Submission No 6

INQUIRY INTO WAMBELONG FIRE

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The Director,
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Inquiry into the Wambelong Fire

This submission addresses the causes of the Wambelong Fire in the context of Term of Reference 8: Any other related matter. It focuses on the causes of the megafire as distinct from the relatively trivial matter of what caused a fire to be ignited. Ignitions during severe weather are inevitable. Whether they are natural by lightning, deliberate by arsonists or accidental by bad luck or bad management, responsible stewards of land would recognize the inevitability and maintain low and discontinuous fuels.

I am a retired Silviculturist with a particular interest in fire management and forest health. Five publications relevant to this Inquiry are attached, and a list of my other relevant publications in scientific journals and proceedings is appended. I gave evidence to the House of Representatives Inquiry after the 2003 fires. In their report – *A Nation Charred* - Chairman Garry Nairn stated that *The Committee heard a consistent message right around Australia:- there has been grossly inadequate hazard reduction burning on public lands for far too long;* This is still the situation and this was the fundamental cause of each and every megafire that has occurred in Australia since the first one broke out on Black Thursday 1851 and burnt five million hectares of Victoria, only sixteen years after Europeans began to disrupt Aboriginal burning.

Explorers and naturalists including Tench, Flinders, Mitchell, Darwin, Curr and Howitt recognized right from the start that Aboriginal burning made Australia what it was and that its disruption caused woody thickening, megafires and loss of biodiversity. Early in the Twentieth Century, European trained foresters tried to exclude fires, and created the scene for Black Friday 1939 when seventy one lives were lost. The Stretton Royal Commission reaffirmed cause and effect. Similar disasters occurred across Southern Australia and by the middle of the Twentieth Century, foresters had learnt their lessons. Broad area hazard reduction burning and aerial ignition were introduced.

In the unnatural cypress scrubs that had developed in the late Nineteenth Century (after droughts and destocking followed by wet seasons) foresters continued to use thinning and grazing with limited, targeted burning to reduce fire risk whilst maintaining growth of timber. They established and maintained comprehensive networks of trails, as well as lookouts and resources on standby for quick response to manage wildfires.

Warrumbungle National Park was declared in 1954 and has not had the benefit of informed management by pragmatic and experienced staff. There have been "*major fires occurring once every 20 to 30 years … Most of the park has remained unburnt for over 30 to 50 years. Much of the park was burnt in 1937, while large sections were again burnt in 1952 and 1967. A smaller fire burnt out a section in the central part of the park in 1990 (NSW NPWS 2001).*"[1]

This summary of fire history can now be corrected and updated as follows: Major fires occur every nineteen years on average and most of the park was burnt in 2013.

[1] Commonwealth Government. Department of the Environment and Heritage (2005)
Australian Heritage Database.

Around 1980 green academics with a wilderness mentality dreamt up theories that burning, grazing and logging are ecologically harmful. Since then, most public land in southern Australia has been converted to national park and mismanaged according to the wilderness myth. Lack of burning or grazing creates three-dimensionally continuous fuels that can support firestorms. Firetrails are destroyed, either deliberately or by lack of maintenance. Surveillance is lax, and there is a lack of resources and will for quick response. Landscape size bombs and inevitable megafires are the norm. Central Victoria explodes every eleven years on average. Northwestern New South Wales' climate is less conducive to growth of fuels, hence the longer average interval between megafires.

New South Wales' National Parks and Wildlife Service (NPWS) tries to minimize burning across all tenures using a ridiculous, disproven theory that frequent burning threatens biodiversity. They have devised guidelines for intervals between burning that ensure ongoing megafires and loss of biodiversity, for example the mooted extinction of koalas and rock wallabies in the Warrumbungles by the Wambelong Fire.

The guidelines for the 'woodlands' of the Warrumbungles state that: *The minimum interval should be at least 5-10 years, and the maximum approximately 40 years. … The data for threatened fauna also therefore indicate that the suggested intervals for this formation should be treated cautiously, and that some intervals longer than 40 years would be appropriate.* This is a fine example of the green bureaucrats' cynical use of untenable ecological theory to maintain the status quo of infrequent high intensity fire. It is a recipe for ongoing disaster.

The natural, pre-European woodlands and all their biota were dependent on frequent mosaic burning by Aborigines. Fuels were burnt as soon as they were sufficiently continuous and dry. There was an open, grassy, seasonally flammable matrix containing sites such as rock outcrops that had little or no fuel to carry fire, and recently burnt patches with little fuel or green fuel. Brown, black or green patches formed a fine grained mosaic within a coarser landform mosaic of grassland, savanna, forest and small scattered scrubs or heaths on sites that are unsuitable for trees and grass. Aborigines created and enhanced the mosaics by burning according to season and site. Exposed areas were burnt before more sheltered areas because they could be. Brown, black or green patches couldn't be burnt. By the time sheltered areas were hot and dry enough to burn they were surrounded by black or green areas so fires didn't escape.

Stands dominated by cypress occurred on sites that didn't grow enough grass to carry mild fire every season, such as rocky slopes (black cypress) or sandy rises (white cypress). Cypress seedlings are liable to be killed by fire until they develop into saplings with thick protective bark on the trunk and resprouting buds in the canopy out of reach of mild fires. On plains with deeper or heavier soils, prolific germination of cypress and prolific grass growth occurred after wet seasons. As soon as the grass cured, Aboriginal fires killed most of the cypress seedlings. Eucalypt seedlings produced lignotubers that were repeatedly burnt back to the ground until treefall gave them opportunity to grow into saplings. Thus eucalypts remained dominant on plains. After Aboriginal burning was disrupted, grazing controlled cypress seedlings in northwestern NSW until numbers of stock declined during droughts in the 1870s. After a good season in 1879, cypress became feral and took over the landscape. Rocky slopes with black cypress had little or no grazing value. They began to turn into scrub as soon as Aboriginal burning was disrupted, but this was a slower process because these sites are poorer.

NPWS is driven by philosophical objections to burning and conspires with green academia to deny the critical importance of fire in the ecology of semi-arid woodlands and the Australian landscape generally. Huge amounts of public money are wasted on so-called ecological research designed to support the anti-burning philosophy. There are a couple of examples with some relevance to the Wambelong Fire. Ross et al (2012) claimed that the contribution of fire suppression to cypress encroachment was hotly debated but unresolved because of difficulties of interpreting historical information. Cohn et al (2011) asked *How do slow-growing, fire-sensitive conifers survive in flammable eucalypt woodlands?* They claimed that fire suppression by dense cypress scrubs was a natural process that allowed cypress to survive mild fires.

However the historical records are unequivocal as thoroughly documented in Bill Gammage's award winning book. The heat remains in the debate because green academics continue to deny the history of Aboriginal burning and to portray post-European scrubs as natural ecosystems. The correct answer to Cohn's rhetorical question is that established cypress, like all the associated native biota are not sensitive to fires in their natural habitat of open, grassy woodlands. Eucalypt woodlands are naturally dependent on mild fires burning quickly through cured grass fuels to maintain natural ecological processes.

Genuine scientific research into fire ecology and management confirms that biodiversity, forest/woodland health, and fire safety depend on frequent mild burning. Lack of burning, or its ecological analog – grazing, leads to accumulation of three dimensionally continuous fuels, changes in soils and microclimate, and deteriorating health and resilience to fire and drought of old trees. In dry eucalypt forests, burning at intervals of three to six years has been shown to enhance biodiversity, forest health, and fire safety, whereas burning according to NPWS guidelines has been shown to achieve the opposite. For example Australia's rarest snake has been lost from Ku rin gai NP, there has been local extinction of grasstrees in Royal NP, and the rare and endangered Hastings River mouse has been lost from national parks on the north east NSW escarpment. Natural fire regimes in grassy woodlands were more frequent than in forests because there was more sunshine and seasonally cured fuel.

Cypress encroachment of naturally grassy, mixed eucalypt woodlands suppresses biodiversity (including grassy fuel), creates shade and reduces air circulation. Dense stands cannot be burnt under mild or moderate conditions, but can explode into firestorms under extreme conditions. Biodiversity will continue to decline and fire risk will continue to increase as woody thickening extends more widely across the landscape under NPWS policies. Green academics and bureaucrats are now using supposed global warming by human activities as an excuse for the megafires that they have visited upon us. Ex-chief of the thankfully defunct Climate Commission, Tim Flannery, gave the Wambelong fire explicitly as an example. History shows that this is nonsense. For example I provide the following extracts from Jurskis and Underwood (2013).

Tench and Judge Advocate David Collins recorded the first European observations of fire behavior under drought and extreme weather conditions at Sydney. Aboriginal fires were burning in bushland northwest of Rose Hill (Parramatta) on 10 and 11 February 1791 under extreme temperatures (>40^{0}C) (actually in excess of 43^{0}C) *and searing northwesterly winds, conditions that caused fruit-eating bats and parrots to drop dead from the sky. However, the fires did not affect the settlement (Tench 1793, Collins 1798). There was another "blow up day" (a day when high temperatures, low humidities, and strong winds can cause extreme fire behavior) on 5 December 1792 when a grass fire at Sydney burnt one house and several fences before being controlled (Collins 1798). Extensive fires at Parramatta and Toongabbie on the same day also had relatively minor impacts. They were thought to be controlled until a firebrand from the crown of a tree ignited a spotfire on a thatched roof, leading to the destruction of a hut, outbuildings, and a stack of wheat (Collins 1798). The minimal impact of these fires, burning under extreme conditions, demonstrates that they were generally burning in light, discontinuous fuels, and thus did not attain high intensity (e.g., Jurskis et al. 2003)…*

… The significance of the change in fire regimes and vegetation over the longer term can be appreciated by comparing the situation on blow up days under Aboriginal management against the current situation. Fires on blow up days in 1791 and 1792 caused little damage to settlements at Parramatta and Sydney, and were easily controlled (Tench 1793, Collins 1798). In contrast, fires under similar conditions in January 1994 (Speer et al. 1996: Figure 3) were mostly uncontrollable, burning more than thirty thousand hectares around Sydney, claiming hundreds of houses and three lives despite the efforts of a well-equipped army of firefighters (NSW Rural Fire Service 1998).

The difference in 1994 was that firestorms developed in the dense, three dimensionally continuous fuels produced by modern mismanagement of the native vegetation on sandstone surrounding Sydney (e.g., Figure 1). The fire storms caused showers of embers and long distance spotting of fires. For example, a run of fire that claimed human lives spotted 800 metres across a major watercourse (Hurditch and Hurditch 1994). However, Conroy (1996) listed four localities where runs of these fires under extreme weather conditions were effectively contained as a result of prior hazard reduction burning.

The disastrous Blue Mountains fires of 2013 occurred under moderate conditions compared to the relatively minor fires under extreme conditions two centuries ago, showing that modern technology cannot compensate for inappropriate land management and dangerous accumulation of fuels. For example the highest daily maximum temperature during the fire at Springwood that destroyed nearly two hundred houses and damaged a hundred more was only 32^0C. Daily maximum temperatures at Coonabarabran during the Wambelong Fire ranged from 28 – 40^0C, averaging 33^0C. Climate change clearly didn't cause this megafire nor any others.

The causes of the Wambelong megafire, as for all megafires, were:

1. Lack of fuel management, leading to woody thickening, three dimensionally continuous fuels and inevitable firestorms.
2. Lack of access, resources and commitment to quick response.

I am willing to give evidence on any of the matters I have raised, and to table any of my publications listed in the Appendix.

Yours faithfully,
Vic Jurskis

Appendix: Other relevant publications

Jurskis, V. 2000. Vegetation changes since European settlement of Australia: an attempt to clear up some burning issues. *Australian Forestry* 63 (3): 166-173.

Jurskis, V. 2001. Fire management for conservation: reconciling theory and practice. In "*Bushfire 2001*". Proceedings of Australasian Bushfire Conference. New Zealand Forest Research Institute Ltd. Rotorua. pp. 190-194.

Jurskis, V. 2002. Restoring the prepastoral condition. Austral Ecology 27: 689–690. doi: 10.1046/j.1442-9993.2002.01244.x

Jurskis, V. 2003. Assessing the ecological implications of prescribed burning: where do you start? Third International Wildland Fire Conference and Exhibition, Sydney. Australasian Fire Authorities Council, Melbourne.

Jurskis, V. 2005. Eucalypt decline in Australia, and a general concept of tree decline and dieback. Forest Ecology and Management 215: 1–20. doi: 10.1016/j.foreco.2005.04.026

Jurskis, V. (2005a) Decline of eucalypt forests as consequence of unnatural fire regimes. *Australian Forestry* **68** (4), 257-262.

Jurskis, V. (2005b) Eucalypt decline in Australia, and a general concept of tree decline and dieback. *Forest Ecology and Management* **215**, 1 -20.

Jurskis, V., de Mar, P. & Aitchison, B. (2006) Fire management in the alpine region. In *Bushfire 2006. Life in a fire prone environment: translating science into practice.* (ed. Cuong Tran) Griffith University. CD

Jurskis, V., J. Turner, M. Lambert, and H. Bi. 2011. Fire and N cycling: getting the perspective right. Applied Vegetation Science 14: 433−434. doi: 10.1111/j.1654-109X.2011.01130.x

Jurskis V, Turner RJ, Jurskis D, (2005) Mistletoes increasing in 'undisturbed' forest: a symptom of forest decline caused by unnatural exclusion of fire? *Australian Forestry* **68**, 221–226.