

Dear Mr. Dave Owens and Professor Mary OKane,

Please find below my submission to the NSW Bushfire Inquiry. I understand the deadline was extended to today 30.4.20

I live at Wallaga Lake near Bermagui, Bega Electorate. I have lived here for 7 years & prior to that on a mostly bushland property south of Bermagui for over 20 years. We built our own house there and have very good bush skills and knowledge. We have lived in and near the bush and the danger of fire throughout. I have also worked for decades as a botanist/ecologist doing native plant surveys in all kinds of bushland communities including field data surveys to map native plant communities, from the Snowy Mts to the Vic border. I have also worked advising farmers on management of on farm remnant bushland.

My partner and I are retired and no longer physically able enough to protect our property or assist others to do so except in limited ways. However we did support people psychologically (we are both professionally trained in this) and with practical tasks with neighbours, and with volunteered assistance for fires and community members providing meals via World Kitchen from Bermagui during and after the fires were out. The community pulled together and were hearteningly co-operative and kind despite the stresses.

Everyone in this area has been hugely affected by the recent bushfires. This includes loss of life, property, businesses, farms, livestock and immense suffering for native animals, long term damage to native flora and fauna, river and stream health and soil loss.

It was frightening to live through the 4 weeks when fires were very close to us. Every week we were forced out of our homes for anything from a week to 2 or 3 days, sleeping in a camper on the foreshore at Bermagui or going to evacuation centres in Bega and Merimbula, breathing thick smoke and hoping ours and others homes and the animals and forests were still safe. Where we went depended on where we were sent or on what was available at the time and whether we could get back to our houses because of road closures, fuel and communication problems.

This narrow strip of coastal land east of Cobargo, Quaama and Coolagolite did not burn. We were lucky with wind changes & greatly assisted by the RFS, other emergency services and Council. We are all grateful in this small area for our lives and property. Not so for many of our friends and community. Everyone's mental health and the entire economy of the region is affected and will be for a very long time.

Rebuilding human lives and livelihoods after the fires will slowly happen. Human life and property was the priority, everything else was beyond us and we were unprepared. This was despite worsening fire danger conditions with prolonged fire seasons, higher temperatures and frequent severe drought.

Recovery of full native biodiversity is unlikely however. There are millions of hectares in which seed stocks have been destroyed with outright death of vast areas of native plant communities, fauna and insects, fungi on which soil nutrient health relies. All of this was left to burn. There were no refuges, fire intensity was too great, every thing burnt including the soil biota. Five million hectares in NSW alone, and billions of dead animals. Ecologists have suggested that streams in the northern Kosciusko NP may never recover as the systems that sustained them have changed irrevocably.

These kinds of fires that create their own catastrophic weather systems are not controllable. Historically they have happened before. However a warming planet increases the frequency of these events here and in other countries as mean land and ocean temperatures increase.

What to do?

Other submissions will have addressed the need for planning, building code improvements and resourcing emergency fire fighting responses, public education etc. Also NPWS, who have responsibility for vast areas of forest, have had major funding cuts in recent years that needs urgent redress.

These measures are necessary but do not address the conditions that create such fires. All fauna including animals, birds, insects and microbiota depend on healthy, diverse ecosystems. So too the air we breathe. Natural and agricultural management needs to change for water cycles to replenish river systems and soil productivity to be retained. Current management practices do not provide it and much Australian agricultural and grazing management practice increases the drying of our continent. Since colonization Australia has a regrettable history of soil loss and degradation, increase in desertification, loss of water in our river systems, loss of underground water replenishment and major biodiversity loss. We have been highly productive of goods and services but our extractive methods are not sustainable. They leave us trying to control and protect ourselves from large and small catastrophic events.

We are a resilient and adaptable species. We need to adapt quickly and newly stepping out of old paradigms and employ all available knowledge especially the vast knowledge of indigenous people here who have adapted to tens of thousands of years of climatic changes.

In the following I have referenced only a few contemporary sources that are readily available and understandable.

1. Cultural Burning

Cultural burning evolved through thousands of years of adaptation to climate change. It reduces wildfire hazard while increasing habitat. It has nothing to do with fuel reduction in calendar seasons, increasingly divorced from reality. It has everything to do with actual seasonal changes in forests and many other plant communities. It entails far more knowledge of land and forests than do our current control burn practices. It requires on the ground detailed, location specific observation of flowering times, breeding times, soil moisture, insect and animal behaviour, understanding patterns of weather, learned from the land within specific habitats and in the broader landscape. This is a depth and breadth of knowledge of people who were utterly dependent on the health and safety of the land of which they were an inextricable part. It is the knowledge of a culture adapted to greater climate change challenges than we have ever seen. One that is neither separate from nor greater than their environment.

It is time to listen, learn and to accept indigenous knowledges in close collaboration with scientific ecological and technological knowledge to evolve new sustainable methodologies for Australia today. Despite the history of cultural destruction of Australia's First Peoples following colonization, there are still knowledge holders who are crying out to work with all of us and share knowledge.

Non-indigenous Australians have very little exposure to learning the complex patterned knowledge systems still held by our First Peoples. Tyson Yunkaporta in his book, *Sand Talk* (2019) makes indigenous patterned knowledge accessible to non-indigenous people schooled in entirely different ways of knowing the world. It is full of collaborative and creative ways we can work together to understand each other enough to integrate scientific and evolved indigenous knowledges.

We need to employ and empower indigenous people who hold knowledge of how to adapt and thrive in an ever changing environment.

Essential to that knowledge is the use of fire in the landscape, how to control it and still maintain diverse, safe, sustainable and productive ecosystems. For an easy reference to begin to understand the depth and complexity of this knowledge is to watch ABC TV's *Australian Story, Fighting Fire With Fire* (12.4.20).

Firestick Alliance Indigenous Corporation has also been set up to support cultural burning. NPWS is trialing these methods in NSW far south coast.

Victor Steffenson, an indigenous knowledge holder and elder, is keen to train and support people in others states, not only NT.

Cultural burning could be used initially in natural areas close to urban and regional communities. It is a detailed specific use of fire. So it will likely need lots of local people in a hands on apprentice style training to develop detailed knowledge of and close relationship with their local bushland.

Many people long to be more usefully relevant in our natural areas. There is currently a big divide between the public and the management of our forest lands which resides with state authorities. The public relationship with our natural areas has become marginalized to one of recreation with minimal knowledge or understanding. Forests have become ideological footballs, forest wars, diminished to conflict over jobs, logs and furry animals. It is depauperate, we can do much better than this.

Without a sense of ownership/belonging there is no deep co-operation. The public co-operation over safety during NSW bushfires was a joy to participate in. We see the same in our response to Covid 19 protection measures.

Many people would be delighted to have relevant engagement with the health and regeneration of bushland and forests while reducing fire hazard and improving wildlife habitat. There was a huge public response to providing food and water to stranded native animals after the fires and this is continuing. Not all of has been well informed but that is because as a population we are alienated from and hence ignorant of life in our neighboring forests.

Cultural Burning provides these close relationships with forests, a relationship that is embedded in and responsive to life as it changes with actual seasonal change. It would take time to train and implement this kind of management. It would alter the composition of species in plant communities. Yet this will be necessary if we are to reduce fire hazard in a way that creates rather than destroys habitat. This applies especially near settled areas. It could also be used to provide refuges for native animals during wildfire in remote forests.

In the short term we will need all the trained volunteers we can find working closely with state and local government agencies to assist in detailed and informed recovery. There are well established voluntary Bush Care programs at local government level, especially with interim management of weed invasion as plant species recolonize burnt areas.

2. Regenerative Agriculture

Successful fire management and agricultural and ecosystem recovery in a warming climate is improbable with current land management practices.

We need to promote, resource and reward sustainable farming and grazing practices and rapidly move agriculture away from current extractive methods that require ongoing external inputs.

Regenerative Agriculture is a proven method of land and agricultural management that regenerates soil and water systems, while being productive, increasing biodiversity and reducing the need for many ongoing agricultural inputs such as water, fertilizers, pesticides. It is already being used successfully here and abroad. One aspect is an increase in biodiversity of habitat for birds and insects, essential for pollination and pest control. Fire is just one of the management tools employed. It is also more energy efficient than regular agricultural practices. It is an evolving system, adapting to the many different Australian and overseas environments. The book by Charles Massey 'Call of the Reed Warbler' (2017) is one accessible, extensive and well referenced account of these methods in Australia and elsewhere.

3. Sustainable electricity generation

Rapidly increase nationwide moves to renewable forms of energy such as solar, wind power and fully resource research into hydrogen use, as well as efficient recyclable battery and other safe, sustainable energy storage systems.

4. Energy efficiency

Improve the efficiency of our energy use by implementing cradle to grave manufacture and recycling, to ensure we account for the complete cost of manufacture and use of goods. This would reduce manufacture of unsustainable goods and reduce massive waste.

5. Native Forest Logging

Native forests are one of our major carbon sinks. While fire management of our forests is essential current native forest logging for woodchips both releases carbon and has been shown to exacerbate wildfire. (ANU Professor David Lindenmayer has researched and written extensively on this). We already have extensive plantations of softwood and hardwood. In the fire aftermath researches are looking to understand which forests were more resilient, less likely to burn and more likely to recover. This work needs resources, and not to be ideologically driven.

Thank you for taking the time to read and consider all this. I would like this submission to remain anonymous.

