

Environment Victoria's submission into the Victorian Investigation into the 2020 Fire Season

ABOUT THIS SUBMISSION

Environment Victoria is an independent and not for profit organisation that has been campaigning to look after Victoria's environment since 1969. With more than 40-grassroots member groups and 150,000 individual supporters, Environment Victoria is a growing community of Victorians standing up for a safe climate, healthy rivers and a sustainable future.

Environment Victoria thanks the Inspector-General for Emergency Management and the Victorian State Government for the opportunity to make a submission to the 'Inquiry into the 2019-20 Victorian Fire Season'.

Our submission relates specifically to the following matters outlined in the Terms of Reference, 'Phase 1 - Community and sector preparedness for and response to the 2019-20 summer season':

1. Consider all challenges and implications for bushfire preparedness arising from increasingly longer and more severe bushfire seasons as a result of climate change.
2. Review of all opportunities and approaches to bushfire preparedness, including different methods of fuel and land management (for example 'cool burning', mechanical slashing, integrated forest management, traditional fire approaches) to protect life and property as well as ecological and cultural values.
3. Consideration of the adequacy of existing administrative and funding mechanisms in place at a state level to support the operational response efforts and in considering the timeliness and effectiveness of activation of Commonwealth assistance, and Commonwealth resource availability
4. Planning and response mechanisms to protect biodiversity threatened by bushfire.

During the 2019-2020 bushfire season community members across Victoria shared their stories with us about how the disaster impacted their lives. Where appropriate we have included their words and images in our submission.

RESPONSE TO TERM OF REFERENCE: "Consider all challenges and implications for bushfire preparedness arising from increasingly longer and more severe bushfire seasons as a result of climate change."

Over the devastating 2019-2020 fire season more than 1.2 million hectares of forest was burnt, five people tragically died and over 300 homes were destroyed in Victoria.

Victoria is already experiencing the impacts of climate change. Communities and our natural environment are struggling with longer and harsher droughts and changing rainfall patterns. Heatwaves are becoming more deadly. In Victoria extreme weather has led to an increase in fires over the last 30 years. The fire season is starting earlier and lasting longer, making it harder for emergency services, health services and communities to prepare and respond to catastrophic bushfires.¹

The briefing paper, *'This is not normal': climate change and escalating bushfire risk*, produced by The Climate Council (November 2019) articulates the role of climate change in exacerbating the extreme drought, dry fuels and soils. It also shows how record-breaking heat increased the bushfire risk across Eastern Australia.

For more details on the climate science behind the 2019-2020 fire season, we support the submission made by The Climate Council into this inquiry.

For decades, scientists have been warning that uncontrolled greenhouse gas emissions would lead to devastating fires, such as we have just witnessed. As recently as April 2019, this clear message was being echoed by former emergency service leaders. A report from the CSIRO and Bureau of Meteorology in 2005 predicted an increase in fire weather risk throughout most of south-eastern Australia over the coming decades, with 'very high' and 'extreme' fire danger ratings likely to increase in frequency by 4–25 per cent by 2020 and 15–70 per cent by 2050.² Furthermore in 2008, the Garnaut Climate Change Review said projections of fire weather "suggest that fire seasons will start earlier, end slightly later, and generally be more intense" and that "this effect increases over time, but *should be directly observable by 2020.*" (emphasis added)³

Victorian emissions as well as emissions from our fossil fuel exports have both contributed to the climatic changes that drove the bushfire crisis. To deal with climate change, all new fossil fuel developments (including coal, oil and gas) must be stopped and existing fossil fuel facilities must be rapidly phased out.

The Victorian Government should work alongside the Federal Government and other states and territories to set in place effective emission reductions and climate adaptation measures to protect Victorians from worsening climate extremes and, in the long term, restore a safe climate.

We need to tackle the root cause of the problem – climate change, driven predominantly by the burning of coal, oil and gas. We have the solutions at our disposal and Victoria has enormous potential to benefit greatly from transitioning to renewable energy and a net zero emissions pathway, sooner rather than later. The Victorian government has a huge opportunity to address the cause of increased bushfire risk through setting and achieving strong Emissions Reduction Targets for 2025 and 2030 in line with keeping global warming to 1.5 degrees, as outlined in the Paris Agreement. Emissions targets (backed by actions) in Victoria that are consistent with meeting the objective of the Paris Agreement serve to boost ambition in other jurisdictions. Global collective action is the only way to solve this problem, and showing that we are doing our share of the abatement task is essential if we are going to convince others to do theirs.

Recognition of the role of climate change in exacerbating fire conditions is important to the communities who were directly impacted. Below are some of the statements we collected from community members across Eastern Victoria.

"There has been a lot of kindness and generosity but lots of frayed nerves here. We would like to see proper recognition of climate change from the government and recognition of how it is affecting our communities and the planet. If politicians don't see and breathe the fires - it's way too easy to ignore something you don't experience." Sharon Small, Goongerah, 3888

"In the last 20 years we've had three major landscape fires. We're getting more burnt areas, areas that didn't used to burn and are burning. Before things can re-establish we're getting wildfires." Rena Gaborov, Goongerah, 3888.

"The amount of carnage wreaked on people, property and wildlife has been so distressing but the most distressing thing of all is the absolute inaction on the part of the (federal) government. How can we have any confidence in a government that REFUSES to act on scientific fact! We as a nation, have felt first hand the impact and ferocity of climate change but our leaders are pretending that everything is

² Climate Change impacts on fire weather in south-east Australia, CSIRO – Bureau of Meteorology, 2005

³ The Garnaut Climate Change Report, Final Report, Ross Garnaut, 2008

OK....business as usual. It is not. It is not OK at all. Please in your capacity as our representative in parliament act for the people, act for the environment and begin to be truthful about how Australia is to deal with this unprecedented crisis. We depend on our parliament to do the right thing.” - Margaret Carey, Mitta Mitta, 3701

“My husband stayed behind to try and save our house. Little did we know the worst was yet to come. He says the worst for him was when he could see the sky rapidly changing colour and hearing the roar of the fire as it sped towards our property. He stayed up all night constantly looking front sides and rear for any embers. Then thankfully came the wind change. I would like to see the government start to take climate change seriously and listen to the scientists on this matter, as I feel that only then will something start to be done.” - Stella Graham, Nicholson, 3882



Recommendations:

1. That planning for bushfire risk management in Victoria recognise climate change is a major driver of increased bushfire danger and that further increases in global temperature are likely to increase the length and severity of the fire season, restrict the window of opportunity for safe and effective hazard reduction burning and change the relative risk associated with bushfire events across Victoria. These facts should be built into the fundamentals of managing the risks of bushfires.
2. That, in order to minimise the impacts of climate change on bushfire weather, the Victorian Government commit to effective climate change mitigation strategies and targets in line with the objectives of the Paris Agreement (to keep warming well below two degrees and pursue efforts to keep warming to 1.5 degrees)
3. That the Victorian Government adopting Emissions Reduction Targets of at least 45-50% by 2025 and 65-80% by 2030. This would put the state in line with requirements of the Paris Agreement and set an example to other jurisdictions to act accordingly.



RESPONSE TO TERM OF REFERENCE: ‘Planning and response mechanisms to protect biodiversity threatened by bushfire’

The full extent of the impacts of the bushfires on Victoria’s biodiversity are not yet known but are certainly severe. Across Australia an estimated 1 billion birds, mammals and reptiles have been killed or affected by the fires, together with many more billions of invertebrates, plants and other organisms.⁴ The impacts extend well beyond the areas actually burnt, for example through runoff contaminating downstream aquatic systems and wide-ranging species losing critical resources.

Across Victoria, unique biodiversity has been impacted including the world biosphere at Croajingalong National Park and habitat of the EPBC-listed Brush-tailed Rock Wallaby and Long-footed Potoroo in East Gippsland.

In a matter of weeks, the bushfires across Victoria have undone decades of dedicated conservation efforts for many threatened species and their ecosystems. For example, most of the 48,000 hectares of forest reserves around Mount Kuark in East Gippsland, which were finally established in November 2019 in response to the rapid decline of greater gliders, has been burnt⁵. This has further endangered the species and makes protecting the remaining unburnt areas even more critical.

According to the Department of Environment, Land, Water and Planning (DELWP) preliminary bushfire report summary, the fires (as at 11 January 2020) have impacted at least 60 percent of over 50 national parks and nature reserves in Victoria.⁶ The bushfires affected about 70 percent of the state’s remaining warm temperate rainforest and more than half the habitat of at least 170 rare and threatened species.⁷ The report states that “given that a significant area of habitat across Victoria has now burnt multiple times since

⁴ “A billion animals: some of the species most at risk from Australia’s bushfire crisis”, The Guardian, 14 Jan 2020, Lisa Cox.

⁵ “A season in hell: bushfires push at least 20 threatened species closer to extinction”, The Conversation, 8/1/2020

⁶ Victoria’s bushfire emergency: biodiversity response and recovery preliminary report version 1, 2020

⁷ Victoria’s bushfire emergency: biodiversity response and recovery, Preliminary Report – Version 1, DELWP, 2020.

2000, this could result in regeneration failure for Alpine Ash.”⁸ In addition, the Warm Temperate Rainforest in Victoria are of “immediate concern”, with 70 percent within bushfire affected areas in 2019-20.⁹

The report acknowledges that the 2019-2020 fires “are exceptional in size and impact and recognises that under climate change we are entering a new world in terms of the scale and complexity of managing fire impacts on biodiversity”. It is important to understand that last summer’s fires are not just a singular disruptive event but part of a pattern of increasingly frequent destructive and transformational forest fires that has been building for two decades and will continue.¹⁰ The near certainty of increasingly dangerous fires due to climate change requires significant changes in planning how to better mitigate against further loss and possibly extinction of irreplaceable biodiversity assets.

As stated in the State of the Environment Report 2018, Victoria has experienced extensive biodiversity loss over the past two centuries due to logging, “land clearing, fire, pest plants and animals, land development, river regulation, water pollution and, more recently, reduced resilience under climate change.”¹¹ Inadequate prioritisation of biodiversity conservation by the Victorian government over decades meant that many species and ecosystems were already in a vulnerable state that has now been exacerbated by an extreme fire event.

Additional funding and resources are needed to protect Victoria’s biodiversity before it is further damaged by future global temperature rises. These measures could also stimulate regional economies impacted by COVID 19. There are numerous opportunities for improving biodiversity across both public and private land, including:

- Fencing off crown river frontages. Livestock that are not fenced off from river and creek beds can do significant damage to riparian vegetation and water quality. A recent and successful state government program to build fences between farm paddocks and Crown-land river frontages has over-delivered at lower-than-expected cost, but funding is due to expire this year. An injection of funds for a further 2-3 years could continue this work across the state and provide on-going environmental benefits.
- Repairing coastal ecosystems by replanting and restoring mangrove forests and seagrass meadows.
- Mass tree-planting as part of habitat restoration efforts. There might also be opportunities for those who remain employed but with significantly reduced hours to spend some of their time contributing to this work, noting that spending time in nature can help reduce stress, with the bonus of being remunerated for meaningful work.
- Managing pest plant and animals, serving to reduce pressures on threatened species and to reduce impacts on farming

Bushfire-affected forests need care and support to recover, not another ten years of logging. Last month Victoria’s Regional Forest Agreements (RFAs) were renewed despite the catastrophic bushfires of 2019-20, without fully considering the effects of those fires on forests and biodiversity, and the multiple failings of the RFAs for biodiversity. The new Threatened Species Risk Assessment and Major Event Review mechanisms should be triggered in all RFA regions given the impact of the bushfires on threatened species and their

⁸ Victoria’s bushfire emergency: biodiversity response and recovery, Preliminary Report – Version 1, DEWLP, 2020.

⁹ Victoria’s bushfire emergency: biodiversity response and recovery, Preliminary Report – Version 1, DEWLP, 2020.

¹⁰ <https://www.sciencedaily.com/releases/2020/01/200114074046.htm>

¹¹ State of the Environment, Scientific Assessment B, 2018

habitats across Victoria. Stronger science-based protections for wildlife and forests must be implemented, as well as adjustments to wood volumes. The exit from native logging should be brought forward with support for industry transition.

As pointed out by the Nature Conservation Council in their submission to the NSW bushfire inquiry, in January this year the timber industry's peak body, the Australian Forest Products Association, was quick to advocate for possible salvage logging in state forests and national parks affected by bushfires, including in Victoria. The reasons given for the call to salvage timber "from all burnt forests across all impacted tenures" was to minimise fuel loads – as well as help meet timber supply requirements. The industry is ignoring the science that shows post-fire logging would significantly impair regeneration. The bigger trees that were not burnt are extremely important for tree-living mammals, including koalas and birds that require hollows for nesting. The impacts from logging are likely to seriously impair the recovery of animal, bird and insect populations – all of which play key roles in soil turnover, pollination and seed and spore dispersal.

Salvage logging compounds the impacts of both fire and logging, and subjects fire-affected forests to mechanical disturbance during the critical recovery stage. Logging, including salvage logging operations, must remain suspended in East Gippsland, and should be suspended elsewhere in forest that contains threatened species impacted by the fires.

Last summer's fires mark the start of a new more threatening, complex and uncertain era for Australia's biodiversity. The best chance for recovery is through a concerted well-funded program based on research and monitoring. Extensive surveys are needed in burnt and unburnt areas of threatened species, endangered ecological communities and of common species to assess the current status of populations, with the gathered data used to re-evaluate plans of action, identify priority locations for immediate conservation, and list new species and communities as threatened where necessary. Ongoing monitoring should also be undertaken to ensure that the decisions and actions taken are incorporated into existing programs including the Victorian Government's Biodiversity 2037 plan as well as newly established programs.

The severity of the impact of the summer bushfires has been forced off the front pages by the all-consuming challenge of COVID-19, but for the communities and landscapes devastated by these fires, biodiversity resilience and recovery efforts are urgently required. The condition of many ecosystems and species was already poor before the fires. We need to urgently increase the resilience of ecosystems to give them the best chance to survive and adapt to a warming planet. This biodiversity work can also help stimulate regional economies during the current lock down. This work could include habitat restoration in fire-affected areas, including reforestation and replanting, managing pest plants and animals during the immediate re-growth phase, and surveying the recovery of species.

Recommendations:

4. Additional funding must be allocated to protecting and restoring biodiversity across the state.
5. Further strengthen protections for threatened species. The recent review of the *Flora and Fauna Guarantee Act* has disappointingly failed to provide significant improvements in how threatened species will be protected. There remains too much discretion in whether to use the tools available in the Act, especially given the history of these tools not being used. For more detail, please see Environment Victoria's submission into review of the *Flora and Fauna Guarantee Act* from 2017 (http://environmentvictoria.org.au/wp-content/uploads/2017/04/FFG-Act-submission_Final.pdf)
6. Islands of unburnt vegetation within burn areas must be protected from 'burning out' by fire crews, whenever possible. The burning of these natural refuge areas increases the ecological impacts of wildfire and inhibits the recovery of plants and wildlife.

7. Increase control efforts for pest animals and weeds that would otherwise magnify the impacts of these fires on wildlife
8. Logging, including salvage logging operations, must remain suspended in East Gippsland, and should be suspended elsewhere in forest that contains threatened species impacted by the fires
9. Extensive monitoring and surveying of burnt and unburnt areas, updates to and fast-tracking the implementation of the Biodiversity 2037 plan are all required, as well as newly established programs.
10. We urge the state government to increase funding for Forest Fire Management Victoria firefighters, including remote area firefighters (rappel crews) and air capacity for fighting fires
11. The Victorian and Federal Governments must urgently implement new Regional Forest Agreement (RFA) Major Event Review and New Threatened Species Risk Assessment mechanisms in wake of the 2019-2020 bushfire crisis.
12. Victorian government should bring forward the exit from native forest logging. RFAs must fast-track the Victorian logging industry's planned transition out of native forests and into plantations.

RESPONSE TO TERM OF REFERENCE: 'Review of all opportunities and approaches to bushfire preparedness, including different methods of fuel and land management (for example 'cool burning', mechanical slashing, integrated forest management, traditional fire approaches) to protect life and property as well as ecological and cultural values'

Fuel and land management is a complex problem, requiring comprehensive solutions. Since the Stretton Royal Commission into the 1939 Black Friday bushfires, more than 16 major inquiries have called for greater use of integrated approaches to land use planning and management to minimise disaster risks.¹²

Hazard reduction and planned burns:

The public debate around hazard reduction has continued throughout this 2019-2020 fire season. Hazard reduction is an important tool for reducing fire risk but it's not enough to protect us from catastrophic fires. It has less effect under severe or extreme fire conditions. Scientific research shows us that climate change and the lengthening of the Australian fire season means that the window for hazard reduction burns to take place safely has been severely reduced.¹³

The 2018 *State of the Environment* report gives us an insight into the extraordinary amount of planned burns that occurred in Victoria in the lead up to the 2019-2020 bushfires. Between 2003-04 and 2016-17, just over 2 million hectares of native vegetation was burnt in planned fires in Victoria, much of them concentrated in the eastern part of the state. Many of the burns were in East Gippsland national parks.¹⁴

Significantly, the Gippsland region of Victoria accounted for the largest area of planned burns during the period, with 829,000 hectares or 39% of the total planned-burning area. The Snowy District of East Gippsland was the most targeted district in the state and was subject to extensive planned burns over the period, accounting for 403,000 hectares or 19% of the total planned-burning area.¹⁵

¹² "There's no evidence 'greenies' block bushfire hazard reduction but here's a controlled burn idea worth trying", 7/1/2020, The Conversation.

¹³ Setting the record straight on Hazard Reduction, The Climate Council, 2020

¹⁴ State of the Environment, Fire, Scientific Assessments Part III, 2018

¹⁵ State of the Environment, Fire, Scientific Assessments Part III, 2018

As pointed out by the Victorian National Parks Association in their submission, the extent of the fires in East Gippsland suggests that planned burns can be ineffective in reducing bushfire risk on days of severe fire danger. Further, planned burns can be counterproductive at reducing risk whenever young post-fire regrowth is more flammable than long-unburnt forests – a situation that can last for decades.

A study by DELWP also demonstrates that planned burns in Gippsland significantly increase the risk of collapse of hollow-bearing trees, which is likely to result in loss of habitat for fauna species that rely on hollows for survival, such as Greater gliders.¹⁶

The University of Melbourne undertook a desktop analysis of the firegrounds in NSW to compare the size and severity of this season's bushfires area with hazard reduction burns over the past five years. That analysis found that most of the area in which there had been prescribed burning had been burned again by bushfires during the summer fire season.¹⁷ This suggests that, during extreme to catastrophic conditions, reduction of fuel on the ground has little effect on reducing the rate of spread of fire, and the ability of firefighters to undertake direct suppression activities.

Traditional fire approaches:

First Nation cultural values and practices are increasingly being recognised by landowners and land managers as important in present day land and natural resource management. The impacts of colonisation have severely impacted First Nations' ability to openly implement their cultural practices and to pass on Traditional Knowledge in the way it has been done for thousands of years.

The Firesticks Alliance Indigenous Corporation uses the term 'cultural burning' to describe "burning practices developed by Aboriginal people to enhance the health of the land and its people. Cultural burning can include burning or prevention of burning of Country for the health of particular plants and animals...threatened species or biodiversity in general. It may involve patch burning to create different fire intervals across the landscape or it could be used for fuel and hazard reduction. Fire may be used to gain better access to Country, to clean up important pathways, maintain cultural responsibilities and as part of culture heritage management. It is ceremony to welcome people to Country or it could also be as simple as a campfire around which people gather to share, learn, and celebrate."¹⁸

In 2019, the Victorian government launched the first state-wide strategy for traditional fire approaches, the *Victorian Traditional Owner Cultural Fire Strategy*. The strategy was developed in partnership with the Federation of Traditional Owner Corporations, DELWP, Parks Victoria and the Country Fire Authority (CFA). Since the bushfires of 2019-2020, there have been calls from Victorian Aboriginal Heritage Council chair and Dja Dja Wurrung Clans Aboriginal Corporation chief executive Rodney Carter for a renewed commitment to the strategy¹⁹.

As stated by the Federation of Victorian Traditional Owner Corporations, the implementation of the Strategy "needs long-term support and resourcing for further development of knowledge, practice and capacity in Traditional Owner groups to undertake cultural fire practice and to ensure operational feasibility of cultural burning in a changed environment." The Victorian Government should take an active role in expanding public awareness and perception around cultural fire techniques.

¹⁶ Reducing the effect of planned burns on hollow-bearing trees, Lucas Bluff, 2016

¹⁷ Hazard reduction burning had little to no effect in slowing extreme bushfires, Adam Morton, The Guardian, 6/2/2020

¹⁸ Firesticks Alliance website

¹⁹ Dja Dja Wurrung, Forest Fire Management plan for more cultural burns in central Victoria in 2020, Bendigo Advertiser, 28/2/2020

Some positive steps have been taken to ensure better practices between government agencies and Traditional Owners groups in specific regions, including cultural burns on Dja Dja Wurrung country just this autumn. In East Gippsland collaboration between DELWP and the Gunnaikurnai Land and Waters Aboriginal Corporation (GLaWAC) ensured protection of cultural heritage sites this summer fire season. The Registered Aboriginal Party were able to do on the ground assessments that saw over 100 cultural heritage sites protected as contractors were creating firebreaks. The decision to allow the on the ground cultural assessment is a first as normally in bushfire situations the Emergency Management Act 2013 overrides the Aboriginal Heritage Act 2006, the Act that provides protection for First Nations cultural heritage in Victoria²⁰.

However as pointed out by the Federation of Victorian Traditional Owner Corporations, “embedding cultural burning practices needs government agencies to better understand, recognise and work with Traditional Owners, as authorities in their own regions on their Country. This needs to be systematic and there is now an opportunity to develop the authority and organisational infrastructure that can integrate and collaborate with broader agencies to evolve practices that improve the resilience of Country.”²¹

Recommendations:

13. Planned burns and other fuel reduction processes (such as slashing) should be directed to where they are most effective: close to assets such as towns in need of protection.
14. To reduce the flammability of the landscape, Victoria needs to set targets to protect and promote the growth of older vegetation in those forest types where older growth is historically less flammable than younger post-fire growth.
15. Broadscale planned burning can reduce the abundance of critical wildlife habitat features, such as tree hollows and hollows in logs. A strategic planned burning program that minimizes ineffective and counterproductive burns is critical for biodiversity protection.
16. Victoria needs to improve pre- and post-fire monitoring of flora and fauna, and pre- and post-fire monitoring of fuel loads.
17. Ensure adequate resources are allocated to Traditional Owners to enable the implementation of the Victorian Traditional Owner Cultural Fire Strategy
18. Government provide and increase ongoing support and resources to existing First Nation groups specialising in a range of fire management activities, planning, preparation, response and recovery activities, on Country.
19. Ensure that with consultation and approval of First Nations Knowledge Holders, cultural asset information is included in bushfire management plans and where possible, treatments identified to mitigate against fire. This may include implementing cultural burns in adjacent areas to protect cultural sites

RESPONSE TO TERM OF REFERENCE: In considering the timeliness and effectiveness of activation of Commonwealth assistance, and Commonwealth resource availability

The 2019-2020 fire season that stretched from June 2019 through to March 2020 exposed the lack of resources available to emergency services and remote and regional communities to deal with the growing frequency and severity of bushfires across Australia. The lengthening of fire seasons across the world because of climate change means that previous resource sharing agreements for aircraft and firefighting crews between northern hemisphere and southern hemisphere emergency services are no longer practical.

²⁰ GLaWAC News Summer 2020

²¹ Traditional Owners get a seat at the Federal Table in Bushfire Response, Federation of Victorian Traditional Owner Corporations, 23/1/2020

The capacity for aircraft to get quickly to the point of ignition of a bushfire is paramount for the protection of both the community and environment. Victoria currently has a fleet of 50 aircraft – but it should be expanded and strategically employed across the state. Federal and state funding should be significantly increased, allowing effective aerial control of ignition points in remote areas of the state. Increasing resources for fire management is an opportunity to support regional jobs and economies across the state.

Recommendations:

20. There is an urgent need for increased capacity for control of fire at the point of ignition. We need a radical increase of secure state and federal funding to support the operational costs of fighting bushfires before they become uncontrollable in both remote and populated areas.
21. The government should provide annual funding to purchase firefighting aircraft to increase our firefighting capacity and reduce the need to contract aircraft from interstate or overseas.

LOOKING FORWARD TO RECOVERY AND REBUILDING IN REGIONAL VICTORIA

Environment Victoria understands that there will be a future opportunity to submit feedback into relief and recovery arrangements, but for now we would like to make the following suggestions around recovery and rebuild.

The severity of the impact of the summer bushfires has been forced off the front pages by the all-consuming challenge of COVID-19, but for the communities and landscapes devastated by these fires, a lot of local recovery work is needed. This recovery work can also help stimulate regional economies during the current lockdown.

This work could include:

22. Rapid investment in clean-up and rebuilding work. Debris from destroyed homes needs to be removed, and homes, buildings, farm infrastructure and roads all need to be replaced.
23. Replacing energy infrastructure in remote fire-affected areas with renewable-energy-powered micro-grids with local storage capacity. This is a forward-thinking win-win solution. It adds to the future fire resilience of these communities while at the same time reducing Victoria's emissions by helping accelerate the transition to clean renewable energy.
24. Habitat restoration in fire-affected areas, including reforestation and replanting, managing pest plants and animals during the immediate re-growth phase, and surveying the recovery of species.

This work could create an additional benefit of providing opportunities to those who have lost work in the timber industry, either through direct impact of the fires or due to contraction of the industry. These measures should be rolled out by employing as much local labour as possible – both to create opportunities in severely-impacted regions and to minimise the risk of spreading the virus into those communities.

CONCLUSION

Climate change fueled the extreme weather experienced during the summer of 2019-2020 and the drought conditions preceding it. Without commitments to seriously cut our emissions, the severity and frequency of extreme weather events, like bushfires will continue to increase. Acknowledgement of the role climate change played in exacerbating the bushfires of 2019-2020 is crucial for impacted communities and to ensure adequate preparation and increased resources ahead of future fire seasons.

Fire and land management is a complex problem, that requires a comprehensive solution. The evidence from the 2019-2020 fire season shows that hazard reduction is an important tool for reducing fire risk but it's not enough to protect us from catastrophic fires. Continued research and development of greater use of

integrated approaches to land use planning and management, including traditional fire approaches is required to minimise future disaster risk.

The full extent of the impacts of the bushfires on Victoria's biodiversity are not yet known but are certainly severe. What's more, the certainty of increasingly dangerous fires due to climate change requires significant changes in planning how to better mitigate against further loss and possibly extinction of irreplaceable biodiversity assets.

We are now entering a new world in terms of the scale and complexity of managing fire and its impacts on biodiversity and communities across the state. Communities, emergency services, health services and our unique ecosystems across Victoria must be prepared for this escalation of bushfire risk.

Recommendations:

1. That planning for bushfire risk management in Victoria recognise climate change is a major driver of increased bushfire danger and that further increases in global temperature are likely to increase the length and severity of the fire season, restrict the window of opportunity for safe and effective hazard reduction burning and change the relative risk associated with bushfire events across Victoria. These facts should be built into the fundamentals of managing the risks of bushfires.
2. That, in order to minimise the impacts of climate change on bushfire weather, the Victorian Government commit to effective climate change mitigation strategies and targets in line with the objectives of the Paris Agreement (to keep warming well below two degrees and pursue efforts to keep warming to 1.5 degrees)
3. That the Victorian Government adopting Emissions Reduction Targets of at least 45-50% by 2025 and 65-80% by 2030. This would put the state in line with requirements of the Paris Agreement and set an example to other jurisdictions to act accordingly.
4. Additional funding must be allocated to protecting and restoring biodiversity across the state.
5. Further strengthen protections for threatened species. The recent review of the *Flora and Fauna Guarantee Act* has disappointingly failed to provide significant improvements in how threatened species will be protected. There remains too much discretion in whether to use the tools available in the Act, especially given the history of these tools not being used. For more detail, please see Environment Victoria's submission into review of the *Flora and Fauna Guarantee Act* from 2017 (http://environmentvictoria.org.au/wp-content/uploads/2017/04/FFG-Act-submission_Final.pdf)
6. Islands of unburnt vegetation within burn areas must be protected from 'burning out' by fire crews, whenever possible. The burning of these natural refuge areas increases the ecological impacts of wildfire and inhibits the recovery of plants and wildlife.
7. Increase control efforts for pest animals and weeds that would otherwise magnify the impacts of these fires on wildlife
8. Logging, including salvage logging operations, must remain suspended in East Gippsland, and should be suspended elsewhere in forest that contains threatened species impacted by the fires
9. Extensive monitoring and surveying of burnt and unburnt areas, updates to and fast-tracking the implementation of the Biodiversity 2037 plan are all required, as well as newly established programs.
10. We urge the state government to increase funding for Forest Fire Management Victoria firefighters, including remote area firefighters (rappel crews) and air capacity for fighting fires

11. The Victorian and Federal Governments must urgently implement new Regional Forest Agreement (RFA) Major Event Review and New Threatened Species Risk Assessment mechanisms in wake of the 2019-2020 bushfire crisis.
12. Victorian government should bring forward the exit from native forest logging. RFAs must fast-track the Victorian logging industry's planned transition out of native forests and into plantations.
13. Planned burns and other fuel reduction processes (such as slashing) should be directed to where they are most effective: close to assets such as towns in need of protection.
14. To reduce the flammability of the landscape, Victoria needs to set targets to protect and promote the growth of older vegetation in those forest types where older growth is historically less flammable than younger post-fire growth.
15. Broadscale planned burning can reduce the abundance of critical wildlife habitat features, such as tree hollows and hollows in logs. A strategic planned burning program that minimizes ineffective and counterproductive burns is critical for biodiversity protection.
16. Victoria needs to improve pre- and post-fire monitoring of flora and fauna, and pre- and post-fire monitoring of fuel loads.
17. Ensure adequate resources are allocated to Traditional Owners to enable the implementation of the Victorian Traditional Owner Cultural Fire Strategy
18. Government provide and increase ongoing support and resources to existing First Nation groups specialising in a range of fire management activities, planning, preparation, response and recovery activities, on Country.
19. Ensure that with consultation and approval of First Nations Knowledge Holders, cultural asset information is included in bushfire management plans and where possible, treatments identified to mitigate against fire. This may include implementing cultural burns in adjacent areas to protect cultural sites
20. There is an urgent need for increased capacity for control of fire at the point of ignition. We need a radical increase of secure state and federal funding to support the operational costs of fighting bushfires before they become uncontrollable in both remote and populated areas.
21. The government should provide annual funding to purchase firefighting aircraft to increase our firefighting capacity and reduce the need to contract aircraft from interstate or overseas.
22. Rapid investment in clean-up and rebuilding work. Debris from destroyed homes needs to be removed, and homes, buildings, farm infrastructure and roads all need to be replaced.
23. Replacing energy infrastructure in remote fire-affected areas with renewable-energy-powered micro-grids with local storage capacity. This is a forward-thinking win-win solution. It adds to the future fire resilience of these communities while at the same time reducing Victoria's emissions by helping accelerate the transition to clean renewable energy.
24. Habitat restoration in fire-affected areas, including reforestation and replanting, managing pest plants and animals during the immediate re-growth phase, and surveying the recovery of species.

