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I am making this submission as	Academic
Submission type	Personal
Organisation making the submission (if applicable)	NA
Your position in the organisation (if applicable)	NA
Consent to make submission public	Public
Your story	Retired ecologist. Prior: plant ecologist with 37 years working with the NSW Public Service gaining knowledge of vegetation types across NSW, initating and completing part of the NSW Government vegetation classification that includes as one of its data fields "fire regime". Served on 30 state, national and international committees.
1.1 Causes and contributing factors	1. Unparalleled dryness and drought including months of regular North West 40+ degrees high wind conditons ultimately driven by weather patterns influenced by increased world temperatures affecting the Indian Ocean Dipole and Pacific and Antarctic oceanic circulations. 95% of the fires were started by dry lightning with human ignition in a few cases only. Note: fuel build up was NOT the main cause of the fires BUT it is being used as a diversion from the climate point above. As the RFS Commissioner stated at the height of the fires: "these fires burnt through recently control burnt areas". Control burning helps

	to lower fire inesnstive around human assets but it is difficult to undertake over very large areas - and is risky - in some cases starting wildlfires. Control burning needs to be strategic.
1.2 Preparation and planning	1. RFS communication systems helped save many lives through improved notices including "leave now" advice. Any incompatabilities in communications between State emergency services and/or the Commonwealth ADF should be fixed. 2. Vital cuts to fire fighting agencies such as NSW NPWS with its remote area fire fighting skills (RAF) may have resulted in increased burn areas. Those agency cuts should be reversed as should beefing up agency helicopter fire fighting capacity. 3. A significant failing was the lack of Australkian controled or owned large aeroplane tankers on the ready with trained crews around Australia, including NSW. If more tankers were available some ignition points could have been extinquished, thus preventing millions of hectares of fire: i.e. get to the ignition point with suppressent as soon as possible with on ground personnel installed to mop up. 4. There was limited preparation for post-fire response to wildlife losses and rehabilitation including animal feeding, however no one anticipated such extensive fires that burnt intensely over such large areas, thus, threatening numerous native species with limited unburnt terrain to act as refugia. 5. Distribition of donations to help people and wildlife recovery could have been better had there been protocols for post-fire emergency expenditure so that funds. 6. Improved training or further professionalisation of RFS in all areas of fire fighting and ecosystem assessment. RFS personnel were heroic but some mistakes were made here and there with backburns and bulldozer tracks though threatened habitat. More training and improved data systems on biota and more accurate vegetation type maps with associated fuel load models could improve RFS response. The vegetation classifications (Formations and Classes) used in NSW to date for fire models are too coarse and not designed for fire behaviour.
1.3 Response to bushfires	1. Do not rush in with simplistic solutions such as setting unrealistic State-wide targets for control burning. Burning unburnt areas in the next few years will only damage what is left of bushland vital to landscape and species recovery. 2. Serious consideration should be given to the future of native forest logging given the economics and impacts on ecosystems but there will be need to bolster forest plantations to maintain regional employment and meet societal timber needs. 3. The roles of the ADF needs clarifying: when it is called out, bolstering its fire fighting capcacity, perhaps setting up a new division for national smergency response. Governments will need to set thresholds for when the ADF is activated. 4. Collaboratively Australian States and Commonwealth acquire at leat five water bombing aircraft and train the crews - perhaps attached to a new ADF division but able to be rapidly deployed to fires whereever they occur with airfact crew and State emergency services in sync. 5 Bolster remote area fire fighting skills in the NSW Public Service. 6. Improve coordination of post-fire wildlife rescue organisations with scientific studies on the success rate of programs such as wildife release. 7. Continued funding of all feral animal control under the best scientific protocols. 8. Revision of building and planning codes for construction of houses near bushland. Perhaps it is time to encourage people not to live in the bush given what is happening with climate change. 9. Protect rainforest and wet forest - allow them to recover as they act as barrier/buffer to "usual" fire. The worst response would be to reburnt these moist forests changing them into more

	fire-prone environments. Many ancient species of wildlife depend on these ecosystems. Somehow we need to protect them. Research in the 1980sin Melbournt into tall wet forests discovered that if left unburnt for 10 years decomposition of the leaf litter is equivalent to accumulation. For drier forest types burns need to be nuianced for human property protection and native species management - this may include cool winter burns in some areas using indigenous knowledge. But science on species dynamics should play a hand in desinging such burns.
1.4 Any other matters	The main point is not to lay blame on nature - humans are causing the extinction of species at a rate that could ultimately threaten human civilisation. Cimate change is accelerating across landscapes after a history of over-clearing deep rooted native vegetation (local moisture) and over logging forest causing small stem forest regrowth that increases fire danger. Control burning is not a panacea to preventing more fire. It is one tool. The more wet forest and rainforest that can regrow the better the chance to mitigate future fires. New human constructions in fire prone area will likely be required to meet better standards. There will need to be funded ongoing wildlife species monitoring to document recovery or loss. Some native species relocations / introductions may be required. An action that could prevent / mitigate fire catastrophie is increased capacity for quick response to ignition points via more airnorne tankers with on ground remote area crews. Ignitions can be detected by the best available real time satellite monitoring systems: RFS and other experts to advise.
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