Feedback: Draft Program Strategy. NSW Forest Monitoring and Improvement Program

1 Is the strategy sound? How can it be improved?

The strategy is unsound because it puts the cart before the horse. There is already more than enough information to drive adaptive management but it is not happening on anything like the scale that is necessary to arrest ongoing decline in forest health and safety across the landscape (e.g. Kathy Lyons and Justin Black, Forestry Corporation. *Implications of prescribed fire on forest health*. Institute of Foresters of Australia Subtropical Fire Forum Southern Cross University, Lismore 12th March 2019). The strategy violates the precautionary principle in our National Forest Policy Statement (NFPS) that: *where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation*. It can be improved by NRC accepting its responsibility to properly evaluate existing information and provide independent advice to Government. I provide examples where NRC has failed in this duty.

2 What are your priority information needs?

The strategy pays lip service to adaptive management. There is abundant information, from all tenures across the landscape, demonstrating that management under our NFPS, RFAs and IFOAs has failed to deliver Ecologically Sustainable Forest Management. Proliferation of scrubs, three dimensionally continuous fuels, chronic eucalypt decline and pests, parasites and diseases, with consequent loss of biodiversity, requires action, not more information. The priority must be to firstly adapt on the basis of existing information and then to monitor outcomes.

3 How can you contribute?

I have tried to contribute to improvement by providing NRC with existing published information, by meeting with the Commission and by attempting to establish communication with the *independent expert* Associate Professor Baker. NRC has ignored this information and wasted time and money supporting unnecessary duplication of research. Professor Baker received my information but did not respond. NRC has not been open to public participation, nor transparent and accountable.

Delivering a state-wide view on forest health and management …
Delivering independent advice on how forest management can be improved …

I met with NRC on 4th July 2018 to discuss forest health and other issues. I followed up with additional information by email the following day and provided another scientific report by email on 10th July. Consequently, NRC has abundant scientific evidence indicating that forest health issues right across Australia are due to a lack of mild burning, not climate change. Having received no response, I contacted NRC by email on 6th November and received the following response:
In regards to forest dieback we are doing some further homework on this issue. We have read your publications on dieback that you have previously shared – thank you. At this stage, we are not initiating a project on dieback, rather simply gathering more knowledge.

The Draft Program, June 2019 states:
The Commission will provide independent advice by reviewing forest monitoring data, evaluation and research, drawing on a diverse range of expertise and information from both within the NSW Government and outside of government.
The Commission will deliver clear and practical recommendations … on both emerging challenges in forest management, such as forest health issues arising due to the effects of climate change …

This statement indicates that the Program is already 'off the rails'. In particular, the Commission should independently evaluate existing information on forest health. NSW DPI Forest Science has proven to be hugely costly and incompetent in assessing and researching forest health. Worse still, they have set the terms of reference for two supposedly independent scientific literature reviews which have supported their

unscientific and long-disproven hypothesis, based on lack of observation and thinking, that bellbirds cause increases in psyllids and consequent tree decline.

Further:
we will aim to provide a platform for:
Indigenous organisations with experience in forest management to share their experience with the Program's evaluations, for example, in cultural burning practices to lower the risk of wildfire.

This statement shows ignorance of Australia's socioecological history and is disrespectful of Aboriginal culture. It absolutely justifies the disdain expressed by our foremost exponent of traditional burning, for what he calls *western science*. Victor Steffensen eloquently expresses the holism of traditional burning compared to the flawed academic and bureaucratic view of conflict between hazard reduction and environmental management. He says *that there is only one fire – the right fire* and that we have to manage landscapes not individual species. Under current management, we have *upside-down country – thin on top and thick underneath*. There was no risk of wildfire under Aboriginal management. The landscape was safe and healthy. Lightning fires were not a problem. Aborigines didn't need clothing and footwear, let alone boots, overalls, hardhats, smoke goggles, drip torches, fire engines, waterbombers or computer models.

Rather than providing a platform, NRC should seek to engage Steffensen as an expert adviser.

Expert advice will guide the Program
***…** Associate Professor Phillip Gibbons, Fenner School of Environment and Society, Australian National University*

Professor Gibbons is not competent to provide expert advice to the Program. His published work ignores our socioecological history and denies the fundamental role of people and mild fire in Australian ecosystems. For example:

Gibbons et al. (2008, 2010) uncritically dismissed historical information about vegetation structure as tainted by subjectivity and pecuniary interest, qualitative and unsystematic. They suggested that diameter distributions of trees in eucalypt woodlands and open forests should have the reverse J form typical of unmanaged stands. However history shows that stands with high densities of small eucalypts were rare until Aboriginal management was removed (Mitchell, 1848; Wallis, 1878; Curr, 1883;Howitt, 1891; Donovan, 1997; Noble, 1997; Jurskis, 2009, Table 3) and historical data for stand densities are consistent with data from remnant pre-European stands (Jurskis, 2009), cadastral survey records (Lunt, 1997) and stump counts (Lunt et al., 2006). Aboriginal broadcast fire controlled recruitment of trees and shrubs in grassy ecosystems. Later on, domestic stock or rabbits performed a similar role in some areas.

Consumption of fallen timber and broadcast burning were critically important to Aboriginal culture and economics. On the single occasion when Oxley (1820) was obstructed by fallen timber on land, the lack of evidence of human economy prompted him to declare it a "truly primeval forest". In contrast, 41% of the remnant 'woodlands' and forests studied by Gibbons et al. (2008, 2010)had no evidence of fire and only 2% had evidence of recent fire. Studies of fallen timber in purported woodlands were in fact conducted in forests developing in a landscape starved of fire (e.g. ACT Government, 2004; Jurskis, 2009).[1]

Gibbons et al. (2008) used forests with no firewood collectors, in a landscape starved of fire (e.g. Pyne, 1991) to 'reference' Aboriginal woodlands. History and 'natural experiments' can provide a more objective view than 'scientifically rigorous' studies based on false premises (Jurskis, 2002; Laris, 2008).[2]

Dr. Philip Gibbons and his colleagues at Australian National University's Fenner School of Environment … made the incredible assumption that areas without any treecutting, firewood collection, grazing by domestic stock or recent fire were representative of pre-European conditions despite the historical evidence that Aborigines felled trees and burnt wood frequently and widely in broadcast and spot fires that maintained the open grassy ecosystems sought by European pastoralists. …

Lack of frequent, low-intensity burning allows a mat of litter and woody seedlings to develop, choking out herbs, grasses and bare ground, and affecting microclimate, nutrient cycling, soil conditions and ultimately the health of established trees. Ironically, modern ecological assessments of ecosystem health typically identify absence of this developing problem (i.e., lack of eucalypt saplings, litter, fallen timber and shrubbery) as a sign of degradation. For example Gibbons and colleagues thought that the size class distribution of eucalypts in a healthy system should have a reverse J shape. This is incorrect because the reverse J curve distribution indicates that seedlings and saplings are proliferating at the expense of declining trees. Such stands are proceeding down the vicious spiral of chronic decline for the want of mild fire.

Mulch builds up, sunshine and air circulation are reduced. Nitrogen in litter, seedlings and herbage that had previously been volatilised by fires and returned to the atmosphere, or mineralised by fires and taken up by the flush of new growth, now accumulates in the soil and the developing shrubbery. Topsoils become cooler, damper, softer and deeper. Carbon to Nitrogen ratios of soils are reduced, they become more acid (except in the case of some calcareous soils), and microtoxins such as aluminium and manganese are released. These inhibit tree roots and mycorrhizae. They become more susceptible to droughts and root rots such as phytophthora. The deteriorating soils and roots cause nutrient imbalances and physiological changes in the trees. Their sapstreams and foliage become more attractive and nutritious to arbivores – that is anything that derives nutrients from any part of the tree including roots, sapwood, sap and leaves.[3]

The Program will supposedly ***Identify opportunity cost of information*** *– to ensure that generating new, and potentially unnecessary, information is not at the cost of investing in improved management performance.*

It has already failed in this aspect by ignoring existing information on koalas and funding research to duplicate the information.

Evaluation questions – what do we want to know?
1. Where have we been? Where are we now? What is changing?
What is the current status and trend of a particular species, in a certain tenure or bioregion?

NRC has unequivocal information that koalas, psyllids and bellbirds are increasing in coastal forests as a result of eucalypt decline with lack of mild burning[4,5]. NRC has failed to objectively evaluate this information and advise government accordingly.

What is the current status and trend of forest dieback?
Are the full suite [*sic*] *of forest values being maintained or increased across the NSW forest estate?*

There is a wealth of existing information that chronic decline of forests is widespread and increasing. Forest health, safety and biodiversity are declining. Adaptive management is urgently required before monitoring of its impacts.

2. What is working? What is not?
Are koala browse tree retention rates adequate on state forests?

NRC is wasting time and money by supporting research to answer this question which has already been answered unequivocally. NRC's claim to be providing *independent oversight* and *advice* is untenable.

Are forests in a better condition for being in the conservation reserve system?

There is a wealth of existing information that this is not so. For example, see Attachment 1 (Jurskis and Black 2019).

3. What do we do next? What needs to change? Where do we want to go?
How might the population of a particular species change under a range of forest management settings for habitat tree retention?

A comprehensive study by Kavanagh *et al.* (1995)[6] answered this question. Koalas were associated with heavily logged sites where few or no habitat trees were retained. Greater gliders were associated with unlogged or selectively logged sites where there were many habitat trees. Populations of other arboreal mammals were unrelated to habitat tree retention. Since this study, koala populations have increased in unlogged and selectively logged forests as a consequence of chronic eucalypt decline with lack of mild burning. Koalas now occur in greater numbers throughout forests irrespective of logging intensity or tree retention[5,7].

NRC has this information, but failed to evaluate it objectively and independently. Rather, the Commission publicly repeated a false interpretation of the study by Kavanagh and others, that was made by Law and colleagues in contradiction of their own results. NRC stated that koalas tolerate selective logging, but more research is required on impacts of intensive logging. NRC is wastefully funding further unnecessary research by Law on this non-issue.

How might the distribution and extent of an important timber species change under various climate change scenarios?
How might forest ecosystems respond to disturbances, such as drought or increased fire intensity, under different climate change scenarios?

Drought is not a disturbance, it is a natural variation to which all Australian ecosystems are well adapted. Ecosystems no longer resilient to drought, and frequent extensive high intensity fires, are consequences of disturbance of natural regimes of frequent mild fire. Action is urgently required to reinstate frequent mild burning in the landscape before monitoring the results. Once healthy ecosystems are restored they will be resilient, whatever the magnitude and direction of climate change.

There is clear palaeological evidence going back 120,000 years, of interactions between climate, ecosystems and fire, with and without Aboriginal burning. An unprecedented peak in biomass burning over 70,000 years occurred after Europeans disrupted Aboriginal burning, and before any potential impacts of the industrial revolution. Biomass burning declined sharply after foresters introduced broadscale burning in the mid-twentieth century. The resurgence of holocaust consequent to ecologists' interference in fire management since the late twentieth century is yet to be sampled in sediment cores. It is quite evident in the ecological literature and quite wrongly attributed to climate change[3].

There is an urgent need to reinstate ecologically sustainable fire management and absolutely no need to ponder what might happen under various climate change scenarios.

Using evidence to recommend changes
The Program will go beyond traditional models of reporting, and provide a more agile and responsive approach to risks and results as they emerge.

The Program is already failing because NRC has failed to properly evaluate existing information. In particular, current regulation of prescribed burning by NSW Rural Fire Service is achieving extremely perverse outcomes in terms of landscape health and safety.

Citations

[1]Jurskis, V. 2011 Benchmarks of fallen timber and man's role in nature: some evidence from temperate eucalypt woodlands in southeastern Australia. *Forest Ecology and Management* 261, 2149-56.
[2]Jurskis, V. 2009 River red gum and white cypress forests in south-western New South Wales, Australia: ecological history and implications for conservation of grassy woodlands. *Forest Ecology and Management* 258, 2593-601.
[3]Jurskis, V. 2015 *Firestick Ecology: Fairdinkum Science in Plain English*. Connor Court, Brisbane.
[4]Jurskis, V. 2005 Eucalypt decline in Australia, and a general concept of tree decline and dieback. *Forest Ecology and Management* 215, 1-20.

[5]Jurskis, V., 2017. Ecological history of the koala and implications for management. *Wildlife Research* 44, 471-483.

[6] Kavanagh, R. P., Debus, S., Tweedie, T., and Webster, R. (1995). Distribution of nocturnal forest birds and mammals in north-eastern New South Wales: relationships with environmental variables and management history. *Wildlife Research* **22**, 359–377.

[7] Law, B.S., Brassil, T., Gonsalves, L., Roe, P., Truskinger, A., McConville, A., 2018. Passive acoustics and sound recognition provide new insights on status and resilience of an iconic endangered marsupial (koala *Phascolarctos cinereus*) to timber harvesting. *PLoS ONE* 13, e0205075.

Additional Supporting References

(Most have been supplied to NRC. Please advise of any that have not)

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