

Learning to live like Australians — reflections on the Victorian fires

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Andrew Campbell

Triple Helix Consulting

www.triplehelix.com.au

Outline

- The Victorian fires
 - Drivers behind their ferocity and impact
 - The reaction to the fires
 - The (fuel reduction) burning question
- Public policy implications
- Learning to live like Australians



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Personal declarations

- Farming background south-western Victoria
 - Family farming in the district since 1860s, own farm managed since 1987
 - 450ha near Cavendish: 30% farm forestry, 10% environmental reserves, 60% leased to a neighbour for prime lambs
- Forestry & rural sociology: Creswick, Melbourne & Wageningen
- Forester Victorian government
- Fire training, experience & enthusiasm
- First National Landcare Facilitator
- Environment Australia SES 1995-2000
- 7 years as CEO of Land & Water Australia
- Now out on my own again



Reflections on the Victorian fires

- 7 February 2009, after 2 weeks of unprecedented heatwave
 - 47 degrees, 6% Relative Humidity, >80km/hr winds
 - Forest Fire Danger Index >150 on a logarithmic scale of 0-100
- 300 fires started or expanded in Victoria
 - 288 of these were rounded up
 - an outstanding effort in the conditions
- 12 fires were uncontrollable, with tragic consequences:
 - >210 lives lost
 - ~250,000 hectares burnt (including majestic ash forests)
 - ~2,000 homes destroyed
- The first “fires of climate change”?

Drivers behind the impact of these fires

- Unprecedented Fire Danger Index (FDI)
- High fuel loads inherent in mountain ash forests
- The density of human settlement
 - ‘tree changers’
 - rural amenity landscapes
 - lower socio-economic dormitory housing
- Complacency in the face of strong, repeated warnings
- Most residents profoundly unprepared for catastrophic fire danger conditions
 - technically, physically and psychologically
 - questions about communication systems

The Fire Danger Index (FDI)

- “The total concept of fire danger is impossible to embody in a single practical index” (Jim Gould; CSIRO, Bushfires CRC)
- McArthur Fire Danger Index developed in 1960s
 - A relative measure of difficulty of suppression for a stand
 - Different meters for forest and grassland
- Forest FDI (FFDI) takes into account: rainfall, drought index, soil dryness index, air temperature, relative humidity, wind speed
- Log scale 0-100 (where 100 = Black Friday 13 January 1939)
- Knowledge base for local forests developed from small-scale experiments mostly conducted at a fire danger rating of 10 to 20
- CSIRO & BoM (2007) proposed two new fire danger ratings:
 - >75 “very extreme”
 - >100 “catastrophic”
 - Climate models suggest FFDIs >100 every ~5 years by 2030
 - 7 February 2009, Melbourne was >150, Ballarat & Kinglake ~200

High	12 to 25
Very High	25 to 50
Extreme	>50



The reaction to the fires

- Causes of tragic loss of life & property were multiple, interacting, systemic and complex
 - a recipe for media simplification into unhelpful polarisation
 - “greens & green policies” vs fuel reduction lobby
 - Lots of opinion (much of it inexperienced)
 - viz Germaine Greer, Miranda Devine, Andrew Bolt
 - Human interest stories generally better handled
 - Much less investigative, independent journalism
 - Blogs & on-line articles have been better value



The Bushfire Response Menu

- Minimise risk of ignition
- Manage fuel loads
- Planning & regulatory framework
 - where people live
 - what people live in
- Fire detection & suppression capabilities
- Fire knowledge management
 - preparedness at household, community & system scales
 - research, innovation, training, equipment, social cohesion/capital
- Community (& body politic) fire literacy
 - learning to live with fire

Public Policy Implications (I)

- Recalibrate/reinvent the Fire Danger Index
 - introduce 'very extreme' and 'catastrophic'
 - re-educate people at all levels about this index (c.f. hurricane or earthquake ratings)
- Minimise ignition risk
 - more aggressive approach to arson & arsonists
 - careful attention to power lines
 - close the bush on days when FFDI exceeds 50?

Public Policy Implications (II)

- Prepare, stay & defend; or leave early is still the right policy
- But the bar has been lifted for both options:
- **Prepare**, stay & defend means:
 - being well trained and equipped
 - physically & psychologically ready
 - having a defensible and well-prepared site
 - and having a 'Plan B' (e.g. well-designed bunker) for catastrophic situations
- Leave **early** means very early (the day before for very extreme FDIs)



Public Policy Implications (III)

- Much better fire tracking, first attack & communication
 - Real-time satellite (thermal) imagery
 - More planes in the air, highly trained regional helitack crews
 - Better communication services
 - for communities at risk, & within & between agencies
- Much higher levels of preparedness
 - Human psychology and behaviour
 - Training & equipment at household, firm, community & system levels
 - Planning (c.f. floods) & building controls
 - Bank lending and insurance policies

Public Policy Implications (IV)

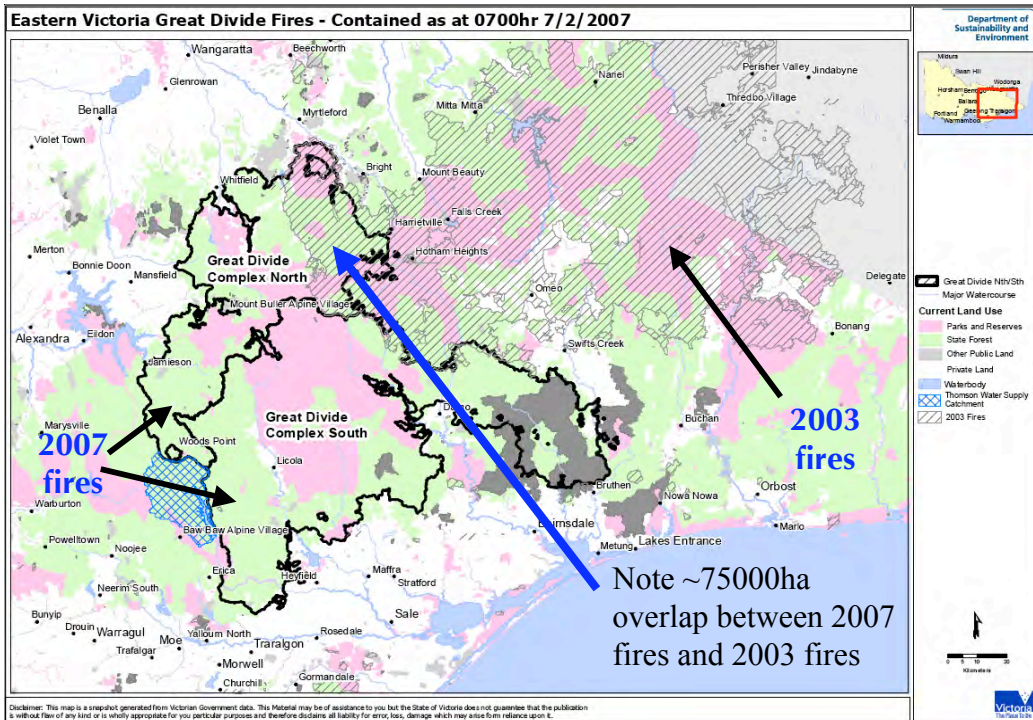
- National governance
- National knowledge management
 - way beyond the Bushfires CRC
 - big research questions linked to water, carbon, energy, food
- Community (& body politic) fire literacy
 - learning to live with fire
 - many analogies with drought, water & energy policy

The Burning Question

would more broadscale fuel reduction have made a big difference?



- Strategic fuel reduction burning can modify fire behaviour (reducing risk of crowning and spotting) under most conditions (e.g. 'moderate' and 'high'FFDI)
- Fuel-reduced areas can be valuable to work from in fire suppression
- **BUT:** Fuel loads less important in fire behaviour at FFDIs >50 (let alone >100...)
- These fires burnt through areas that had been burnt and/or logged in recent years
- More broadscale fuel reduction burning would **not** have prevented **these** fires



Public Policy Implications: Fuel Reduction Burning

- Strategic fuel reduction burning (FRB) is an essential, but far from sufficient, element of a comprehensive fire management policy
- **BUT:** FRB could be seen as a panacea & over-used (not strategic)
 - exacerbating risk to public health and safety
 - with perverse & unintended consequences for water, carbon and biodiversity
 - and ineffective under very extreme or catastrophic conditions
- **AND:** it is very difficult/expensive to do well on a significant scale:
 - impossible in tall wet eucalypt forests (like mountain ash) in any case
 - problematic in densely populated areas
 - the number of suitable days each year is narrowing
 - public lands cop the most pressure

Public Policy Implications: Fuel Reduction

- Crucial distinction between broadscale fuel reduction burning in forests, and targeted fuel reduction close to assets
- Former over-rated as a prevention measure, the latter is under-done
- Removal of vegetation is more effective than just periodic burning of understory in terms of fire prevention & hazard reduction
- It is illogical to approve subdivisions, developments and buildings in high-risk areas and then not approve removal of vegetation
- This means that development needs to be curtailed if ever more landscape fragmentation is to be avoided
- Insurance and lending policies also need rethinking for indefensible sites



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Fuel Reduction Burning: unhelpful assumptions (myths)

“Greenies and green policies are preventing fuel reduction burning”

“We need to return to more ‘natural’ (i.e. frequent) burning practices — like the Aborigines used”

“Agencies have been neglecting Fuel Reduction Burning programs”

- No mainstream conservation organisation is opposed to well-targeted and managed FRB
- Aboriginal burning in SE Australia, especially in forests, seems to have been greatly exaggerated: fire frequency has increased in SE forests and Australian Alps since European settlement (settler diaries, dendrochronology, sediments)
- Agencies have been trying hard (with available resources) to maintain FRB programs on public lands (much less is done on private lands)
- It is bloody hard to do on any scale in a drought
- Fuel Reduction Burning does not make it rain!



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A (relatively) local detour

- Anecdotal case study for illustrative purposes, not claiming to be typical
- Murramarang National Park, northern side of Durras Lake:
 - FRB lit on 30 September 2008 (close to the edge of the lake)

Date	1/10	2/10	3/10
Temp (°C)	25.5	33.6	35.0
Wind (km/hr)	calm	28	46

- Observations:
 - Spotted Gum (*Corymbia maculata*) forest with no evident fire history
 - Required high fire danger conditions to get it alight
 - Litter layer (including big logs) burned to mineral earth
 - Much more sunlight now hitting the ground
 - Significant bracken (*Pteridium esculentum*) fern recruitment already evident
- Personal opinion:
 - medium-long term fire hazard has increased
 - significant adverse biodiversity & water impacts



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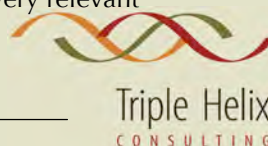
Implications of more frequent burning of larger areas

- Easier fire control under moderate conditions
- Questionable value under catastrophic conditions
- Drying out of forests, changing species composition
- Increasing fire frequency = increasing fuel flammability
- Loss of habitat, and probably some species
- Human health (and safety) risks
- Water yields?
- CO₂ emissions?



Wider Public Policy Implications

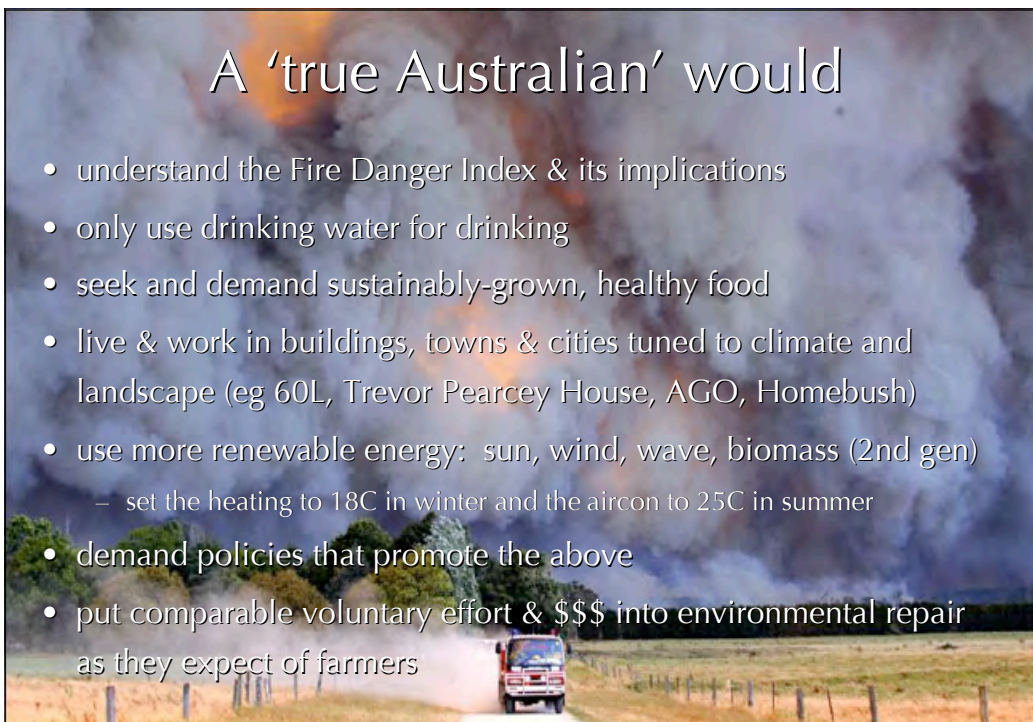
- We have yet to come to terms with this ancient continent
- We need to re-engage in a national and community debate about how we want our environment to look, feel and work
- We need to redefine what it is to **be** Australian, to **live** like an Australian, to **farm** like an Australian, and to **eat** like an Australian
- We need ecological literacy across the whole community & body politic
 - about biodiversity, water, energy, carbon, waste, food & fire
- We need a real education revolution
 - Landcare, Fireguard and the watch programs remain very relevant
 - Make much better use of web 2.0 (& plan for 3.0)
 - Invest seriously in ecological monitoring, analysis and synthesis



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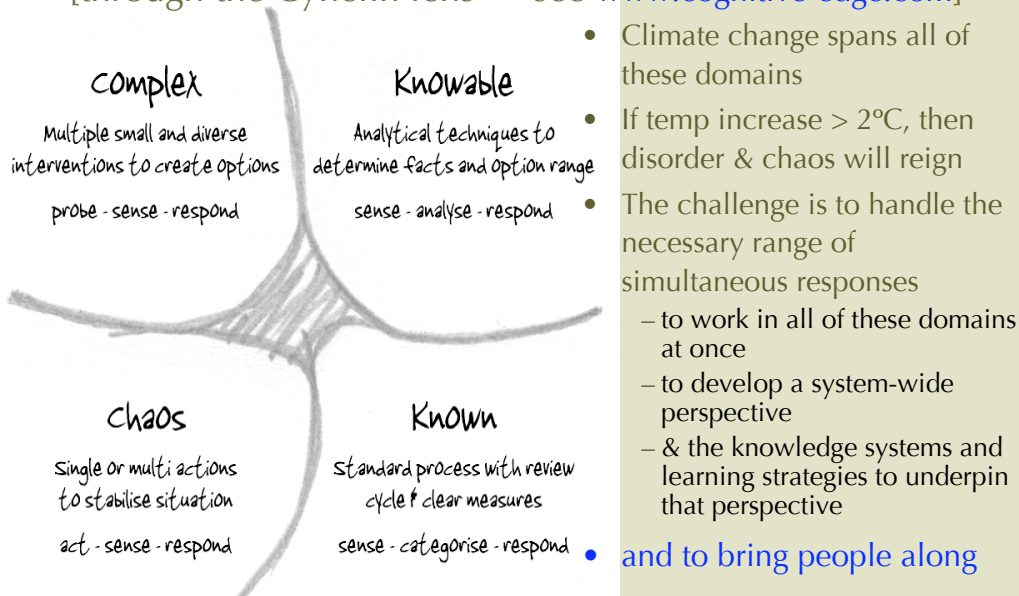
A 'true Australian' would

- understand the Fire Danger Index & its implications
- only use drinking water for drinking
- seek and demand sustainably-grown, healthy food
- live & work in buildings, towns & cities tuned to climate and landscape (eg 60L, Trevor Pearcey House, AGO, Homebush)
- use more renewable energy: sun, wind, wave, biomass (2nd gen)
 - set the heating to 18C in winter and the aircon to 25C in summer
- demand policies that promote the above
- put comparable voluntary effort & \$\$\$ into environmental repair as they expect of farmers



Implications for knowledge needs

[through the Cynefin lens — see www.cognitive-edge.com]



Policy - putting it all together

- “Joined-up government” and “evidence-based policy”
 - are crucial, but have to be more than slogans
- New leadership, alliances, platforms, networks are needed
- Climate change (or climate chaos) is a row, not a column
- Policy & planning for carbon, energy, transport, waste, education, health, food and fire needs integration
- This requires a solid and extensive evidence base in the ‘known’, ‘knowable’ and ‘complex’ domains
 - And good adaptive tools (e.g. real-time monitoring)
- Resilience thinking needs to become mainstream
 - a sensible balance between centralism & subsidiarity



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Take home messages

- The Victorian fires of February 2009 are a tragic harbinger of a new era
- Fire danger conditions were unprecedented, but such conditions will happen again & more frequently
- The only long-term 'fix' is to mitigate climate change. This means decoupling the human economy from greenhouse gas emissions
- In the meantime, we need to learn to live with fire, just as we need to learn to live with extended dry spells (droughts)
- This means a radical increase in bushfire literacy and preparedness at all levels



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**For more info
including detailed background papers
and useful web links**

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