

Time submitted: 29/03/2020 09:00:58 PM

**Submission Number: NND.001.00156**

**Submission Of: Tony Pedro**

### Your Details

Email address:

Phone:

Preferred means of contact: Phone

What is your submission based on? I am making this submission based on my personal situation

What was your personal situation in relation to the 2019-20 Bushfires? Volunteer Fire fighter WA

Where do you live? Albany Region WA

### Your Submission

In your experience, what areas of the bushfire emergency response worked well?

I have attached my full submission.

In your experience, what areas of the bushfire emergency response didn't work well?

In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?

Is there anything else you would like to tell the Royal Commission?

Do you agree to your submission being published? Yes I agree to my submission being published in my name

Supporting material provided:

Royal Commission Fire Submission Feb 2020 T. Pedro.docx

Submission to the Royal Commissions and Inquiry into Australia's bushfire intensity and frequency**17/03/2020**

Inquiry into the efficiency of past and current vegetation and land management policy, practice and legislation and their effect on the intensity and frequency of bushfires and subsequent risk to property, life and the environment. And now to be undertaken by a Royal Commission closing 3<sup>rd</sup> April.

**By**

**Farmer, volunteer fire fighter and environmental activist  
South-west Western Australian forests**

This submission is based on 60 years' experience farming and firefighting adjacent to several south west forest types and observing the effectiveness of the current bush fire protection system primarily based on prescribed or hazard reduction burning. Time and time again the opportunity to achieve effective rapid suppression when bush fires are small is lost due to very poor response times and ineffective equipment. I believe this is primarily due to the priority of massive funding being wasted conducting prescribed burning nationally, thereby leaving bushfire surveillance and rapid successful suppression capacity and its infrastructure extremely poorly funded resulting in catastrophic wildfires destroying communities their assets and our environment, this consequence is becoming more and more common due to current policy.

I moved with my family to [REDACTED] in 1960 aged 7 and helped farm our property adjoining the tingle forest of south-west Western Australia and later, on my own farm adjacent to the southern Jarrah forest near [REDACTED] for over 50 years now. In this paper I use experience gained over this time to suggest prescribed burning policies used here in WA and Nationwide since the late 60's have been counterproductive in terms of managing wildfire risk and in fact contributed to subsequent wild fires due to understory seed propagation following this deliberate firing of our forests and landscapes. In fact this policy sets in place maximum fuel or hazard production. Repetitive deliberate burning is also extremely damaging to the health and bio diversity of Australian forests, heath and rangelands and all their inhabitants apart from the very understory species capable of maximum fuel production post fire. Information gained from Prof Phillip Zylstra of Wollongong University demonstrates this is the case in eastern Australian forests also. In my submission I will explain how I understand our flora and fauna developed a complex system of fire security free of management supported by our first people's skills and land care knowledge. It is clear to me our nation must become world leaders in rapid detection and suppression when fires are small rather than our nation's current position as world leaders in deliberate firing or hazard reduction. The prescribed burn policy is one of accepting defeat, it assumes as a nation we are unable to succeed at getting to bush fires when small to extinguish them, so choose to burn our forests prior to the event, a policy not used in any aspect of modern society where a more optimistic position is taken. The disastrous fires of 2019 and 2020 make it clear the current bush fire protection system is a total failure.



*W.A Southern Jarrah forest long unburnt (50 yrs.)*



*W.A Southern Jarrah forests prescribe burnt 2019*

## INTRODUCTION

My family and I arrived at our farm at [REDACTED], south-west Western Australia in 1960 and after getting my farm jobs finished the National Park forest behind our dairy farm was my adventure ground, with the Frankland River less than 1 km from our boundary. This tingle and karri forest was established as the Walpole-Nornalup National Park in the 1920's as it was seen as being very unique on a global scale. In between milking cows and feeding pigs, I can recall running barefoot through the open understory Tingle forest, which had a broad leaf rush and leaf litter floor, down to the river to catch marron (*Cherax cainii*). Fig. 1 shows an example of such open understory forest, dominated by Red Tingle and Karri (*Eucalyptus jacksonii* and *Eucalyptus diversicolor*).



*Figure 1: Long unburnt Tingle forest, 80 years without fire in Walpole-Nornalup National Park WA with open understory stem density of 150 stems/ha (Photo: Tony Pedro, 2011).*



It was in these forests in the mid 1960's that I witnessed the lighting of the first major prescribed burn in this forest type, and the subsequent effects that the fire had on the forest ecology. This forest hadn't been burned since 1937, initially the Forest Department, predecessor of The Department of Parks and Wildlife (DPAW) couldn't get this beautiful forest to burn, it failed to ignite, they came back in the middle of summer to set it ablaze (as is done by DBCA today) this time it turned into a wildfire. I vividly remember numerous ancient and previously healthy Tingles, some a thousand years old, catching fire at their base and eventually over the next day or two come crashing to the ground, shaking our house, due to the devastating effects of this single fire event. They have broad buttresses and when the leaf litter catches fire the trunks are hollowed often resulting in their collapse see Fig. 2. What was a beautiful forest was now this burned-out wreck, it was devastating and typical of modern hazard reduction .

Due to this prescribed burn, within five years the previous open understorey forest dominated by large Tingle and Karri trees (approx. 150 understorey stems per hectare) had been turned into an impenetrable Wattle and Hazel thicket with some 100,000 – 150,000 stems per hectare. Before long the understorey had grown to 3 to 4 metres in height, it was impenetrable so I stopped going to the river. Fig. 3 shows the development of thick understorey 12 years after a prescribe burn. (DBCA plan burn frequency in this forest type is 12 to 20 years) I then started to take a keen interest in fire and its effect on different vegetation types and noticed that the same phenomenon was happening with other vegetation types such as Jarrah (*Eucalyptus marginata*) forests or coastal heathland, namely, that long unburned country had an open understorey and burned country developed an impenetrable thicket and very high fuel loading.

This Tingle forest 35 to 40 years later began to recover with the understorey opening up once again, resembling the open understorey character I recall from my youth. It is a major concern of mine that the government's policy of prescribed burning of all Australian forests will continue this cycle of destruction followed by the generation of unnaturally high fuel loads due to the mass germination of understorey species after hazard reduction burning.



*Figure 2: Prescribed burn in the Valley of the Giants in 1999 showing serious structural damage to the base of Tingles still underway 3 - 4 hours after the understorey has been aerial burned often resulting in the collapse or severe damage of up to 60% of mature Tingles (up to 1000 years old) (Photo: Tony Pedro, 1999).*

## **PRESCRIBED BURNING POLICY, FUEL LOADS AND FOREST HEALTH**

It's clear the type of fire management being practiced in south-west WA forests and nationally may reduce fire risk for 3 or 4 years unless it's a wildfire in which case little if any suppression advantage is gained as was the case with recent fires here in WA and the East Coast where much of the country burnt had been previously burnt whether deliberately or not. However this policy then creates a much more volatile forest with an extremely rapid rise in fuel levels only to be prescribed burnt again causing massive damage to our forests health and biodiversity. This Mass germination of understorey species in forests after prescribe burning causes high fuel load (Fig. 3) and is very different to what I believe is the natural state of these forests. In my experience, if left unburned, understorey species reach maturity then break down and decompose some occur sparsely throughout the forest (Fig. 1), thereby maintaining a sustainable seed bank and in the soil without the need for constant firing.



*Figure 3: Valley of the Giants - 12 years after, the 1999 prescribed burn has created a stem density of 150,000 stems/ha. The forest now has a tall, dense understorey capable of throwing fire to the mature tree canopy, thereby turning an open parkland forest with declining fuels into a serious fire hazard (Photo: Tony Pedro, 2011).*

I believe that Australian forests and landscapes with their complex ecosystems cannot continue to cope with the fire regimes imposed on them by Australian government authorities DBCA and the Department of Fire and Emergency Services (DFES) and local government. Soil components are altered which benefit fungi species such as dieback (*Phytophthora cinnamomi*). The soil temperatures rise in a post prescribed burn area in the summer to around 45c, compared to a long-unburned forest with an insulated floor maintaining a temperature around 15c to 20c. I along with many others have suggested to DBCA, DFES and local government that they should leave these remnant forests of long unburned declining fuels alone to continue their litter or fuel decline and if desperate to achieve prescribe burn targets then burn areas already burned as these have already had the cycle set in place of propagation of understorey and subsequent high fuel loads. DBCA scientists and many others argue that this is not the case, and that the Australian forests don't achieve declining fuels via evolution and that litter or fuel is constantly inclining.



This is demonstrably false: if you had a constant incline, then the understorey would slowly build up and you would end up with leaf litter metres deep. In fact, in long-unburned 30 to 50 year-old forests with a native rush floor and a leaf litter of 300-400mm thick with a decomposition that balances the amount of litter so you end up with a stable and balanced environment with the litter decomposing and providing nutrition to the forest.

The current method used by DBCA (the red book of 1960) and other national land management authorities to measure fuel loads is flawed. It measures dead biomass at a much higher level than propagated understorey. This is an inappropriate method of determining fuel levels in all forests and coastal heath. Unfortunately, this leads to a policy whereby long unburned areas are targeted by DBCA and the department of fire and emergency Services (FESA) along with local governments for urgent prescribed burning, when in fact they have achieved a declining fuel status.

An example of this policy is taking place now in mid-summer of 2020. DBCA plans to aerial burn areas of the Walpole Nornalup national park, which contain long unburned Karri (*Eucalyptus diversicolor*) and Tingle forests (see Fig 4). Several years ago local farmers and conservationists, wishing to film the difference in fire volatility in long unburned areas compared with prescribed burned areas (1999) within FRK 012 have prevented the prescribe burning from going ahead.



*Figure 4: Prescribed burn planned for long unburnt tingle and karri forest, 80 years without fire in Walpole Nornalup National Park, south-west WA (Photo: Tony Pedro).*

### FIRE IN AUSTRALIAN CULTURE

In my view fire has been used in Australian culture to gain a sense of control over the environment and reduce fears of the undomesticated landscape (see also Watson 2014)). Fire is used to mitigate or weaken the natural environment a modern form of colonization, no longer a social form now it's an environmental colonization and has developed into a powerful aspect of the Australian culture and even being exported to

other countries. Australia is seen as a world leader in using fire as a dominant form of land management despite its shocking impact. DBCA and other land management authorities Australia wide are highly skilled at prescribed burning, they edge burn the forest perimeter to establish a reliable boundary then drop incendiary bombs using helicopters or light fixed wing aircraft to burn out the interior. Recently 8<sup>th</sup> Nov 2019 an 8700 ha Jarrah forest in the Walpole Wilderness National Park north west of Mt Lindesay, near Denmark WA, was prescribed burned with an intensity equivalent to that of a wildfire using this method. It will take 50 to 100 years to recover. However, repetitive prescribed burning will prevent any recovery. This degree of fire intensity is common within the hazard reduction program Australia wide I believe and can be verified with photo evidence over 2 decades by AJ PEDRO

#### DECLINING FUEL LEVELS IN LONG-UNBURNED FORESTS

From what I have observed in south-west WA and other native vegetated landscapes Nationally, forests reach this stage of sparse low-fuel under-storey at different ages after a fire event; karri/tingle forests take 30-40 years, jarrah/red gum take 25-35 years, coastal heath takes 20-30 years and northern savanna lands 15 to 20 years. Early etchings and photos held at the national library Melbourne of colonization display this phenomenon within forests and landscapes prior to the pastoral industry.

The WA government departments policy is to prescribe burn karri and tingle forests every 15-20 years and jarrah and coastal heath every 7-8 years, all this achieves is a continuous propagation of the understorey and a much more volatile forest than long unburned forests, primarily because the long-unburned forests are less likely to create canopy fires unless subject to extreme conditions. Prescribed burned forests that have dense understorey will develop into a canopy fire under much milder conditions, as the fire is thrown from the tall understorey to the tree canopy.

Mosaic or Biodiversity burns are often mentioned however In fact, a mosaic burn is often seen by DBCA and fire managers as a problem because they often re-light later in summer. The unburned areas smoulder and are prone to re-ignition that can then turn into a wildfire. In fact, recent hazard reduction burns demonstrate DBCA and DFES want very little left unburned so that they don't have ongoing problems of fires that re-light in unburned areas within the blocks prescribe burned over late spring and early summer.

Here in WA DBCA are given a quota and funded to prescribe burn around 200,000 ha per year. However because the funding for wild fires come from Federal and other State Government funding, a wildfire if not threatening a community or assets can become an advantage financially. Back burning huge tracts of land is common due to the fact that it burns out country that would have required prescribed burning. DBCA can then keep the money allotted for the blocks burned for more prescribed burning elsewhere. An independent authority to monitor is desperately needed to avoid such compromised decision making about fire management and intensity. It is also worth noting that areas destroyed by wild fire are not included within the target area. In 2019\20 in WA the area burnt by wild fire, back burning, and escaped prescribed burning amounted to well over 1.5 million ha.

#### ABORIGINAL BURNING PRIOR TO EUROPEAN SETTLEMENT

There is a well-established misinterpretation of traditional Aboriginal fire management within the Australian continent. DBCA and other Australian land management authorities say they are copying what the Aborigines did. This seems to be the common propaganda used Australia wide. Records from peat cores

and old tree ring evidence show that the very opposite was the case; fire frequency has become vastly more common under European management (Mooney et al. 2011).

The Aboriginal peoples used fire, in small areas very strategically and with a degree of control we cannot begin to understand. They used fire with amazing control over small areas of the landscape, attracting the game to these small areas for easy hunting and entrapment. I believe the vast majority of the land in the Australian landscape was left to manage itself. Evolution developed forests and landscapes along with some Aboriginal influence.

Aboriginal land care and fire management was described to me by a district elder, whom I met at a Conservation and Land Management fire seminar (CALM, a predecessor to DBCA) many years ago, and whom I respect enormously. CALM speakers were stating they were following Aboriginal burning practice within the Stirling Ranges National Park (often stated regarding many of DBCA burns). This elder, aged around 80 yrs at the time, said nothing for the duration. I caught up with him outside the seminar venue and asked him his opinion of government policy, which claimed to follow Aboriginal broad scale burning in the SW forests. Our exchange went as follows:

Initially, he said to me 'I don't have time to talk about their nonsense, I'm too busy trying to help our kids gain housing and education, they have made such a mess of our country I have to concentrate on social issues, not what these idiots think they know about what we did.' I persisted and asked, 'but you must have a point of view about it all'? With tears in his eyes he explained that what was suggested in the seminar as following his ancestor's fire management practices was so far from the truth that he did not even bother to try and correct the government policy. 'I will tell you how we did it then: when we were ready to leave our summer camp sites near the coast and inlets in mid to late autumn (April-June) and we could see a cold front coming and knew it was going to rain soon, a group of us would be sent by the elders to the area selected for next seasons camp site, near an estuary or river, and light a fire or a series of fires. Knowing the wind direction and conditions until the cold front and rain came; we could predict the shape and size of the camp area for next season. Its new growth would attract game from the vast area we had chosen to leave unburned'. Having grown up in his country, I could understand his methods. However, seeing so many CALM now DBCA and local government prescribed burns develop into major wildfires, I asked him what would happen if you lit one of these fires and miss-timed the rain and a big wild fire developed. He then got quite angry with me and said, 'if we made a mistake like that we would get speared in the back of our legs, you got it right or you were in big trouble'. He pulled up his trouser legs and asked me, 'Do you see any scars on my legs?' He was so angry that he roared off in his car. I remember feeling very foolish for asking him these questions. Since then, I have got to know him and his family quite well and we have discussed the topic in more depth and I have gained great respect for their skills. He has since died and I thank him for allowing me to learn so much from him in such a short time

This meeting gave me a good understanding of the degree of land care that Aboriginal people achieved. It's obvious to me and many others to suggest the Aboriginal people could hold down the whole of Australia's natural environment by burning it regularly is just ridiculous, impossible in my opinion.

The Aboriginals degree of knowledge and sensitivity held by people like this wise old man, I have so much respect for. We must learn from the first people and feel privileged to care for our natural environment and realize we have so much to learn from people like him, if we are to allow our forests and landscapes to recover from the shocking deliberate burning used for the last 200 years of colonization.



## IMPROVED BUSH FIRE SUPPRESSION AND AVOID WILDFIRE DISASTER

The prime reason that prescribed burning is used nationally is because it is seen as the only solution to prevent a wildfire. I have been part of the fire brigade structure for 40 years and I realised that the whole rapid bushfire suppression methods and infrastructure throughout Australia is seriously flawed. In no other industry is equipment so poorly designed as that used for bushfire suppression. As a Brigade member we often rush to a bushfire with our fire truck only to find the small fire is too far in the bush for our hoses to reach and our truck is unable to enter the environment it has to work in. A dozer or loader must then be called in, which often takes several hours to arrive by then if it is a windy or hot day this small fire has now developed into the beginnings of a wild fire and the early opportunity to provide professional suppression is lost, this leaves us volunteers with a sense of failure. Trucks cannot be driven into the bush to access fires, in most bushfires, the trucks are of little use until a bulldozer or loader arrives to the fire, often taking between 2 to 4 hours and in many cases taking much longer 12 to 24 hours is not unusual if the dozers/loaders are being used to prevent prescribed burns from escaping elsewhere, (as often they are being carried out at the same time). By which time a wildfire may well have developed and become very difficult to bring under control. The opportunity to put the fire out while it is still small is lost, time and time again here in WA and Nationally.

Witnessing this on many occasions, in 2000 I invented and built a machine (Fig. 5) to overcome this problem and invested \$150,000 to build a self-accessing fire-fighting unit (based on equipment used in the forest industry and able to self-access forests) It's capable of quickly traversing the environment while carrying 6000lt of water and equipped with a water cannon while clearing its own track to access the fire or creating firebreaks. I believe this new generation of frontline firefighting vehicle provides huge opportunity and vastly improves suppression capacity. So far Local government or fire departments have shown no interest. I believe vastly improved surveillance and fast-response equipment such as this along with fast aerial water bombing can provide a safer alternative for people and assets compared to the current policy of massive funding for broad scale burning. If half of these funds were used to fund affective suppression equipment and operator training and payment, wild fire disasters would be vastly reduced and as fire fighters we could gain confidence and be proud of success rather than currently where we often wish of a better result for the people and their assets, leaving many of us with a feeling of failure due to the ineffective suppression infrastructure we are provided with. This firefighter is used to protect our family's property with its 1000 acres of 60 years unburned southern Jarrah country with declining fuel levels. It does require a high degree of surveillance and rapid attack to maintain this forest in this healthy state and a sacrifice by myself and family over summer and dry months, however each year fuel levels decline and fire security becomes easier rather than more volatile under the national prescribed burn policy. Its clear bushfire surveillance in Australia is extremely poor. This was highlighted by the Ferguson enquiry into the Yarloop wildfire when neither DPAW nor DFES were monitoring satellite information on the evening of the lightning strike on 5th January 2016. These fires were not noted until 6:30am on the 6th January when DPAW staff arrived for work. Australian bushfire surveillance technology, satellite and computer monitoring of ground cameras are not taken advantage of to any significant degree.

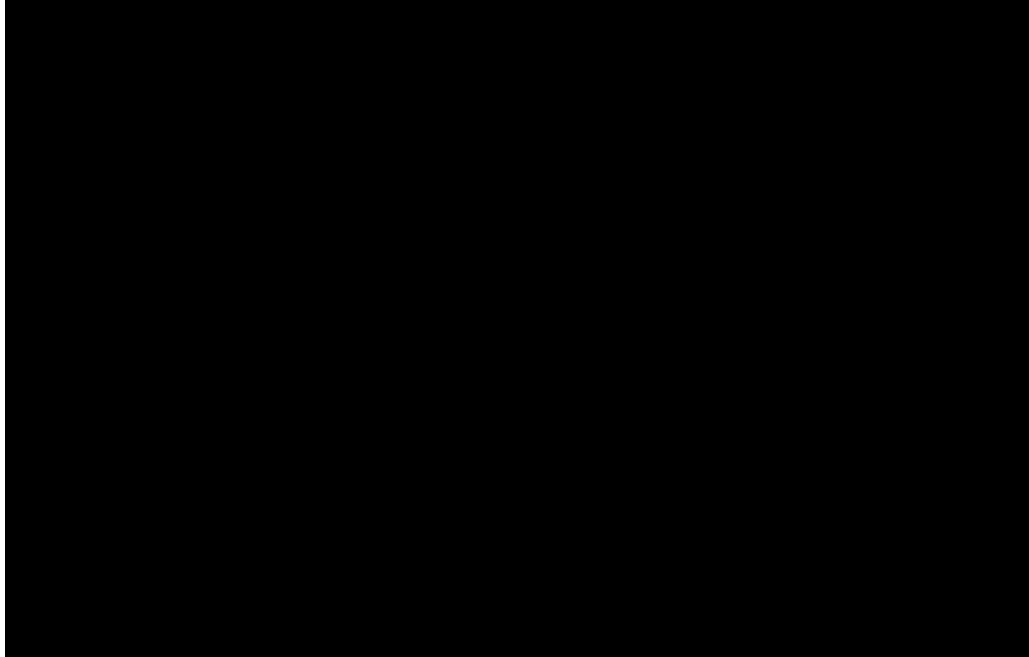


Figure 5: The author next to the fire-fighting unit built from a forestry log skidder: 'Pedro's Frontline Fire Fighter' (Photo: Anthony Kerr, 2017).

This new generation of suppression equipment along with high quality surveillance and aerial support has the capacity to change our current policy whereby we take a negative attitude assuming that we are incapable of putting fires out so we light them instead, requiring huge sums of money that should be spent developing equipment and skills to become the world's best at suppression rather than the world's best at prescribed burning.

#### KEY RECOMMENDATIONS

1. I believe as a nation we must focus on avoiding the wild fire disasters, this opportunity is so often missed due to very poor fire surveillance leading to poor response time with extremely ineffective suppression equipment. Vast improvements must be made in this field.
2. It is vital to maintain long unburned forest with their declining and low fuels throughout Australia. These areas should form the basis of investigations and research which compare fuel levels in unburned areas with those adjacent under current deliberate firing policies. A much more accurate technique for measuring fuel levels in Australian forests and heaths should be developed, which takes into account both living and dead understory biomass volume and height at appropriate weightings. The long-term effects of prescribed burning on the ecology of forest areas should also be compared against the unburned areas to increase our knowledge of the relationships between current fire regimes and its impact on extension, threatened and endangered species.
3. Research into forest ecology and the relationship between prescribed burning and subsequent high fuel levels must be conducted by independent organisations such as university's ecological departments. A research institution of this type should be funded independently of government departments to ensure no conflict of interest jeopardises the research outcomes as I believe has been the case with government departments fire ecology research to date.

4. The use of new generation highly effective rapid response fire-fighting equipment with aerial support should be trialled against the current truck based equipment. This type of equipment must be complimented with effective early bushfire detection methods to enable fire suppression before small fires develop into wildfires. With the technological advances in satellite and camera monitoring sent to monitored systems. Current Bush Fire Surveillance in Australia is extremely poor. I believe that remote sensing camera surveillance working in conjunction with a Satellite based national analysing system could improve our suppression capacity and reduce the reliance on prescribed burning to avoid wild fires.
5. There is a popular view of pre-European settlement burning practices being that the Australian landscape was regularly burned. From understanding gained from local noongar people the opposite was the case. Large parts of Australia were chosen to be left unburned by the Aboriginal people, they successfully managed relatively small portions of their country with fire using amazing skills we have yet to comprehend, and it is my view that first people must decide whether current management is replicating what was practised in pre-European times. If this is not the case, then there needs to be an in-depth discussion and research into this vitally important issue along with scientific information held in the landscape with its first people, as to how the landscape was cared for while still providing fire security for the public and assets of today. Pre European evidence is held within aboriginal culture, old tree rings, peat layers, soil profiles and Antarctic ice cores that just need to be researched by an independent body. In the interim, the few examples of long unburnt natural environment throughout Australia should be preserved.

## CONCLUSION

I believe the term Mitigation and its interpretation portrayed by authorities to the public in general, as primarily meaning hazard reduction burning is very misleading. Mitigation priorities and funding should be used in a much more effective manner. As I have explained in my submission on many occasions, primarily mitigation should also mean a massive improvement in suppression infrastructure, enabling us to get to fires very quickly when small and extinguishing them, thereby avoiding wildfires. Also the establishment of low fuel corridors by mechanical understory mulching, these are valuable forms of Mitigation. It is clear to me the current bushfire management practice (i.e. prescribed burning) used in south-west WA and nationally are extremely damaging to Australia's natural environment and in fact set in place a management system where the understory or fuel is assisted to maintain its maximum potential. This along with the massive damaging impact of the pastoral industry and the huge areas cleared for agriculture are responsible for localized climate change (Australian continent), This impact along with global climate change, makes it clear vast improvements are needed in rapid bushfire suppression, if as a nation we are to make a serious attempt to avoid the shocking damage to our country and its people we have experienced from the massive wild fires of the spring/summer of 2019/2020 and going back many decades. I am very worried unless we, as a nation, make major changes as I have suggested many of our species will becoming extinct, and people will suffer needlessly. We must become the world's leaders at rapid first strike bush fire suppression, not ignition with prescribed burning as currently we are the world leaders. The current policy of prescribed burning is seen by the state and federal governments as politically advantageous as it appears to be protecting the public from wildfire when, in fact, the opposite is the case, as huge infrastructure is required to burn these massive areas leaving rapid suppression capacity in an appalling and neglected state. Luckily in Denmark WA there is a strong group of scientists and locals who are studying these issues and will make this evidence available. However in the short term the local, state



and federal management departments are making it clear that their current failed policies are to be maintained, in fact enlarged with funding from royalties for regions. For example here in WA this leaves many leading scientists, conservationists and observant people in a state of despair (The trauma of powerlessness) We do live in hope that this and other independent inquiries will lead to a change in Australian culture, one of Environmental Respect, Skills and Pride in successful bushfire Suppression where the people of Australia can feel more confident in the environment they call home.

Yours Sincerely

████████████████████