

Bushfire Management: Wisdom versus Folly

<https://quadrant.org.au/opinion/doomed-planet/2019/02/bushfire-management-wisdom-versus-folly/>

10th February 2019

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MANY years ago, still a young man, I watched for the first time the grainy, flickering black & white film of the British infantry making their attack on the opening day of the Battle of the Somme. The terrible footage shows the disciplined soldiers climbing from their trenches and, in line abreast, walking slowly across no-man's land towards the enemy lines. They scarcely travel a few paces before the German machine gunners open up. They are mown down in their thousands. They are chaff before a wind of fire.

I can still remember being struck nerveless by these images, & later my anger when I realised what that calamitous carnage represented. It spoke of the deep incompetence of the generals who devised this strategy of doom & then insisted upon its implementation. It spoke of front-line men led by people without front-line experience. It spoke of battle planners unable to think through the consequences of their plans, & who devalued human lives. It spoke of a devastating failure of the human imagination.

Worst of all, the strategies of the World War I generals demonstrated that they had not studied, or that they had forgotten, the lessons of history. In the final year of the American Civil war, 50 years earlier, the Union army had been equipped for the first time with Springfield repeating rifles, replacing the single-shot arms still were being used by the Confederate army. The impact on Confederate soldiers attacking defenders armed with repeating rifles was identical to that later inflicted by machine guns on the Western Front. But it was a lesson unlearned, of collective wisdom unregarded.

None of you will have any difficulty in seeing where this analogy is taking me.

The catastrophic bushfires of 2009 in Victoria, & the other great fires of recent years in that state, New South Wales, the ACT & South Australia are dramatic expressions not just of killing forces unleashed, but of human folly. No less than the foolish strategies of the World War 1 generals, these bushfires & their outcomes speak of incompetent leadership & of failed imaginations. Most unforgivable of all, they demonstrate the inability of people in powerful & influential positions to profit from the lessons of history & to heed the wisdom of experience.

But just a minute, I can hear some of you thinking. Is old Underwood going too far here? What about the malignant influence of global warming on bushfire conditions, making things impossible for firefighters? What about the “*unprecedented*” weather conditions on the day, making the fires of February 2009 “*unstoppable*”. What about the years of drought making the bush super-ready to burn? Does he not realise that conditions beyond human understanding have now arisen in Victoria, making killer bushfires inevitable? And what about the promises of technology, the super-aerial tankers & so forth, that will give the initiative to our firefighters for once & for all?

I have thought about all these issues. I am well aware of the drought, of the conditions on the days of the fires, & of the view from some quarters that all of this is a result of global warming. I accept that drought & bad fire weather increase the risk of serious bushfires. What I do not

accept is that “*unstoppable*” bushfires are inevitable. & while I will always welcome improved firefighting technology, I know from experience & from an understanding of the simple physics of bushfire behaviour, that technology can never be a substitute for good land management. The serious bushfire is like a disease that is incubated over many years; good land management is the preventative medicine that ensures the disease does not become a killer epidemic.

To me, the epidemic of recent killer bushfires is no indicator of an inevitable future. They are an indicator of the inevitable consequences of what has happened in the past. To me, these fires toll like bells. They toll for failed leadership, failed governance & failed land management.

The issues of leadership & of good governance are central to my position. What these killer bushfires point to is that the leaders of our society, Victoria’s politicians & senior bureaucrats, have palpably failed to do the most fundamental thing expected of them; to safeguard Victorian lives & the Victorian environment in the face of an obvious threat.

They have failed to discharge their duty of care. Just as we now look back with incredulity at the amateurish strategies of the generals in The Great War, so will future Australians look back on the work of those responsible for land & bushfire management in this country our bushfire generals.

The toll of the 2009 Victorian fires is shocking. All those lives lost. Thousands of homes destroyed. Millions of dollars worth of social & economic infrastructure reduced to ashes. The work of generations, the farmlands, stock, fences, woolsheds, yards & pastures dead & gone. Native animals & birds killed in their millions. Beautiful forests cooked, in some cases stone dead. Catchments eroding. The costs multi-millions of dollars. Carbon dioxide into the atmosphere the equivalent of a year’s supply for the whole of Australia, psychological damage to children & families uncountable.

Our bushfire generals, those Premiers, Ministers and senior bushfire bureaucrats in whom the people of Victoria put their trust, can have no excuses. They cannot say they didn’t know we have serious bushfires in Australia. This is no soft, green island where no bushfire ever burns.

Australians have not arrived only recently in this dry sclerophyllous land. even if we overlook for a moment the fire management experience of Aboriginal people, accumulated over 40,000 years or so, non-Aboriginal Australians have been here for over 200 years, with 200 fire seasons, thousands of hot, dry & windy days, dozens of prolonged droughts, tens of thousands of thunderstorms, millions of lightning strikes, & hundreds of thousands of bushfires. This is no new or unique phenomenon.

They cannot say the impacts of intense bushfires on human communities were unimaginable. We have known for 200 years that uropean settlement represented the insertion of a fire-vulnerable society into a fire-prone environment. We have seen the consequences of mixing hot fires & settlements on many; too many occasions, to doubt the result.

They cannot say that Australians are powerless in the face of the bushfire threat, that bushfires are “*unstoppable*”. From the earliest days of settlement, through to the evolution of the fire management systems developed by experienced land & forest managers in the 1950s & 1960s, we have known what is needed to minimise bushfire intensity & bushfire damage [3], even under extreme conditions. From at least the 1960s we have known how to build & maintain houses in fire-prone environments so as to optimise their survival.

They cannot say that the relationships between fire & the Australian bush are unknown. There have been 200 years of observation & records & over 50 years of scientific research on this very subject. This experience & this research has confirmed that fire is not an alien visitor, but a natural part of Australian bushland ecosystems.

The right sort of fire is an agent for rejuvenation. Regeneration, recycling & bushland health, a stimulus for biodiversity. Fire is to the Australian bush as are the waves & tides to Australian seaweeds & marine life. **It is the absence of fire, especially of mild fire, that is the real threat**

to the Australian bush, because the inevitable result is a landscape-level holocaust, from which it might take a century or more for recovery.

And, finally, they cannot say that they were not warned. Warnings have emerged from the aftermath of every damaging bushfire for the last 70 years or more from inquiries, Royal Commissions & reports, from independent auditors & from land managers, bushfire scientists, foresters, farmers & firefighters. In recent years the warnings have come thick & fast. Magnificent books have been written on the subject.

There have been dozens of scientific papers & popular articles written by our very own world-respected bushfire experts like Phil Cheney. There have been detailed submissions by professional groups such as Forest Fire Victoria, the Bushfire Front & the Institute of Foresters of Australia.

Can anyone say that no clear lessons have emerged from the bushfire calamities of the past? Can anyone say they are unaware of the previous fires that have burned Australian farms, settlements & suburbs, incinerated our national parks, nature reserves, rangelands & forests, or scorched our northern savannahs? Did no-one notice all those bushfires over the years that cut power supplies, burned out bridges & roads, destroyed schools, churches & hospitals, interrupted or fouled water supplies, destroyed observatories & threatened species, plantations, orchards & vineyards?

No. There is no shortage of lessons. They have even flowed in, for those who should have listened & learned, from Greece, from Portugal, & from the western United States & Canada during the last few years. Over & over again, the same words have rung out, the same message has been sent:

In our climatic zone with hot dry summers & periodic drought, & with our flammable vegetation & frequent lightning strikes, bushfires are inevitable.

If fuels are allowed to accumulate, bushfires in eucalypt forests rapidly attain an intensity that exceeds the human capacity to extinguish them, notwithstanding the most modern & massive suppression forces.

Communities & economic assets in the path of high intensity fires will suffer horrible damage.

But! Potential damage can be minimised by application of a fire management system that incorporates responsible planning, & high standards of preparedness & damage mitigation, especially fuel reduction.

We have a choice: fires are inevitable, but we can choose to have mild controlled fires, or ungovernable infernos.

Our politicians & bushfire generals cannot say they have not been warned. They cannot say there were no lessons to learn. They cannot say the message had not been sent. They can only say that it was not received, or that it was received but ignored. Neither excuse is acceptable.

So what are the explanations? Why were sound messages not received, or received but not acted upon? Why, after 200 years of experience & 50 years of world-leading research, after working examples of how to set up an effective system of bushfire management have been established ... how was it possible that our political & bureaucratic leaders opted to adopt a bushfire system that does not work, that fails to protect Victorians from death, disaster & environmental calamity?

There are two answers.

The first is political. Put simply, in the last 25 years & when it comes to bushfire management, Australian governments have failed to govern. The focus of politicians has been on getting elected or staying in power, not in providing intelligent, tough & effective governance. This has led to political parties courting the preference votes of pressure groups & of city-based electors who are in the thrall of pressure group philosophies.

Despite the protestations of environmentalists over the last few weeks, there is no question that the influence of green activists at Federal, State & Local government levels has resulted in a steep decline in the standard of bushfire management in this country. Their influence is exemplified by two things: (i) opposition to prescribed burning for fuel reduction, resulting in unprecedented fuel build-ups in parks, forests & reserves close to population centres; & (ii) rural residential developments, in which developers & residents have been prevented or discouraged by environmentalist-dominated local councils from taking reasonable measures to ensure houses are bushfire-safe; & where people are living in houses in the bush where there is no effective enforcement by councils of building codes or hazard reduction.

The situation where a government fails to govern is, of course, made worse when communities & individuals fail to self-govern. People building houses & choosing to live in the bush also have a personal responsibility – to look after themselves & their neighbours. This responsibility, it seems to me, has also been discouraged by modern governments.

The second explanation is technical. In recent years many Australian bushfire authorities have been seduced by the siren call of technology. This has lured them into a fatal trap. Their assumption is that any fire can be contained so long as they get it early & then have enough hardware to throw at it. This approach arose in the United States in the years after World War II & is thus known to Australian land managers as “*the American Approach*”.

The American Approach is fundamentally flawed. Fifty years of its application in the United States & ten years in Australia has demonstrated that no force of firefighters in the world, indeed the fire-fighting resources of the world could they be marshalled into one place, can stop a crown fire in heavy forest which is generating a jet-stream of spotfires downwind, each spot fire also landing in heavy fuels, & starting new crown fires. The best & the bravest men & women, armed with the most munificent, the most magnificent & the most expensive equipment, is totally overwhelmed.

This is a reality that still appears not to have penetrated the Australian bushfire generals & our political leaders. Not only have we seen the American approach increasingly supported in this country & then watched as it invariably fails when pitted against multiple hot fires in heavy fuels, it seems to have taken on a life of its own.

Every year more money is poured into the purchase of super-expensive equipment, but the outcomes on the ground just get worse. As recently as last week, Australian emergency services & aviation experts were launching new & strident calls for more & more expensive technology, completely ignoring the need for preventative measures.

Adoption of the American approach has been accompanied by an equally disastrous institutional re-arrangement: the progressive transfer of bushfire responsibilities on crown lands from land management agencies to the emergency services. In this scenario, beloved of politicians & the Bushfire generals, the focus of funding is shifted from preparedness & damage mitigation to emergency response.

What this means in practice is less emphasis on fuel reduction & more on building up fleets of water-bombers, tankers, & other high tech firefighting gizmos, an enormous paramilitary force (overseen by technocrats in Head Office) whose function is to put out fires after they start ... but which is doomed to failure whenever they are faced with multiple fires burning in heavy fuels under hot windy conditions.

These new & deleterious institutional arrangements persist because they are supported by powerful vested interests. The emergency services have a vested interest in maintaining a huge fire suppression machine & in making every fire – even an inconsequential fire – an emergency. I have watched over recent years as they have created a state of dependence on their firefighting forces, which, when things go bad, they cannot deliver upon. & they have encouraged the belief in the public mind that all fire is bad & has to be suppressed or avoided.

Politicians also have a vested interest in the American approach. It is easier & simpler to finance suppression systems than damage mitigation & they can bask in the glow of measures which are highly visible to the public & the media & give the impression that they are doing something useful, irrespective of the fact that it will not succeed under bad fire conditions. How often have you seen a politician lighting the first match of a prescribed burn, compared with the occasions when you see them breaking the champagne over a newly purchased helicopter water bomber?

In saying this, I need to make an important point: I am not critical of the firefighters on the ground, professional & volunteer. I know these people & I know them to be brave, resourceful & tough. I admire them unreservedly. **But they are increasingly being asked by their own leadership to do the impossible.**

But what of the assertions from groups such as the Wilderness Society that because of global warming, big unstoppable bushfires are here to stay & we might just as well get used to them. I totally reject this line of argument. It is an insult to human intelligence & to the human spirit.

If the computer projections are correct & it does become hotter & dryer, this means we have to make even greater efforts at fire prevention, even further improve our state of preparedness & take even more serious measures to minimise potential bushfire damage.

The idea that there is nothing we can do in the face of global warming but retreat into the CFA shed & wait for the next fire to come at us over the horizon is defeatist & in the end, inhumane. Suggestions that everything will be OK if only Australians reduce their carbon dioxide emissions is surely an example of **kindergarten-level thinking**.

The need for mitigation of bushfire damage through fuel reduction by prescribed burning is absolutely central to effective bushfire management in dryland Australia [7]. I support the concept unequivocally, although I set some clear parameters: burning must be based on sound research into fuel characteristics, fire behaviour & fire effects; burns must be conducted professionally by trained personnel using the best-available burning guides.

Every burn **must** be part of an overarching strategic approach, the carefully designed & constantly updated jigsaw known as the Strategic Burning Plan.

This is how it is done in Western Australia & could be done in Victoria. But even in WA the system slipped in recent years, as foresters battled to keep a fuels management program going in the face of cunning opposition from environmentalists, academics & compliant politicians.

WA has also seen an almost complete abandonment of effective bushfire management on private land over the last decade, with Local Government opting out & no-one else filling the vacuum. This is a situation people like me are trying to address as we speak. Would it not be better, we say to the WA government, to sort things out in advance, rather than after a disaster?

Nevertheless, 50 years of hard experience in Western Australia & world-class research has demonstrated beyond argument that while fuel reduction by prescribed burning does not prevent bushfires, it ensures fires do less damage & it makes them easier, cheaper & safer to extinguish.

In gambler's terms, it shortens the odds in favour of the firefighter. In human terms, it means people living in bushland areas where fuels have been reduced, are less likely to be burnt to death than are people living amongst heavy fuels.

Victoria, New South Wales & to a lesser extent South Australia are years behind Western Australia when it comes to the critical business of fuels & fire management.

There is a no need for new research to demonstrate the value of prescribed burning, as some academics are suggesting. The need is to apply existing knowledge in a vastly expanded prescribed burning program on the lands that burn.

The need is to:

- Upgrade the fire skills of field staff in parks & forests so that they can handle burns confidently & efficiently.
- Develop comprehensive planning & control systems to ensure burning is professionally carried out, & the results are properly monitored & recorded.

Above & beyond all this is the need for governments to recognise these needs, to act on them & to support their staff in the field.

And here's the rub. Based on history, you could be excused for asking will anything change, or will we see just another revolution of the bushfire cycle?

My fear is that governments, however much they make the right noises, will in the end want to stay in office, & unless things change, this will mean pandering to those who consistently oppose responsible bushfire management.

My fear is that the forces who benefit from the status quo will already be marshalling their resources in its defence. These will include the Bushfire Generals who will not want to lose their power & influence, or to see funding going to land management (which they do not control) instead of new helicopters, water bombers & tankers (which they do).

I fear that all-knowing academics from Murdoch University, the University of Wollongong, the Fenner School of Environmental Studies at ANU, & members of the Canberra & Melbourne intelligentsia will emerge from their leafy campuses to tell us that actually there is no problem at all ... surely, everyone knows that killer bushfires are simply Mother Nature at work, or the planet's revenge for our despicable environmentally-unfriendly behaviour.

This line will be pushed over & again, helping to massage the consciences of politicians reluctant to make substantial changes to policies & practices which they think will be electorally unpopular.

It is all very well to say that the management objective for our parks, forests & reserves is "*protection of biodiversity*", as most national parks agencies say these days. The trouble is, this objective cannot be achieved without first having put in place an effective bushfire management system. Where is the biodiversity today in those thousands of hectares of bushland without a green leaf to be seen, those "bare ruined choirs where no bird sings"?

It is the same in areas where the stated management priority is to protect water catchments. But to say this, & then adopt a strategy that allows fuels to build up until the day comes when the catchments are reduced to dead trees & ash – is blatantly self-defeating.

And it is the same for every other land management objective, whether this be protection of aesthetics & lovely forest landscapes, protection of recreational areas, protection of commercial values & residential areas or the conservation of soil, remnant bushland on farms or threatened species.

Therefore, the first rule of land management in Australia is this: get your bushfire management right, or be prepared to lose the lot.

I began with a reference to World War I, & the futility of the strategies adopted by the generals throughout the first three & half years of the war. It is significant that the breakthrough in 1918, the new strategy, was designed by an Australian, indeed a Victorian, General Sir John Monash.

The Monash strategy was based on firstly establishing clear priorities & unambiguous objectives – he knew exactly what he wanted from amongst the options of what could be achieved. It was based on excellent planning, anticipation of difficulties & attention to detail. It was based on the advice of experts, men who had been at Gallipoli & in the trenches in France & Belgium & who spoke from experience on the ground, not from ideology.

Above all, Monash was **not** prepared to sacrifice human lives needlessly. With all of this behind them, the troops on the ground did the rest. Monash's new approach provided the blueprint for the end to the slaughter on the Western Front.

What Australian bushfire management is crying out for is a new General Monash. A leader who understands that the current approach has failed & is doomed to continuing failure, that the influential advisers have no front-line experience.

An effective new leader will know that if we clarify & properly rank our objectives, listen to the voices of experience & the lessons of history & act accordingly, the odds favouring success will be massively shortened.

But the great General Monash himself would not succeed without the support of Prime Ministers, Premiers & Ministers, prepared to stand firm behind him when the Wilderness Society, the Canberra intelligentsia & the ABC current affairs people gang up on him. A good response to this lot might be *“Sorry, mates, we are doing what is best for Australia & Australians, based on good science, experience & the word from the people who have most to lose”*. Politically incorrect, of course, but it is the approach adopted when it comes to defence of the country against external enemies & national security, & which most Australians accept in that context.

Nor will a new general succeed without legislative & policy backing to enable land management agencies to win back the ground they have lost to the emergency services. Our parks & forests agencies must be empowered & resourced to manage fuels, indeed they must be required to do so, if necessary, by legislation.

Australia must abandon the American Approach, replacing it with an Australian Approach, a system in which equal weight is given to prevention & suppression, rather than trying, helplessly, to pile all our eggs in the suppression basket.

For any of this to happen our political leaders need to hear from the people whose lives & assets have been sacrificed or recklessly put at risk by the failed policies of the past.

It is essential that the people who have suffered demand systemic change, not just window dressing, more helicopters & overseas firefighters. Unless they speak up, there is no chance they will be heard. Politicians will take the political way out.

I think we can say that the environmentalist approach to bushfire management, including reliance on aerial firefighting, has been given a very fair go. It has had a good test. Regrettably, & predictably, the results reveal that it has been a failure.

The excuses put forward, especially that fires are unstoppable because of global warming, are simply that: excuses. They do not allow for the capacity of intelligent humans to foresee a threat & to forestall it.

The choices before us are straight-forward:

- Do Australians want our bushfire & land management planning done by professionals with front-line experience, or by campus intellectuals & ideologists?
- Is it smarter to manage bushfire fuels by burning them at times of our own choosing when conditions are mild, or to stand back, do nothing & risk being engulfed by fire at the worst possible time?
- If fires are inevitable, which is preferable: a controlled or a feral fire?
- And do we see humans as part of the ecosystem & plan accordingly, or do we see them as interlopers, as illegal immigrants in the Australian bush?

Notes

The question of Aboriginal burning is still debated. According to the accounts of early explorers & settlers & to present-day Aborigines, pre-European burning was widespread & frequent. This information is rejected by environmentalists as *“hear-say”*. Western Australian ecologist David Ward has found a unique way to unlock the history of pre-European burning, through his study of fire scars on grass trees.

Ward's work in the jarrah forests of Western Australia, indicate that fire occurred there at intervals of 2-4 years, & combined with his understanding of fuel dynamics & fire behaviour, he concludes that these fires would have been of mild intensity & patchy. Academics from Melbourne University, without ever having worked in the jarrah forest, have dismissed Ward's findings, preferring the print-outs from a theoretical computer model.

Not everyone agrees about the environmental impact of large intense wildfires. Dr Ross Bradstock who lectures to undergraduates at the Australian National University, has written in an article in the Melbourne Age newspaper that there was no scientific evidence for the claims that millions of birds & mammals died, or that forest diversity was reduced in the Victorian Alpine fires in 2003.

Laura Meredith, writing of her home in Tasmania in 1840, records a time when her husband was away & bushfires were threatening her home. She discovered with relief that her husband had taken the wise precaution of burning the ferns over the whole of a wide span of the forest which surrounds us & thus the home was rendered safe.

The best book written on fire in Australia is Stephen Pyne's *Burning Bush (first published in 1991 & updated following the 2003/4 fires)* but there are also numerous books on fire science & history, including the excellent *Fire & Hearth* by the anthropologist Sylvia Hallam. Hallam quotes Lord Stokes, a fellow traveller with Charles Darwin on the Beagle who watched as Aboriginal people near Albany carried out their routine burning of the bush, replacing (in Stokes' words) fires of "*ungovernable fury*" with those of "*complete docility*".

In the very week leading up to Victoria's Black Saturday, Western Australian bushfire managers found themselves dealing with a Greens Member of Parliament who was threatening to organise a protesters' camp in the bush to prevent a prescribed burn. The burn was planned to protect two local townships plus some very lovely forest from wildfire.

As Shakespeare pointed out: A little fire is quickly trodden out, but being suffered, rivers will not quench. Many of those who oppose prescribed burning believe that if we simply had enough firefighters, permanently waiting in the bush for fires to start & able to tread on them at the instant of ignition, no large fires would ever occur. Firefighters regard this as impractical.

In eucalypt forests carrying heavy dry fuels, a fire can become too fierce to allow direct attack by firefighters within minutes of ignition, indicating that the "*treading out*" approach would require several million firefighters with very heavy boots, on standby throughout Australian forests for several months of every year.

"*Dryland Australia*" is the bulk of the continent, outside the tropical rainforests of the north, some of the wet temperate rainforests of southern Tasmania, & coastal mangroves. It is the Australia that burns.

The Project Vesta research, a 10-year study completed in Australia in 2007, involved a collaboration of CSIRO, government agencies & the Bushfire Cooperative Research Centre. It represents the most comprehensive & technically defensible bushfire research program ever carried out anywhere in the world. The results unequivocally support the value of prescribed burning as a means of reducing bushfire intensity & puts forward new approaches to fuel measurement & characterisation.

"*More research is needed*" is the standard response of academics & scientists to any issue. This is because they depend on research grants to pay their salaries & expenses.

In Australia the fundamental questions about fire behaviour & fuels management have already been answered, going back to the work by Alan McArthur, Phil Cheney, George Peet & Rick Sneeuwjagt in the 1960s & 1970s & on building design by the CSIRO going back to the Tasmanian fires of 1967 & the Ash Wednesday fires of 1983.

The pressing requirements today are for refining fire behaviour tables & developing prescribed burning guides for various forest types. In other words, for applied or operational research which

builds on current knowledge. This sort of work can only be carried out by bushfire experienced researchers in the field, **not** by theoretical analysts & computer experts in academia.

The Bushfire Cycle runs thus: first there is a disastrous bushfire. This is followed by enquiries, commissions & reviews & the system is greatly upgraded. Over subsequent years, the new system is so effective that there are no serious bushfires. Apathy & complacency set in. Weirdo pressure groups arise, governments lose interest & funds & staff are reduced. The system degrades. Then there is another bushfire disaster & the wheel revolves once more.

According to the doyen of Canberra intellectuals Professor Clive Hamilton, speaking on ABC's Radio National recently; "*the most interesting thing about the recent Victorian bushfires has been the attacks on greenies.*" Apparently, he did not find the loss of over 180 lives as interesting as the ruffling of the feathers of a few environmental activists.

Les Carlyon in his magnificent book *The Great War*, notes that Monash's final planning conference before the attack on Hamel in 1918 had an agenda of 133 items. Elsewhere it is recorded that the then-Colonel Monash, commanding Australian troops at Gallipoli in 1915, set up his command HQ thirty metres from the Turkish front trenches.

The fundamental issue & the basis of the whole difficulty facing professional bushfire managers, is very well summed up by Jim Hacker, fictional Minister for Administrative Services in the television series '*Yes Minister*': There are times in a politician's life when he is obliged to take the wrong decision. Wrong economically, wrong industrially, wrong by any standards – except one. It is a curious fact that something which is wrong from every other point of view can be right politically. & something which is right politically does not simply mean that it is the way to get the votes – which it is – but also if a policy gets the votes then it can be argued that that policy is what the people want. And, in a democracy, how can a thing be wrong if it is what the people will vote for?"

It was notable that some of the worst of the recent fire damage in Victoria occurred in the dark, at night or under gale force winds **when aerial waterbombers were grounded**. This is consistent with my own experience.

In 1978 I was the Officer in Charge in the karri forest in Western Australia during the Cyclone Alby bushfire crisis. **The first thing we had to do as the cyclonic winds approached, was to ground all our aircraft & tie them down.**

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