the Victorian Waterway Managers Forum, is an accredited course of study for Victorian waterway management professionals. It is a one-year part-time course delivered by a combination of distance learning and intensive periods of face-to-face teaching either on campus or at regional centres in Victoria

Designed to give land managers a thorough update in river health, the course includes components assisting managers to:

- *understand the technical content of the disciplines involved in river health and catchment management and its relationship to the broader objective of river health and total catchment management.*
- *appreciate how to create and acquire knowledge within their discipline, particularly by using and critically reviewing professional advice;*
- *be capable of independent critical thought, that will enable them to -*
 - *adapt and respond to evolving policy and operational circumstances,*
 - *adapt and respond to unexpected outcomes of management actions,*
 - *challenge current practices and facilitate positive changes; and*
 - *exhibit analytic and problem-solving skills, in particular applying specific techniques for managing waterways and catchments.*

<http://www.mccp.unimelb.edu.au/courses/award-courses/graduate-certificate/river-health>

There is a very real need to develop such training for the managers of prescribed burning in Victoria's natural areas, and for anyone else concerned with the relationship of fire to biodiversity.

Applying prescriptions for management burns.

Some aspects of management burning in Victoria are done relatively well.

Though our current capacity to apply prescriptions for management burns that guarantee ecological outcomes is failing, it is nevertheless probably better than most other States in Australia. The work done by DSE on establishing fire tolerances for a range of vegetation types, though it simplifies the widely accepted 300 or so Ecological Vegetation Classes (EVCs) in the State to a smaller, more "manageable" grouping of Ecological Vegetation Divisions (EVDs), it is still a very useful piece of work. And the associated publication of fire/flora monitoring protocols is a real advance (even though these protocols ignore vertebrate and invertebrate fauna, and fungi).

But there is a problematic disconnect between these protocols, prescriptions and guidelines and their application on the ground.

There are definitely people within Parks Victoria and DSE who have a good understanding of ecological systems, and a determination to manage them well. But those staff are sometimes a bit thin on the ground, or their advice and concerns appear not always to be supported or respected well enough when it comes to the application of fuel reduction/ecological burns, even in national parks or other areas of considerable ecological significance.

On a guided tour of a proposed burn area in one of Victoria's prime national parks, I was assured that though the burn was to take place over a wide area, the lower and wetter patches would remain unburnt, thus providing the required mosaic. But those wetter areas were very small and clearly from a different ecological community to the rest of the burn area. The burn, when it proceeded, was very hot, and fairly uniformly incinerated the area.

In many cases, if not most, burning programs seem to be supervised by staff with a forestry background, who have only a nominal understanding of the complexity of ecological systems. This can mean that burns undertaken in areas where there is a high degree of community interest can be impeccable exhibition pieces, whereas another burn, even a few kilometers away, can be relatively damaging ecologically or even counter-productive for fuel reduction purposes.

The region around Castlemaine in central Victoria can provide good examples of this, but it is not hard to find inconsistently managed burns around the State.

A recent 2009 spring burn by Parks Victoria and DSE in Kalimna Park, a small conservation reserve bordering the eastern edge of Castlemaine, was conducted well, with many small

patches left unburnt within the burn area (though spring is not always an ideal time to conduct a burn). There was fair reduction of fuel achieved on the ground, and the virtually untouched canopy has discouraged weed growth by keeping light levels low.



Kalimna Park, February 2010

By comparison, a late autumn burn (May 2009) in nearby Mount Alexander Regional Park is tragic: it has greatly impacted on the park's natural values, without any noticeable change in ground fuel levels.

The area was identified by the 2001 Box-Ironbark VEAC investigation as one of the three most important large hollow-bearing tree sites within the region. Yet this poorly planned and largely unsupervised burn, according to a survey (conducted by a local, Richard Goonan, and submitted to this Royal Commission) resulted in the killing of over 400 large trees and more than 60 very large trees. Approximately 2000 tree hollows appear to have been lost from the forest ecosystem, which had included a usefully diverse range of hollow types suitable for an array of fauna species. The planned burn area was 9 ha, but the final burn area covered approximately 100 ha.

Unfortunately, the killing of so many trees opened the canopy and encouraged rampant weed cover, such that ground fuel levels in the burnt area are now (February 2010, just 9 months after the burn) almost indistinguishable from those in adjacent unburnt areas. Nevertheless, the burn area has been added to the State's fuel reduction hectare total for the year.

The burn was presumably (and understandably) designed to protect communication towers at the summit of Mount Alexander, but it largely covered the eastern slopes of the mountain, the least likely direction from which a bushfire would come. Furthermore, very little has been done by the communication tower owners to protect them from fire: trees overhang critical

supporting cables, weeds grow to the edge of infrastructure, fuel tanks are exposed and unprotected, and despite the presence of a large water tank there appears to be no sprinkler system installed.

Are broad hectare burn targets useful?

Management burns have the capacity to significantly reduce fuel loads. They are a critical part of bushfire management, and contrary to some claims, the conservation movement has supported strategic fuel reduction across the State for many years now, including within national parks.

But there are several problems with broad hectare targets for fuel reduction.

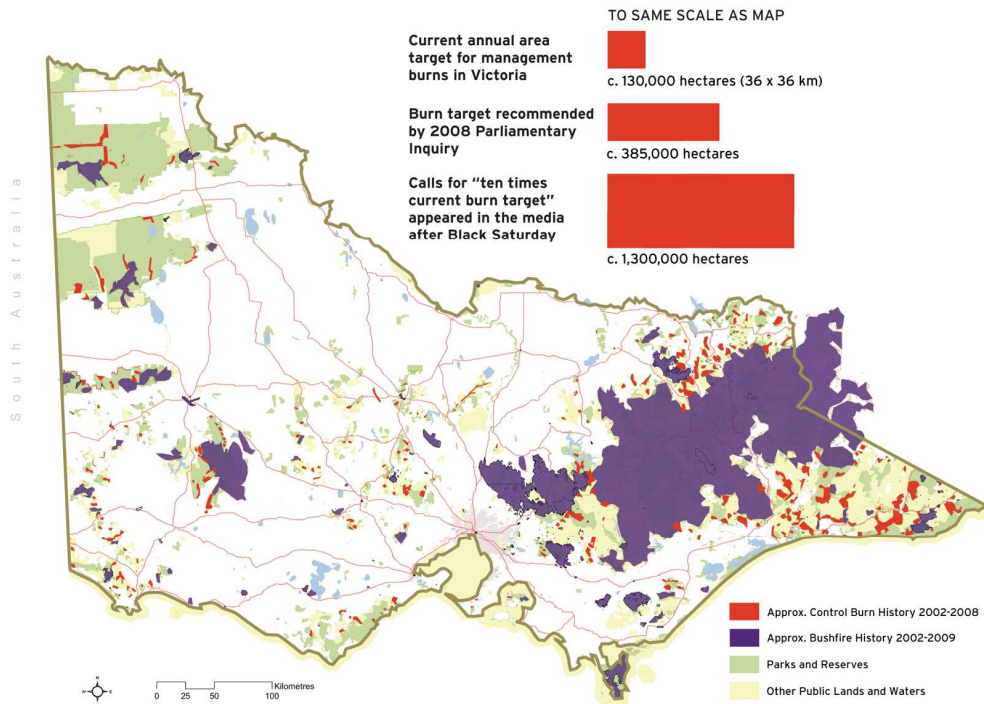
First, both the current fuel reduction target of 130,000 ha per year, and the Environment and Natural Resources Committee (ENRC) parliamentary inquiry recommended target of 385,000 ha per year, are independent of the area burnt in wildfire in the current or previous years. This, alone, should render them suspect.

Indeed, while it might have been reasonable to argue, in say the year 2000, that Victoria was “underburnt” ecologically, since 2003 Victoria has experienced more fire, and more repeated fire, than pretty much at any time in recorded history. The map below (based on a DSE map) roughly indicates the area burnt by wildfire (purple) and management burns (red) since 2002. It also shows, to the same scale, the current 130,000 hectare target, the 385,000 ha recommendation of the ENRC inquiry, and the “ten times current fuel reduction” espoused by some in the media after Black Saturday.

We should be very careful, when responding to claims that Victoria was ecologically underburnt during the last half of the previous century, to apply that understanding to Victoria today. Given that, for vegetation alone, we know that too frequent fire is as damaging as too little for most ecosystems, a very close investigation of Victoria’s recent burn history should be undertaken before we leap into a radical increase in management burns.

(Map over)

■ Bushfire and ■ planned burn history since 2002



There has been an almost unprecedented level of fire across Victoria since 2002. The purple areas on this map roughly show the total area affected by bushfires since 2002. The red areas indicate management burns (primarily for fuel reduction) since 2002 (note that small burn areas, and all management burns for 2009, are not included). BASED ON A MAP PREPARED BY DSE, 2009.

Secondly, neither the current target nor the ENRC recommended target, so far as we are able to ascertain, is based on any clear scientific evidence.

It is over a year since the VNPA's fire researcher, Jenny Barnett, perished with her husband in 2009's Black Saturday fire, but her assessment of the ENRC target remains unchallenged. She pointed out that their conclusions could not be deduced from the scientific studies ENRC cited.

For a start, of the three papers cited, one was from the USA, one from Tasmania and the third from Western Australia. That the studies were all from outside Victoria should have rendered them only marginally relevant, because fuel load responses to fire, and biodiversity responses, are very different in different ecosystems. But there was more.

The fuel reduction target in the American paper was only half that in the ENRC recommendation. It certainly shouldn't have been used to justify the 385,000 ha conclusion.

And the Tasmanian paper was even less relevant, indeed it could only reasonably have been cited to argue against the ENRC burn target. It outlined a burn target of 3% per annum, considerably less than the ENRC recommendation, and the burn target was for button grass plains only, in order to protect more extensive neighbouring vegetation which was not to be burnt at all. There was no way this figure could, or should, have been used to justify a 385,000 ha burn target across all public land in Victoria.

Note: Jenny Barnett's critique of the ENRC target, as well as her initial VNPA submission to the ENRC inquiry, were included as attachments to the VNPA's Preliminary Submission to this Royal Commission.

Thirdly, a statewide hectare target can have perverse outcomes. Fuel reduction techniques differ from zone to zone. Small areas adjacent to towns and other recognized assets are generally in "Zone 1", to be burnt for fuel reduction purposes only. But burns in those areas are difficult, requiring large staff numbers, as even small escapes can be destructive to the assets in need of protection.

Most of the State's public land, however, is zoned for burns that are designed to have both ecological and fuel reduction outcomes. In more remote areas, this often means dropping incendiaries from aircraft during weather conditions likely to encourage a "suitable" burn mosaic across the landscape. It is clearly easier to reach a large hectare target within these areas, than within Zone I.

Large hectare targets also tend to encourage the development of over-enthusiastic FOPs that don't always comply with the Code of Practice for Fire Management, such as taking management burns into legislated Reference Areas or Zone 5 areas.

If hectare targets are to be used at all, they should be a series of separate targets for each management zone, be subject to modification to allow for any area burnt by wildfire, and also able to be reassessed seasonally according to weather conditions, so burns were not attempted in adverse conditions.

Hectare targets (if they were to be used) should also be reassessed regularly after an assessment by fire ecologists of the impact on biodiversity of burn frequencies across the State.

It would be much better, however, to develop plans for fuel reduction and ecological burns at a local level, with good input from fire managers, fire ecologists, naturalists and the local community. This is theoretically done now with the Fire Operations Plans (FOPs), but the process is not at all transparent and, importantly, has no education component.

Currently, planning happens through what is effectively a "closed shop" approach within Government. There is an annual call for submissions to the development of regional FOPs, but little or no feedback to submitters, and little or no open re-assessment of the implementation and effectiveness of those plans. In the meantime, most of the public discussion takes place on talkback radio and in other media.

Community Fire Planning panels

There is potential to develop a very good planning process for fire management on Victoria's public land, and the possibility to include management of private land in the same process. This could lead to well informed management with broad public support.

Community panels could be appointed at a quite local level. They should include representatives from DSE and Parks Victoria and the CFA, local councils, landholders, industry (wine, apiary etc.), LandCare groups and conservation organisations. Importantly, fire ecologists and biologists should also have significant input to the process.

Local fire planning issues would be discussed and analysed, with site visits where possible. Importantly, over time, this becomes an educational process as much as a planning process, and its effectiveness should therefore increase as understanding grows.

Representatives should be encouraged to stay with the process over time, and training opportunities (as suggested above for agency staff) should also be made available to panel members when possible.

This process would clearly require funding, but it has the potential to greatly improve fire management planning, and more realistically deal with expectations of the effectiveness of fuel reduction and the capacity to deliver it in all locations at all times.

And as our knowledge grows (as it must) a process like that has the capacity to deliver well-informed planned burns that can deliver demonstrated ecological benefits, and improved community safety.

An independent audit

Remarkably, though fire management remains such a vexed issue, the main government agencies involved, DSE and Parks Victoria, effectively report to themselves and monitor their own management. Though there is a level of cooperation between DSE and Parks Victoria for fire planning that is admirable (it seldom happens for other aspects of land management), they are rarely subject to scrutiny. The Auditor general has the capacity to address this issue, but has to deal with the whole gamut of Government performance, and doesn't necessarily have the skills or resources to monitor performance on a regular basis.

It is time we had regular, independent audits of the effectiveness of biodiversity management in Victoria, including for the effectiveness of planned burns for both fuel reduction and biodiversity purposes. _____

Attachments to this submission

New TR, Yen AL, Sands DP, Greenslade P, Neville PJ, York A, Collett NG (2010) Planned fires and invertebrate conservation in south east Australia. (In press)

McMullan-Fisher SJM, May TW, Robinson RM, Bell TL, Lebel T, Catchside P, York A (2009) Fungi and fire in Australian ecosystems: a review of current knowledge, management implications and research gaps and solutions. (In press)