



Safer forests Safer homes

Living with bushfire in Mallacoota



Acknowledgement of Country

MADRA acknowledges the Traditional Owners of the land on which we work and live, and pays its respect to Elders; past, present and emerging.

Authors

This booklet has been prepared by volunteers of MADRA's Fuel Management Working Group. Lead author, Lyn Harwood; key contributors, Jenny Mason and Rosie Morton.

© MADRA 2022

Credits

Unless otherwise credited all photographs in this booklet were taken by Lyn Harwood.

Design, layout and front cover main image by Jann Gilbert.

Acknowledgements

We would like to express our gratitude to Steve Pascoe, Bushfire Safety Facilitator and 'Good Bloke', who started the fuel management ball rolling, and Simon Bloink from the CFA who provided such encouragement.

The Foundation for Rural & Regional Renewal for their financial support.

Disclaimer

The material found in this publication has been produced for information purposes only. The MADRA Bushfire Fuel Management Working Group do not accept any liability to any person for the information or advice (or the use of such information or advice) that is provided in this publication.

Contents

The Mallecoota Bushfire Fuel Management Group	2
Our purpose and aims	3
Why forests burn	4
Managing the land	7
How to prepare your house and garden	12
Other resources and help	15

Mallecoota is surrounded by bushland. Image: Leonie Daws.



The Fuel Management Group

“

The group consists of active representation from the community and fire agencies ... and has met regularly since 2019.

”

The Mallacoota Bushfire Fuel Management Working Group (the Working Group) was initially convened in 2019 as Mallacoota Township Bushfire Fuel Management.

In May 2020, after the Black Summer fires, Mallacoota and District Recovery Association (MADRA) was formed, and we were formally accepted as a working group under MADRA.

The group consists of active representation from the local community, Department of Environment, Land, Water and Planning (DELWP), Forest Fire Management Victoria (FFM Vic), Parks Victoria, Country Fire Authority (CFA), East Gippsland Shire Council and Bushfire Recovery Victoria. It has met regularly since 2019.

Our aim is to develop an agreed long-term plan for sensitively reducing bushfire fuel for the protection of Mallacoota township. The plan is not set in concrete and will evolve over time.

Inaugural community meeting in 2020 to form MADRA.



Our purpose and aims

ACKNOWLEDGEMENT

Climate change is a major influence on our forests and their flammability.

Fuel management is important for township protection but it is only one of a suite of methods for improving the safety of our community.

PURPOSE

The purpose of the Working Group **is to**:

- develop a collaborative, ongoing, environmentally and socially responsible bushfire fuel management plan to protect Mallacoota township
- be tenure blind, ignoring boundaries between public and private land
- communicate the plan to land and fire management agencies, and to the Mallacoota community
- collaborate with MADRA in furthering the aim of enhancing the future safety of the township.

The purpose **is not to**:

- advise or comment on individual property plans
- implement actions during bushfire events.

LONG-TERM AIMS

- Oversee the implementation of a fuel management action plan
- Review the plan annually
- Develop a rolling, three-year action plan
- Revisit the overall fuel management plan every five years.

“

Our purpose is to develop a collaborative, ongoing, environmentally and socially responsible bushfire fuel management plan ...

”

Why forests burn

LONG-TERM CLIMATE AND WEATHER

Climate change has resulted in the weather becoming more extreme and more unpredictable. There are droughts and flooding rains, increases in temperature and resulting dry spells, increases in rains and forest growth flushes.

Climate change has led to more dangerous fire weather (Figures 1 and 2).

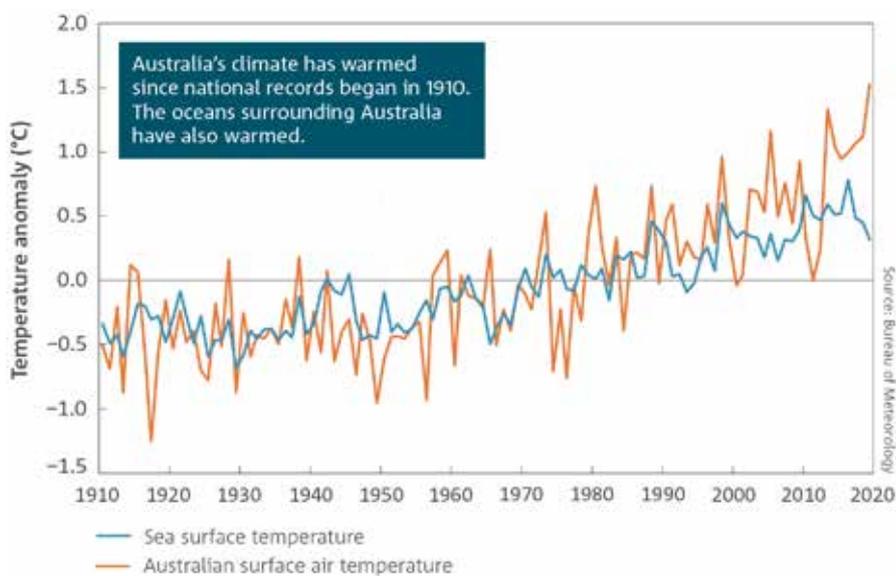


Figure 1: Anomalies in annual mean sea surface temperature, and temperature over land, in the Australian region. Anomalies are departures from the 1961-1990 standard averaging period. Sea surface temperature values (data source: ERSST v5, www.esrl.noaa.gov/psd/) are provided for a region around Australia (4-46 °S and 94-174 °E).

Graph source: State of the Climate 2020, CSIRO. Data: © Bureau of Meteorology

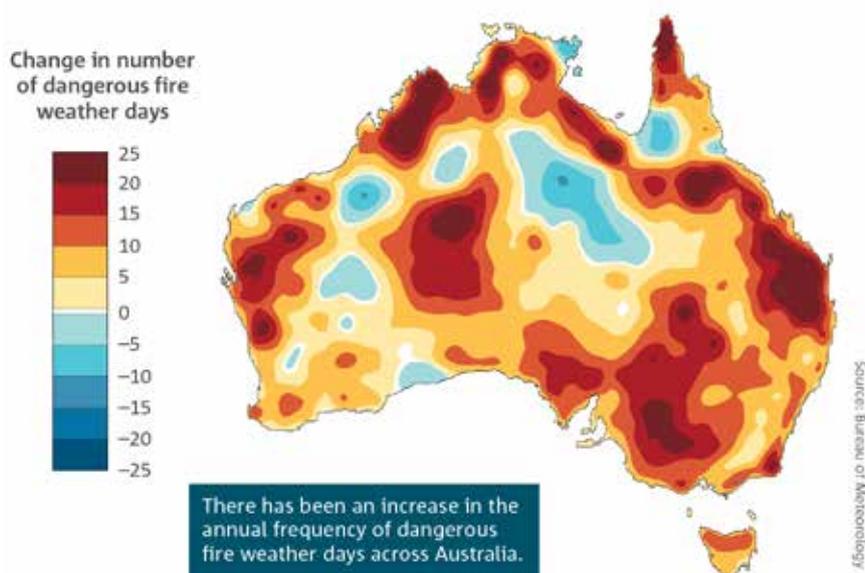


Figure 2: There has been an increase in the number of days with dangerous weather conditions for bushfires. This is based on the change in the annual (July to June) number of days between the two periods: July 1950 - June 1985 and July 1985 - June 2020 that the Forest Fire Danger Index exceeds its 90th percentile, which is an indicator of dangerous fire weather conditions for a given location.

Graph source: State of the Climate 2020, CSIRO. Data: © Bureau of Meteorology

FUEL: THE GROWTH IN THE FOREST

Not all the forest is equally flammable. Except in extreme circumstances, fire is carried by:

- **Fine fuel** – dry vegetation, leaves, twigs and sticks on the ground; smaller in diameter than a pencil (A).
- **Ladder fuel** – dry vegetation that will carry fire from the ground up into the tree canopy (B).
- **Tree bark** – strips of hanging bark or ribbon bark, common in some eucalypt species, will carry fire from the ground up into the canopy and spread burning embers. Many of Mallacoota's trees, like Ironbark, Bloodwood and Angophora are less hazardous due to their tighter bark, while Silvertop Ash, Stringybark and Mountain Grey Gum can be hazardous if not managed (C, D).



“ Trees are *not* the enemy. Not all the forest is equally flammable. ”



- **Mid-storey growth** – dense stands of small trees and shrubs can also carry fire, but some plants are more flammable than others. *Melaleuca*, *Kunzea* and *Leptospermum* (often referred to as Tea-tree) can be flammable especially when dry.

The current dense growth of wattle that has sprung up around Mallacoota, post-fire, is not particularly flammable and will thin out considerably over time and die off.

Wattles are nitrogen fixing, this means their roots have bacteria that allow them to take nitrogen from the atmosphere and incorporate it into the plants' structure, which ultimately benefits soil health.

“

Wattles are nitrogen fixing ... which ultimately benefits soil health.

”

Further information

See *Overall fuel hazard assessment guide*, published originally in 2010 by Department of Sustainability and Environment (now DELWP). Download the guide at: https://www.ffm.vic.gov.au/__data/assets/pdf_file/0005/21110/Report-82-overall-fuel-assess-guide-4th-ed.pdf

See *Understanding Fire Management*, created by the working group. View the webinar on the MADRA website at: <https://madrecovery.com/fuel-management>

Overall fuel hazard assessment guide

4th edition printed July 2010

Fire and adaptive management report no. 82



Managing the land

PREDICTING RISK

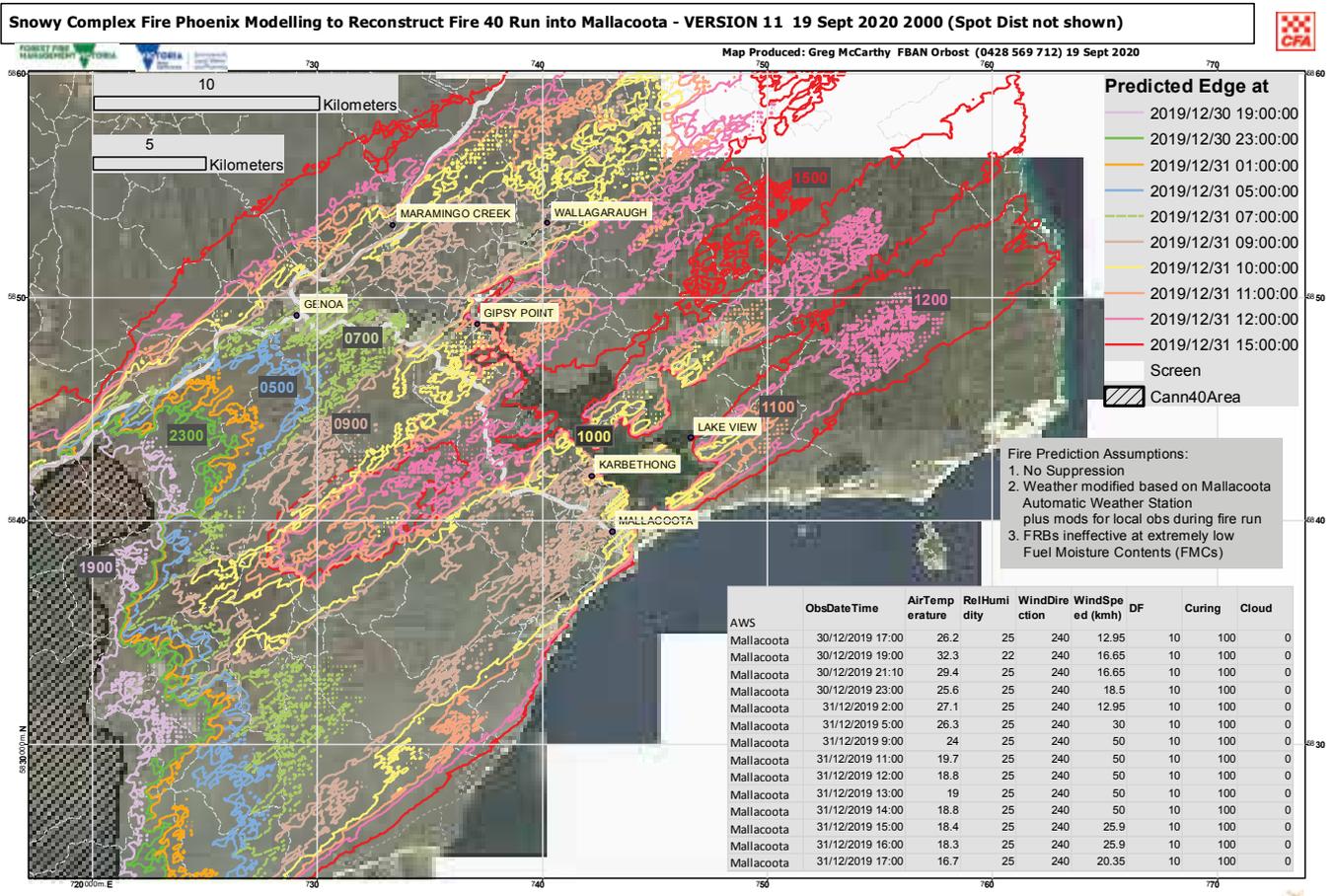
For many years fire managers have been using software to simulate where fire will travel under given circumstances. The point of origin of a fire is predicted and variables like weather, land slope and vegetation type are introduced to arrive at a model of where the fire may travel.

Phoenix, one example of this type of software, provided a pretty accurate description of where the fire that impacted Mallacoota in 2019-20 travelled.

Using these predictors enables fire managers to prioritise their fuel management. When and where planned burns are employed is informed by local knowledge, science and bushfire modelling technology. New data also includes protecting the environment as an important value in fuel management.

“ We can only do our best to reduce risk. It cannot be eliminated. ”

This is post-fire modelled data provided by DELWP. An elaboration of the data is provided by Greg McCarthy on the webinar, Understanding Fire Management at <https://madrecovery.com/fuel-management>.



Disclaimer: Base layer information on this map has been sourced from DELWP Corporate CSDE GIS data. This material may be of assistance to you but the State of Victoria does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for error, loss or damage which may arise from reliance upon it.

OUR VALUES

The involvement of community members in the Working Group enabled us to clarify what we thought needed to be incorporated into a fuel management plan.

We needed to decrease the **risk** of fire to the town but we all agreed that protecting the **amenity** of the town was of special importance to people who choose to live here. Walking tracks and forested views give joy to so many locals. Similarly, many community members mentioned that preserving the **biodiversity** of our country was desirable. East Gippsland provides habitat for the endangered Glossy Black Cockatoo, Southern Brown Bandicoot and Long-footed Potoroo so retaining habitat was important. It was these three values that underpinned all our conversations about fire management.

“

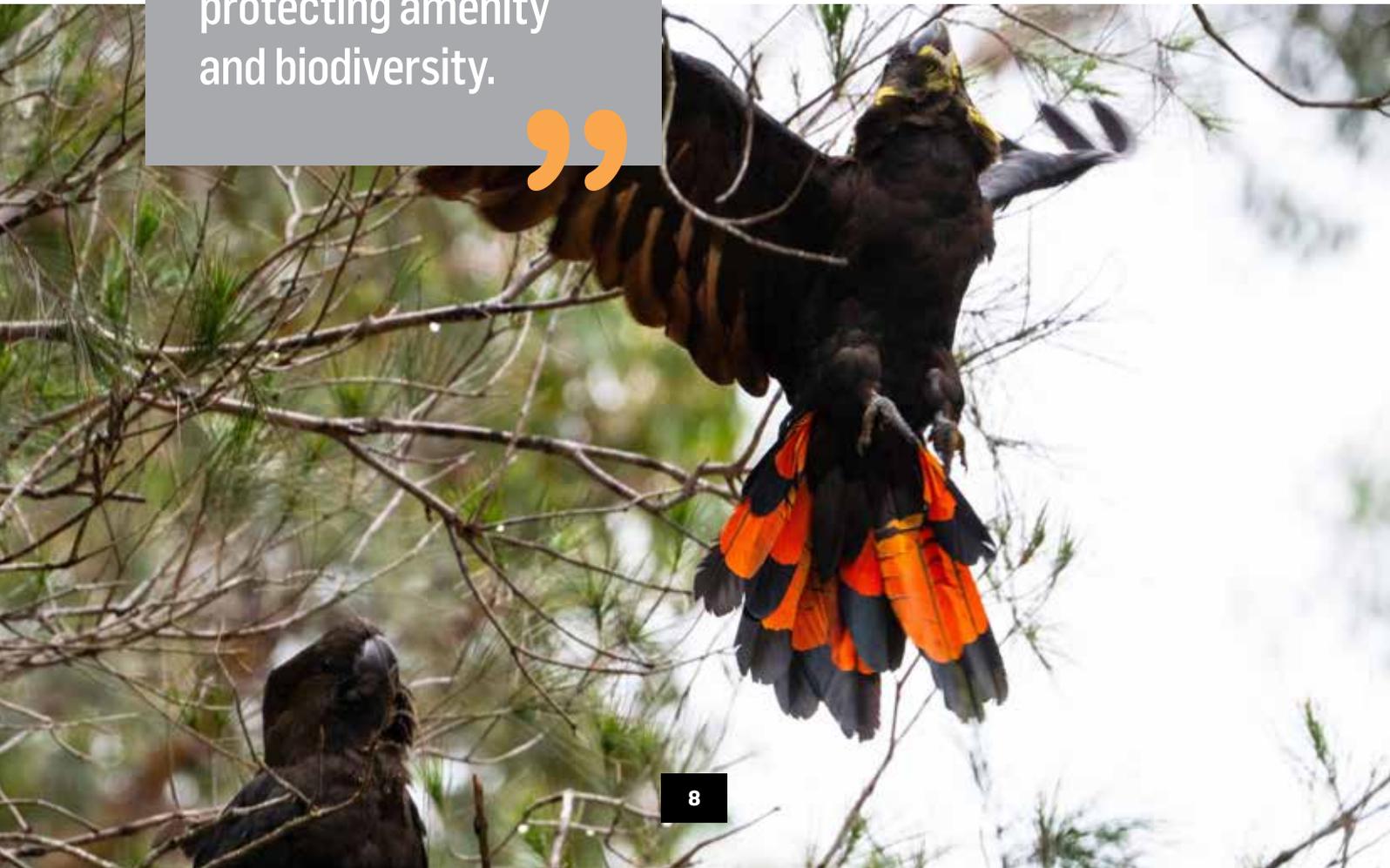
The Working Group's discussions centred on reducing risk, and protecting amenity and biodiversity.

”



Above: The Working Group's discussions centred on reducing risk, protecting amenity and preserving biodiversity.

Below: Mallacoota provides important habitat for the endangered Glossy Black Cockatoo. Image: Leonie Daws.



FUEL TREATMENT

Long discussions addressing the challenges of large-area burns led the group to focus initially on non-burn fuel treatment, most particularly, mulching.

Treatment of fuels at the interface of forest and town is not only the best means of reducing risk, it is also the most cost-effective. Compared to planned burns, mulching is not weather dependant and the work can be flexible and nuanced, leaving small untouched copses that provide refuge for smaller animals and desirable plants.

Areas of forest that appeared to present the most risk to the town were targeted for mulching regardless of the agency that was responsible for their upkeep.

Mulching is an effective, all-weather fuel treatment, and helps to maintain soil moisture.



“

Fire is good: At the right time, in the right way, in the right place.

”

When providing more protection further afield from the mulched area, we suggested areas could be broken up into smaller parcels and a regime of smaller, cool, mosaic burns be implemented. Once again, compared to large-acreage, landscape burns, smaller burns implemented on a rotational basis provide refuge, decrease the risk of losing control of fires and are less destructive to the ecosystem.

This type of fire management resembles traditional practices, where cool burns allow managers to walk with the fire, controlling and directing it. The idea is to stop flames reaching the canopy, and only allow fire that is hot enough to burn the top layer of fuel, leaving the ground and soil unaffected.

Cool burns have been a cultural practice for Australia's Traditional Owners for millennia.





Left: Walking with fire. Right: Burning only the top layer of fuel leaves the ground and soil unaffected.

Management of the larger landscape is somewhat controversial and complex. Many practitioners argue it is important to carry out planned burns in remote areas using low intensity burns to achieve a mosaic of burnt and unburnt areas that help restrict the spread of bushfires. Fires can start in these areas and spread quickly to threaten the environment, houses and communities.

Other research indicates that large-scale burns do very little to decrease risk to towns, and may increase risk by encouraging dense scrubby growth, post fire. Some of the latest research also suggests that leaving forests to mature, over a time scale of 30–40 or so years without burning, also decreases risk of future fires and, particularly, fire intensity. Others say this can cause a dense build-up of ground fuel that is a huge fire risk.

As we work together to manage our country better, we need to develop an intimate knowledge of our landscape and an appreciation of traditional practices that managed country well for thousands of years. Practical, on site knowledge and an historical perspective of how our own bit of country responds to fire, together with scientific research, will lead to better, more effective and more flexible fuel management.

The Working Group finalised their ideas in the *Mallacoota Bushfire Fuel Management Recommendations June 2021* (Fuel Management Recommendations), which was presented to the Joint Fuel Management Program (JFMP) for possible implementation. The JFMP is a statewide initiative that manages fuel on public and private land over a period of three years.

It receives input from specialist staff to help ensure identified values including cultural heritage and biodiversity are protected.

The report was accepted by the JFMP and work has already begun on implementation. More work will follow and new areas around Karbeethong, Gipsy Point and Genoa will be added. The plan will be updated and reviewed annually.

The Fuel Management Recommendations can be viewed at https://madrecovery.com/download_file/view/1595/771

MADRA working group
Mallacoota Bushfire Fuel Management
 Recommendations June 2021



The Mallacoota Bushfire Fuel Management working group was initially convened in 2019 as The Mallacoota Township Bushfire Fuel Management. In May 2020, after the Black Summer fires, MADRA (Mallacoota and Districts Recovery Association) was formed and we were formally accepted as a working group under MADRA.

The group consists of active representation from the local community, DELWP, FFM Vic, CFA, East Gippsland Shire and Bushfire Recovery Victoria. It has met regularly throughout the last two years.

Our aim is to develop an agreed long-term plan for sensitively reducing bushfire fuel for the protection of Mallacoota township. The plan is not set in concrete and will evolve over time.

THE FUTURE

We would like the areas that have been and will be actioned to receive ongoing treatment, thus reducing fire risk but creating a space that is biodiverse and attractive. The aim is to manage these areas sustainably.

Mulching, in particular, is a relatively new tool. Early research has indicated that it does lead to an increase in weedy growth and is not always an environmentally-healthy intervention to repeat year after year, nor does it support enough fuel annually to burn. We are trying to think creatively, about ongoing management that is sustainable.

One possibility is that the mulched areas could be managed to encourage vegetation that resembles an open grassy woodland, and we are researching and trialling various options to encourage that. Those options could include seeding the area with native grasses and/or carrying out small, targeted, cool burns.

Mallacoota is leading the way in considering these alternative management regimes.

“

If the answer to a complex problem is simple, it is probably not correct.

”

An example of open grassy woodland.



How to prepare your house and garden

Some houses in Mallacoota could be at risk from surface fire (grass and shrubs), ember attack (and other windblown debris) and a large fire front. The resultant damage is affected by debris accumulation, tree strike, exposure to other burning infrastructure, and house design and maintenance.

The same values apply to managing your home and garden as they do to the forest. Risk cannot be eliminated, so how do you balance risk, amenity and biodiversity at your place? Every homeowner's ideas will be different.

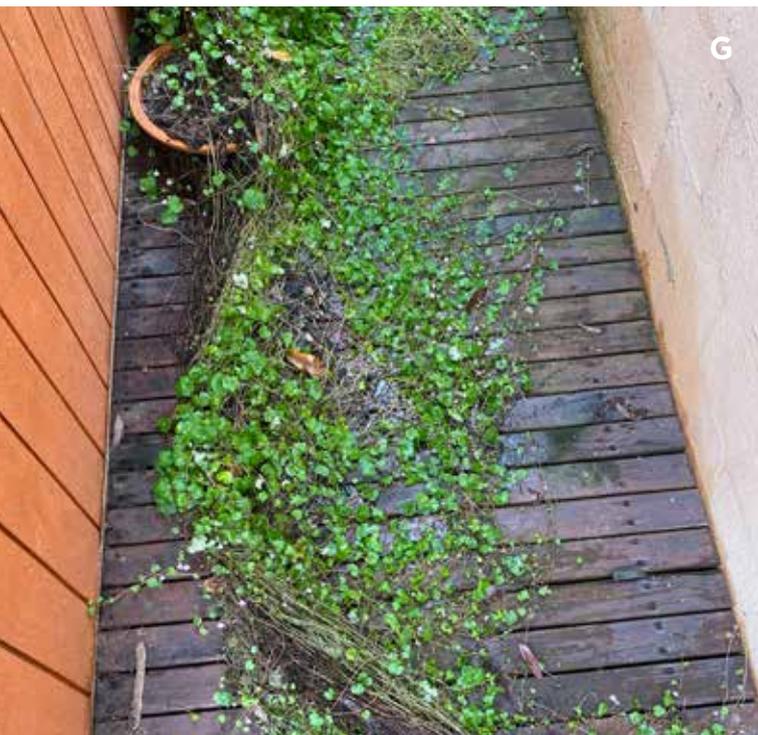
PREPARE YOUR HOUSE

Here is an example of how one new house in Mallacoota has worked hard to reduce the risk of fire entering the building (A-D).

If fire gets into your house, through gaps, the whole house is at risk. It makes sense to remove as much of that risk as possible.

A: steel frame and subfloor. B: sealed subfloor. C: steel fascia. D: steel fencing.





Another local house provides examples of risks that can be easily rectified. Wooden fascias can be replaced with steel, or another option is to install non-flammable gutter guard (E). If your sub floor is open, do not use it as a storage area (F).

Other structures, fences, carports, boat and horse trailers, plants, flower boxes, firewood etc., close to your house can give easy access to flame (G, H). So, think about how you can best manage these hazards. For example, change building materials, rehouse items or relocate at least 10 m away.

For ideas on retrofitting and renovations, you might like to have a look at this document from the Victorian Building Authority (via the CFA website): https://www.cfa.vic.gov.au/articledocuments/550/A-guide-to-Retrofit-Your-Home-for-Better-Protection-from-a-Bushfire_2014.pdf.aspx



PREPARE YOUR GARDEN

Reduce the risk of flames and heat near your house

Fuel around your house needs to be evaluated on its flammability, amount of dry fine fuel, type of tree bark and amount of dry ladder fuel. A good rule of thumb is clearing surface and near surface fine fuel so you can freely walk around under the trees. The closeness of vegetation to your home also needs to be considered. It is not a good idea to use timber in landscaping right next to your house. Select plants and shrubs that are less flammable than others and keep plantings well-spaced.

Trees can provide some positive elements to your property; as well as looking good, they help to provide shade and moisture retention, they modify wind, they can provide a radiation shield and they retard growth of fine fuel.

Here's a useful list:

- Trees that are likely to drop branches or fall on your house should be assessed. An arborist can give you well-considered advice.
- If you have a lawn, keep it between 5-10 cm in length. Keep shrubs away from close contact with your house.
- Retain gaps between larger shrubs and trees.
- Don't use flammable mulch against your house.
- Remove low hanging branches to a height of about 2 m. Rake up fine dry fuel.

The CFA has produced an excellent booklet aimed at preparing your property. It is simple, clear and exhaustive, and highly recommended. It can be downloaded from the CFA website at: <https://www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property>

The following link takes you to a series of talks on bushfire resilience, with some great tips on property preparation. A really useful resource: <https://bushfireresilience.org.au/resourceshub>

A well-prepared property. Image: CFA (2021), Your Guide to Property Preparation (see link above).



Other resources and help

There are many scientists and researchers who are commenting on fire behaviour and fire resilience. They do not always agree. Although this list is nowhere near exhaustive it provides a starting point for those of you who are interested in reading more.

Associate Adjunct Professor David Cheal
School of Science, Information Technology and Engineering, Federation University. Ecology and plant response to fire.

Associate Professor Michael-Shawn Fletcher
University of Melbourne. Wiradjuri man. Indigenous knowledge, the role of humans in the landscape.

Justin Leonard
CSIRO. Bushfire and buildings.

Professor David Lindenmayer
ANU. Forest ecology and resource management.

Dr Alan March
University of Melbourne. Bushfire and urban design.

Greg McCarthy
Consultant. Fire Behaviour Analyst and Fire Ecologist.

Professor Bruce Pascoe
University of Melbourne. Yuin, Bunurong and Tasmanian man. Resident of Mallacoota for 45 years; writes on Aboriginal culture and foods.

Dr Jack Pascoe
University of Melbourne. Yuin man. Indigenous knowledge and Fire Ecologist.

Professor Trent Penman
University of Melbourne. Bushfire behaviour.

Associate Professor Kevin Tolhurst
University of Melbourne. Fire histories. Fire Behaviour Analyst and Fire Ecologist.

Associate Professor Dr Philip Zylstra
Curtin University. Modelling fire behaviour from plants.

FURTHER INFORMATION

➤ CFA: <http://www.cfa.vic.gov.au>
Mallacoota CFA has a Property Advisor Visit Service. Contact the local brigade.

➤ FFM Vic: <https://www.ffm.vic.gov.au>
Community enquiries can be directed to East Gippsland FFM Vic.

Email
eastgippsland.community@delwp.vic.gov.au

Phone
Customer contact centre: 136 186
Orbost: 5161 1222
Bairnsdale: 5152 0600

Website
<https://www.ffm.vic.gov.au>

Vegetation growth on mulched and unmulched plots. Image: Jann Gilbert.



OTHER RESOURCES AND REFERENCES



Bushfire resilience

Bushfire Resilience Inc. (2022). *Resource Hub*.
<https://bushfireresilience.org.au/resourceshub>



About the Mallacoota Bushfire Fuel Management Working Group

MADRA (2022). *Community-led recovery plan v2. Ongoing Recovery, Future Resilience*.
https://madrecovery.com/download_file/view/1548/768



What contributes to our bushfire risk?

Hines et al. (2010). *Overall fuel hazard assessment guide*.
https://www.ffm.vic.gov.au/__data/assets/pdf_file/0005/21110/Report-82-overall-fuel-assess-guide-4th-ed.pdf



MADRA Fuel Management Working Group (2021) *Webinar 3: Understanding Fire Management*.
<https://madrecovery.com/fuel-management>



Managing risk around town

MADRA Fuel Management Working Group (2021). *Mallacoota Bushfire Fuel Management Recommendations June 2021*.
https://madrecovery.com/download_file/view/1595/771



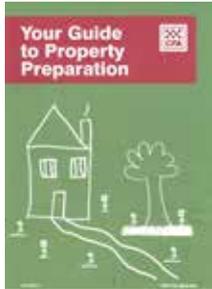
Managing risk within town

Buildings

MADRA Fuel Management Working Group (2021). *Webinar 2: Why houses burn*.
<https://madrecovery.com/fuel-management>



Victorian Building Authority (2010). *A guide to retrofit your home for better protection from a bushfire* (via the CFA website).
https://www.cfa.vic.gov.au/articledocuments/550/A-guide-to-Retrofit-Your-Home-for-Better-Protection-from-a-Bushfire_2014.pdf.aspx



CFA (2021). *Your Guide to Property Preparation*. https://www.cfa.vic.gov.au/ArticleDocuments/534/Your_Guide_to_Property_Preparation_V1.1_2021_Update.pdf.aspx



Gardens

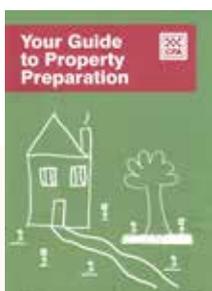
CFA (2022). *Landscaping for bushfire: garden design and plant selection*.
[https://www.cfa.vic.gov.au/ArticleDocuments/447/CFA%20Landscaping%20for%20Bushfire%20\(Versio%203\).pdf.aspx?Embed=Y](https://www.cfa.vic.gov.au/ArticleDocuments/447/CFA%20Landscaping%20for%20Bushfire%20(Versio%203).pdf.aspx?Embed=Y)



CFA (2022). *Landscaping for bushfire – Coastal*.
[https://www.cfa.vic.gov.au/ArticleDocuments/356/CFA%20Landscaping%20for%20Bushfire%20-%20Coastal%20\(Versio%203\).pdf.aspx?Embed=Y](https://www.cfa.vic.gov.au/ArticleDocuments/356/CFA%20Landscaping%20for%20Bushfire%20-%20Coastal%20(Versio%203).pdf.aspx?Embed=Y)



CFA (2022). *Online plant selection key*.
<https://www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property/landscaping/plant-selection-key/plant-selection-key>



CFA (2021). *Your Guide to Property Preparation*. https://www.cfa.vic.gov.au/ArticleDocuments/534/Your_Guide_to_Property_Preparation_V1.1_2021_Update.pdf.aspx

Enjoy a fire safe summer



In the summer months there's no better place to be than down the coast or in some of our stunning bush or grassland areas. Wind down and enjoy a fun and relaxing summer break knowing you've taken a few simple steps to stay fire safe.



Away from home checklist

Five things to do every time you're out and about.

1. Save the Vic Emergency Hotline (1800 226 226) into your mobile.
2. Know the most up-to-date Fire Danger Rating for the area you are travelling to.
3. Find out if a Total Fire Ban has been declared.
4. Listen to ABC local radio (or other emergency broadcaster).
5. Check or download the VicEmergency app on your smartphone.

VicEmergency App

Get the latest fire information and warnings direct to your smartphone or iPad. Set the app to notify you when an incident occurs in a chosen area and use it to stay up-to-date with local Fire Danger Ratings and Total Fire Bans.



Download the app free from cfa.vic.gov.au.



Monitor Fire Danger Ratings to stay safe

On days where the **Fire Danger Rating is Extreme or Catastrophic**, it's better to stay in town centres. Visitors to parks and forests should expect them to be closed on Catastrophic days.

Bans and Ratings: what's the difference?

Total Fire Bans are legal restrictions on open fires, equipment and BBQs that prevent fires from starting.

Fire Danger Ratings help you to know when the local conditions are dangerous enough to enact your bushfire plan.

That might mean leaving the area early, well before there are any signs of fire – once a fire has started, the chances are it will be too late to leave.

Did you know?

Catastrophic days are rare – when forecast they are extremely serious.



Total Fire Bans and your BBQ

Which types of BBQ are banned on a Total Fire Ban?

- Solid fuel BBQs (e.g. wood, charcoal and briquettes).
- Liquid fuel BBQs.
- You also can't use camp ovens, wood-fired pizza ovens or kettle-type appliances.

Campfires, bonfires or any kind of outdoor fires are strictly banned on a Total Fire Ban day.

Which BBQs are OK?

- Fixed gas or electric BBQs built into a permanent structure of brick, stone or concrete.
- Portable gas or electric BBQs are OK if they are designed exclusively for meal preparation.

For any kind of gas or electric barbecue, you must have:

- A 3-metre area around the BBQ cleared of flammable material.
- A hose connected to a water supply or vessel with at least 10 litres of water.
- An adult present at all times who has the means and capacity to extinguish the fire.

Find out more about Total Fire Bans on the CFA website.

Have you checked your gas BBQ?



Don't let a faulty Gas BBQ ruin your holiday. Especially if it's been a while between uses, check the LP gas cylinder, hose and connections carefully. Spray the hose and regulator connections with soapy water – if bubbles start forming, you'll know that gas is escaping and it's time to contact a licensed gasfitter.

To find out more, visit cfa.vic.gov.au or call 1800 226 226.