HOTSPOTS FIRE PROJECT

MANAGING FIRE ON YOUR PROPERTY:

Workshop 2 – Participate in a planned burn

NSW RURAL FIRE SERVICE

Nature Conservation Council
The voice for nature in NSW

HOTSPOTS FIRE PROJECT

WORKSHOP 2 – PARTICIPATE IN A PLANNED BURN

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This booklet is a publication of the Hotspots Fire Project and has been developed to support participation in Hotspots Workshop 2.

The Hotspots Fire Project is a partnership program jointly managed by the NSW Rural Fire Service and the Nature Conservation Council of NSW.

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Disclaimer and notes

This booklet has been compiled for the Hotspots Fire Project. It serves merely as an aid to planning, and in no way provides any guarantee of fire safety. Although people living and working in fire-prone areas or areas with potential for fire can attempt to minimise risk, a degree of risk will always remain. The information contained herein reflects our understanding at the time of publication. We are learning more about fire and the environment every day and anticipate that some recommendations may change as new information comes to hand. Thus whilst every effort has been made to ensure the information presented herein is as accurate and well-informed as possible, those involved in compiling this booklet take no responsibility for any outcomes, actions or losses resulting either directly or indirectly from the booklet's interpretation, misinterpretation or implementation. The examples provided are not intended to suggest a recommended course of action. Nor is this booklet intended to be used without the help of experts, good neighbour relations, the experience of the associated Hotspots Fire Project workshops and the tools provided at those workshops. Readers should also note that the focus of this booklet is on fire management planning, as distinct from fire response planning. The NSW Rural Fire Service can assist with the latter.

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INTRODUCTION

This booklet provides information to support your participation in Workshop 2 of the Hotspots Program. It forms part of a suite of materials designed to assist you in managing fire on your property.

Workshop 2 brings together the knowledge and planning from earlier parts of the program. This day is largely spent outdoors with exercises, observation and supervised participation relating to planning and conducting a safe prescribed burn. The activities and experiences in workshop 2 have been carefully designed to build your knowledge, confidence, skills and contacts should you consider using fire as a land management tool on your property. We hope it will increase your capacity to plan for and conduct safe prescribed burns in conjunction with neighbours, the community and your local Brigade.

WORKPLACE HEALTH AND SAFETY

PREPARATION

The NSW Rural Fire Service (NSW RFS) has a duty of care to ensure the welfare and safety of all participants of the Hotspots Fire Project. NSW RFS standards incorporate risk management into the delivery of the Hotspots Fire Project including planning and conduct of prescribed burns. Part of the prescribed burn planning process and the supervision of the burn includes identifying hazards and risks (including those relating to the general public) and treating those accordingly.

The planning of this workshop includes risk assessments, safety checks and the production of documentation which briefs landholders thoroughly regarding expectations for both the delivery team and participants. Good planning is essential in insuring that we have adequate controls in place to reduce and treat risks accordingly.

INSURANCE

The NSW RFS is a member of the Treasury Managed Fund (TMF) for insurance purposes. The TMF is administered by the NSW Self Insurance Corporation, branded as icare Insurance for NSW.

Where activities of the NSW RFS results in property damage or personal injury to a third party for which it is legally liable the TMF may provide coverage. This includes any NSW RFS activities associated with the Hotspots Fire project.

NSW RFS staff and volunteers are insured under the Treasury Managed Fund which covers legitimate exposure to risk.

YOUR SAFETY

A risk assessment is prepared by the NSW RFS for all Hotspots events. To ensure your safety as a Hotspots participant please follow the facilitator's safety instructions and take all possible precautions when undertaking any field activities and during the presentations. For the field work component of the program you are required to be fully prepared, including wearing suitable outdoor clothing outlined in the Personal Protective Equipment section below.

A burn plan will be prepared for the identified demonstration burn site prior to the workshop. This burn plan documents information, operational instructions, administrative arrangements and actions relevant to the burn crew and all participants on site during the burn to ensure the safety of all tasks and everyone involved.

A full safety briefing will be undertaken with all participants and personnel prior to undertaking the prescribed burn. Conditions during the burn may be very smoky and hot, and the weather conditions may change without notice. It is essential you follow all instructions from the facilitator and RFS personnel to ensure the safety of all participants. In the event of any accident or incident (no matter how minor), please immediately inform the Hotspots facilitator as all incidents, accidents or near misses are required to be documented and investigated.

If you have any questions or concerns, please speak with the facilitator or a NSW RFS officer.

PERSONAL PROTECTIVE EQUIPMENT

Please ensure you are prepared for the field day. If conditions permit, a planned burn will be conducted on the day.

Please ensure you wear:

- Long pants and long sleeve shirt/jumper/jacket (non-synthetic clothing. Cotton or wool is preferable)
- Fully enclosed footwear such as boots with ankle protection and heavy tread soles such as hiking boots or work boots
- Hat and Sunscreen

And bring along:

- Goggles or protective glasses (if you have them)
- Gardening gloves (leather if possible)
- Drink bottle
- Your property fire management plan map developed in workshop 1
- Hotspots folder and mapping kit.

NOTE:

- Bush fire rated helmets will be provided on the day.
- Particulate masks, sunscreen and insect repellent will be available. Please bring your own if you have any particular sensitivities or allergies.
- Extra drinking water will be available on the day.
- Fine smoke particles are known to affect the human breathing system. If you have asthma or a lung condition or are known to experience severe allergic reactions to food, insects or medication (anaphylaxis), it is advised that you bring your medication and notify the staff or your condition. If you develop symptoms such as shortness of breath, coughing or wheezing, follow your asthma, COPD or ASCIA action plans.

BENEFITS OF A FIRE MANAGEMENT PLAN

Now that you have prepared your Hotspots Fire Project fire management plan, we hope that you have a better understanding of how simple targeted actions can be undertaken to improve the outcomes on your property when managing fire for life, property **and** the environment.

We recognise that these goals may at times come into conflict and the relative advantages and disadvantages need to be weighed up. Trade-offs between risk management and biodiversity protection may be inevitable. However trade-offs can be reduced by making management decisions that reflect the learning's provided by the Hotspots training. The content presented in the workshops and the materials within the Hotspots folder may also assist you in making better fire management decisions. The following is a summary of simple management principles and benefits which we hope you can use as a guide when managing fire on your property.

WHY DO YOU NEED A FIRE MANAGEMENT PLAN?

Biodiversity management benefit	Risk management benefit
A plan helps you to consolidate your management goals and better coordinate fire activities with your neighbours - providing improved opportunities to maintain a mosaic of vegetation in different post-fire stages across the landscape. These patchy mosaics support species diversity.	A plan helps you to better examine and prioritise risks to your property so that you are better prepared to act on them. It is important that you also have a Bush Fire Survival Plan. This will complement your Hotspots Plan and guide you in making decisions during unplanned fires. Always seek help by talking to your neighbours and the appropriate fire authorities.

WHY DO YOU NEED TO UNDERSTAND WHAT VEGETATION YOU HAVE ON YOUR PROPERTY?

Biodiversity management benefit	Risk management benefit
Different vegetation types are adapted to different fire regimes. Scientists have developed fire frequency guidelines to help to support the fire requirements of these different vegetation types. Remember that even within a single vegetation type, each stage of growth after fire looks different. Each stage provides different habitat, each has value.	Fire behaves differently in different vegetation (depending on how much fuel there is and how it is arranged), therefore understanding what vegetation you have is important. Remember that other external factors such as seasonal weather conditions and topography will also influence how fire behaves in different vegetation. The best way to learn how different native vegetation responds to fire is by observing fire behaviour under controlled conditions.

WHY DO YOU NEED TO KNOW FIRE HISTORY FOR YOUR LOCAL AREA?

Biodiversity management benefit	Risk management benefit
Too frequent and too infrequent fire can trigger negative impacts that throw systems 'out of balance' for example resulting in loss of species or triggering weed invasion. Knowing your fire history will assist in managing to reduce negative impacts. Even within a single vegetation type, different species have different needs in relation to fire. To address this, vary fire frequency over time and space to allow for the full range of species. Knowing the fire history within your local area will also help you work with neighbours to ensure there is vegetation at different stages of post fire.	Knowing the frequency and extent of past fires may tell a story that you can use to predict how bush fires in the future may behave. Look for similarities and differences in the pattern and extent of previous fires in relation to assets you wish to protect. This may help guide you in making better management decisions about what actions to take that minimise risk to life, property and the environment, for example by strategically reducing fuel loads.

WHY DO YOU NEED TO CONSIDER FIRE IN A LANDSCAPE CONTEXT?

Biodiversity management benefit	Risk management benefit
Fires occur across tenures, boundaries and landscapes - it is useful to think about where the different vegetation types sit in a landscape and how this relates to fire. It is important not to burn entire vegetation types at once. Patchiness provides refuges for animals and a seed source for plants to recolonise burnt areas.	Fire frequency, extent, and even intensity are naturally patterned across a landscape. This is determined largely by weather, aspect, slope and vegetation type. Fire management should therefore both respond to and make use of these landscape patterns. Remember that prescribed burns planned over small areas are more easily managed than burns over large areas.

WHY IS VARIABILITY OF FIRE REGIMES SO IMPORTANT?

Biodiversity management benefit	Risk management benefit
Variability of fire regimes within vegetation types, across different vegetation types and landscapes will help to support a greater diversity of species to improve landscape health.	Variability of fire regimes within vegetation types, across different vegetation types and landscapes will help to manage fuel loads, reducing the risk to communities and providing opportunities to manage bush fire.

HOW SHOULD I IMPLEMENT MY FIRE MANAGEMENT PLAN?

Biodiversity management benefit	Risk management benefit
Use the Hotspots materials as a guide to make management decisions. To improve your decisions, learn more about the plants and animals in your landscape and their relationship with fire by consulting with relevant Natural Resource Management authorities (e.g. National Parks, Local Land Services, your Council and/or local ecologists).	The Hotspots program has given you an experience in operational fire management but not competency. It is important that you seek help with your plan from the relevant fire authorities and as a starting point set small management goals. If you are interested in learning more about fuels and fire, consider joining your local brigade as a volunteer member, or speak to your local Fire Control Centre or others who have completed the Hotspots program to see if you can watch and learn from burns they may be undertaking.

RISK ASSESSMENT

The challenges as land managers and landholders for fire management include:

- understanding the landscapes and ecosystem requirements (introduced in workshop 1),
- making a fire management plan with clear objectives (introduced in workshop 1),
- applying the most appropriate fire management techniques at the right times and places to achieve the best outcomes (covered in workshop 2).

Resolving some of the uncertainties that arise from the dynamic nature of fire are part of risk management to ensure your burn is a safe operation and achieves the desired prescriptions and objectives.

In assessing risk, you take into account the likelihood that something bad will happen, the consequences of the event and controls or actions to reduce the risk. These terms are defined below:

EVENT: the occurrence or change of a particular set of circumstances

LIKELIHOOD: the chance of an event happening

CONSEQUENCE: the outcome or impact of an event

CONTROL: measure that maintains or modifies the risk

A risk assessment doesn't need to be complicated. Every day we process information about likelihood and consequence in order to make decisions. A systematic approach will help to ensure the burn operation is safe and risks to people, property and the environment are considered and managed. There are a variety of tools and methods to assess risk. A simple matrix is given below:

Consequence / Likelihood	Insignificant	Minor	Moderate	Major	Extreme
Highly Likely	Low	Medium	High	Critical	Critical
Likely	Low	Medium	High	High	Critical
Possible	Low	Low	Medium	High	Critical
Unlikely	Low	Low	Low	Medium	High
Highly Unlikely	Low	Low	Low	Low	Medium

HOW TO CONDUCT A RISK ASSESSMENT:

1. What is the event?

2. What is the likelihood of this event happening?

3. What is the consequence of this event happening?

4. What is the overall risk rating (likelihood v's consequence)?

5. What can be done to manage or control the risk?

RISK ASSESSMENT EXAMPLE:

1. Slips/trips/falls
2. Possible
3. Major
4. Medium
5. Wear appropriate footwear; pay attention to your footing on uneven ground; if smoky, wear googles to maintain better vision.

HOTSPOTS FIRE PROJECT

www.hotspotsfireproject.org.au

Fuel Fact Sheet 1

Understanding Fuel

...and why we need to manage it

Australia's climate is becoming warmer and drier with the occurrence of very high to extreme fire risk days predicted to increase across NSW. Understanding how fuel accumulates over time is essential to managing bush fire risk to life, property and natural ecosystems.

What is fuel?

Bush fire fuel consists of all living and dead vegetation. However, it is fine fuels less than 6mm in diameter, consisting of leaves, sticks, twigs, bark and grass, that are most likely to be consumed by a fire.

The presence and arrangement of fine fuel significantly affects flame height and the speed at which a fire moves. Heavier logs and stumps tend to burn after the fire front has passed and take longer to extinguish.

Fuel occurs in layers from the forest floor (surface and near surface fuels), through the mid storey (elevated and bark fuels) to the canopy. The quantity and arrangement of fuel in each layer can be assessed visually using the Overall Fuel Hazard Guide (Hines *et al.,* 2010).

Why not remove all the fuel?

Bush fire fuel consists of living and dead vegetation, which has ecological, social and economic value. It is not practical or desirable to simply remove it completely.

Near and surface fine fuel have ecological values (for foraging and habitat) or perform ecosystem services including water filtration and storage, erosion control and carbon storage. Elevated material also provides a substantial area of food and habitat for fauna and other plants. Bark not only provides habitat but also protects the trees from predation and insulates epicormic growth buds from radiant heat and direct flame contact.

Forest products such as shelter, timber, leaf extracts and honey are just a few economic benefits that would be lost if all the fuel was removed.

How does fuel accumulate?

After a fire, the available fuel is dramatically reduced but starts to accumulate again as vegetation regrows in the post-fire environment.

The type of vegetation present, seasons and local climate all influence the rate, type and amount of fuel that accumulates.

At sites with higher rainfall and fertility, fuel accumulates quicker and can sometimes reach pre-fire levels within a decade, while at some low fertility dry sclerophyll sites it may take much longer.

The rate of decay of leaf litter plays a big role in the surface fine fuel loads and can vary widely over time and location. In some situations, after a low intensity burn there may be enough fuel to carry a fire within two to three years though its intensity is likely to be lower. Minimum fire threshold guidelines (Kenny *et al*., 2003) should be used when planning prescribed burns to minimise impacts on biodiversity.

Generally, fuel accumulates steadily after a fire and then reaches an upper limit where the rate of decay equals the input of new material.

(See Figure 1).

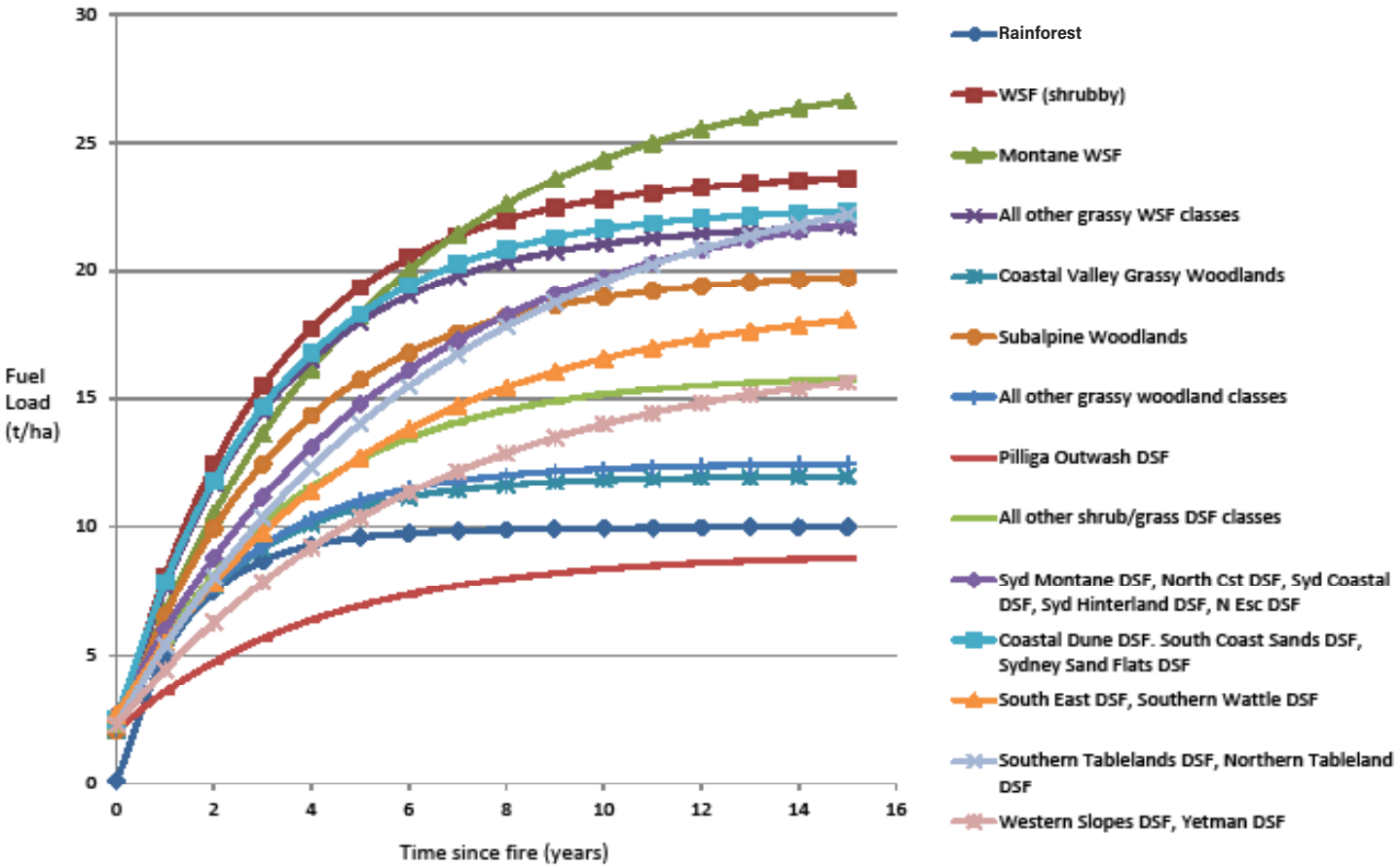

Figure 1: Trajectory quasi-steady state fuel load estimates with time since fire of litter, near surface and elevated fuel load in NSW forests and woodlands based on studies by Watson (2012). *NB this does not include bark or canopy values. Fuel accumulation curves are not yet available for all vegetation formations in NSW. The values for initial fuel present may be higher or lower than the curves suggest following specific fires at a given site. WSF = Wet Sclerophyll Forest, DSF = Dry Sclerophyll Forest.*

REFERENCES:

Kenny, B. J., Sutherland, E. K., Tasker, E. M. and Bradstock, R. A. (2003) *Guidelines for Ecologically Sustainable Fire Management.* NSW National Parks and Wildlife Service.

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Hines, F., Tolhurst, K.G., Wilson, A.G., (2010) *Overall fuel hazard guide 4th edition*. Department of Sustainability and Environment, Victoria.

PICTURE CREDITS:

Front Page: 1. Gillian Basnett 2. National Interagency Fire Centre (Flickr) 3. John Tann (Flickr) 4. Gillian Basnett. Back Page: 5. 2003 Bush Firefighter Manual Version 1.3. NSW Government NSW 6. Timothy Allen (Flickr)

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Fuel Fact Sheet 2

Understanding Fuel

... and fire behaviour

Australia's climate is becoming warmer and drier with the frequency and severity of bush fire conditions increasing due to increased greenhouse gas emissions and concentrations (BOM, 2022). Understanding how fuel in vegetation influences fire behaviour is essential to managing bush fire risk to life, property and natural ecosystems

Fire Intensity and Behaviour

Fire intensity is affected by the amount of the combustible fuel (fuel load), the heat yield (determined by vegetation characteristics) of that fuel and the forward rate of spread of the fire (determined by the weather conditions). The fine fuel structure is an important component of the fuel load, particularly surface and near surface fuels. It is these layers that contribute to the flame depth, flame height and rate of spread of a surface fire. Fire behaviour refers to how and where a fire burns, how fast it travels, how much heat it gives off and ultimately how difficult it is to suppress. Fire behaviour is influenced by three major factors: weather, fuel and topography. Turn over to learn more about these factors >>>

Fire Danger Ratings

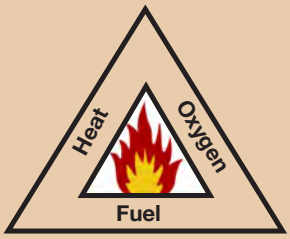
Fire Danger ratings are a guide to (the maximum) potential fire behaviour, during a 24-hour period, based on forecast weather conditions including based on forecast weather and fuel characteristics to model the potential level of danger should a bush fire start..

Knowing the Fire Danger Rating for your local area will help you prepare for bushfires and when planning prescribed burns. The higher the Fire Danger Rating the more difficult fires are to control. Fire Danger Ratings were changed in 2022 to provide a simpler, action-oriented system.

The Australian Fire Danger Ratings (AFDRS) levels are:

MODERATE Plan and prepare	HIGH Be ready to act
EXTREME Take action now to protect life and property	CATASTROPHIC For your survival, **leave bushfire risk areas**

The Fire Triangle



Fire is a chemical reaction that requires sufficient heat, oxygen and fuel. Managing fuel is a major consideration when managing bush fire risk. This is because we cannot modify heat or oxygen, which are driven by topography, climate and weather conditions, but we can remove or modify elements of the fuel.

The three factors of fire behaviour...

1) Topography

Topography refers to 'the lay of the land', its slope, orientation and elevation. Topography influences fire behaviour through interactions between weather and vegetation.

For example, northern and western aspects are warmer and drier and therefore influence the type of vegetation which grows there. Southern and eastern slopes may have higher fuel loads, but may not dry as quickly due to comparatively reduced exposure to the sun. Also, the steeper the slope, the faster a fire will travel.

2) Weather

The most important weather factors when it comes to fire behaviour are temperature, humidity and atmospheric stability. Long term climatic patterns such as droughts and climate change will also influence fire behaviour. Climate change is also increasing the incidence of extreme events.

Temperature: high temperatures dry out vegetation quicker, making it easier to ignite and burn.

Humidity: the level of moisture in the air (as well as in the vegetation and soil) determines how vegetation is consumed by fire.

Wind: The stronger the wind, the more oxygen supplied to the fire. The speed and direction of wind determines intensity, speed and how fire is controlled.

Atmospheric instability: refers to the rise and fall of air masses. This is important as vertical air motion can affect local wind patterns. In unstable atmospheric conditions fire behaviour can be erratic.

3) Fuel

Fuel has many characteristics that will influence fire intensity, flame height and rate of spread. Some of the most influential characteristics include:

Moisture: Fuel that is dry and fine will burn better than heavy fuels that are wet. The moisture content of fuel will affect ease of starting a fire, amount of heat from flames, how quickly the fire moves and how quickly fuel is consumed.

Quantity (Load): Fine fuels (leaves, twigs, grasses) are less than 6mm thick and mainly drive the forward spread of fire. Heavy fuels are over 6mm (sticks, branches, logs) and generally take longer to burn after the main fire front has passed.

Arrangement: Fuels are arranged horizontally and vertically. Fine, loosely-stacked fuels burn quickly and with greater intensity due to access to oxygen. A continuous ladder of fine fuel from the ground to the tops of the trees may encourage crown fires.

The amount, type and arrangement of fuel is highly variable across different vegetation formations and locations across the state.

For example... in Grassy Woodlands (above), abundant grass may contribute to a very high rating for surface fine fuel, but the woodland's smooth gums have very little bark, which can limit fire spotting or laddering.

A Dry Sclerophyll Shrubby Forest (left) dominated by stringybarks has much more bark, which contributes to the generation of embers that can cause spotting fires and thus a higher bush fire risk rating.

References: Commonwealth of Australia. 2022 Bureau of Meteorology. http://www.bom.gov.au/weather-services/fire-weather-centre/bushfire-weather/index.shtml.

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FIRE DANGER RATINGS HAVE CHANGED

KNOWING THE FIRE DANGER RATING MAY SAVE YOUR LIFE

Fire Danger Ratings are now simpler and easier to understand. By using the latest science and technology, they provide a more clear and accurate rating to save properties and lives.

The Fire Danger Ratings give you an indication of the consequences of a fire, if a fire was to start.

The higher the rating is, the more dangerous the conditions will be.

WHAT YOU NEED TO KNOW

The Fire Danger Ratings have four levels, which are:

MODERATE

Plan and prepare.

Most fires can be controlled.

- Stay up to date and be ready to act if there is a fire.

HIGH

Be ready to act.

Fires can be dangerous.

- There's a heightened risk. Be alert for fires in your area.
- Decide what you will do if a fire starts.
- If a fire starts, your life and property may be at risk. The safest option is to avoid bush fire risk areas.

EXTREME

Take action now to protect your life and property.

Fires will spread quickly and be extremely dangerous.

- These are dangerous fire conditions.
- Check your bush fire plan and that your property is fire ready.
- If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts.
- Reconsider travel through bush fire risk areas.

CATASTROPHIC

For your survival, leave bush fire risk areas.

If a fire starts and takes hold, lives are likely to be lost.

- These are the most dangerous conditions for a fire.
- Your life may depend on the decisions you make, even before there is a fire.
- Stay safe by going to a safer location early in the morning or the night before.
- Homes cannot withstand fires in these conditions. You may not be able to leave and help may not be available.

NO RATING: On days when there's minimal risk, the white bar meaning 'No Rating' will be used. Report any fires to 000.

UNDERSTANDING FIRE DANGER RATINGS

Fire Danger Ratings describe the consequences of a fire if one was to start. They do not indicate the chance of a fire occurring, although this is a common misconception.

Fire Danger Ratings are declared for a Fire Area. These are based on local government areas. You can find your Fire Area at **www.rfs.nsw.gov.au/fdr**

Ratings are calculated using a combination of weather forecasting and information about vegetation that could fuel a fire.

During harvesting season, Harvest Safety Alerts may be issued for areas at High and above.

Total Fire Bans will typically apply at Extreme and above.

When the fire danger reaches High, permits may be suspended. Check any conditions on your fire permit.

You can use the Fire Danger Ratings as a trigger for action in your bush fire survival plan.

YOU CAN FIND OUT THE FIRE DANGER RATING FOR YOUR AREA BY:

- By visiting the NSW RFS website at **www.rfs.nsw.gov.au/fdr**
- Listening to your local news
- Checking the Fires Near Me App
- Calling the Bush Fire Information Line on 1800 NSW RFS (1800 679 737).

For more information on what you can do to prepare for bush fire this season:

NSW Rural Fire Service website
www.rfs.nsw.gov.au

My Fire Plan:
www.myfireplan.com.au

Bush Fire Information Line
1800 NSW RFS (1800 679 737)

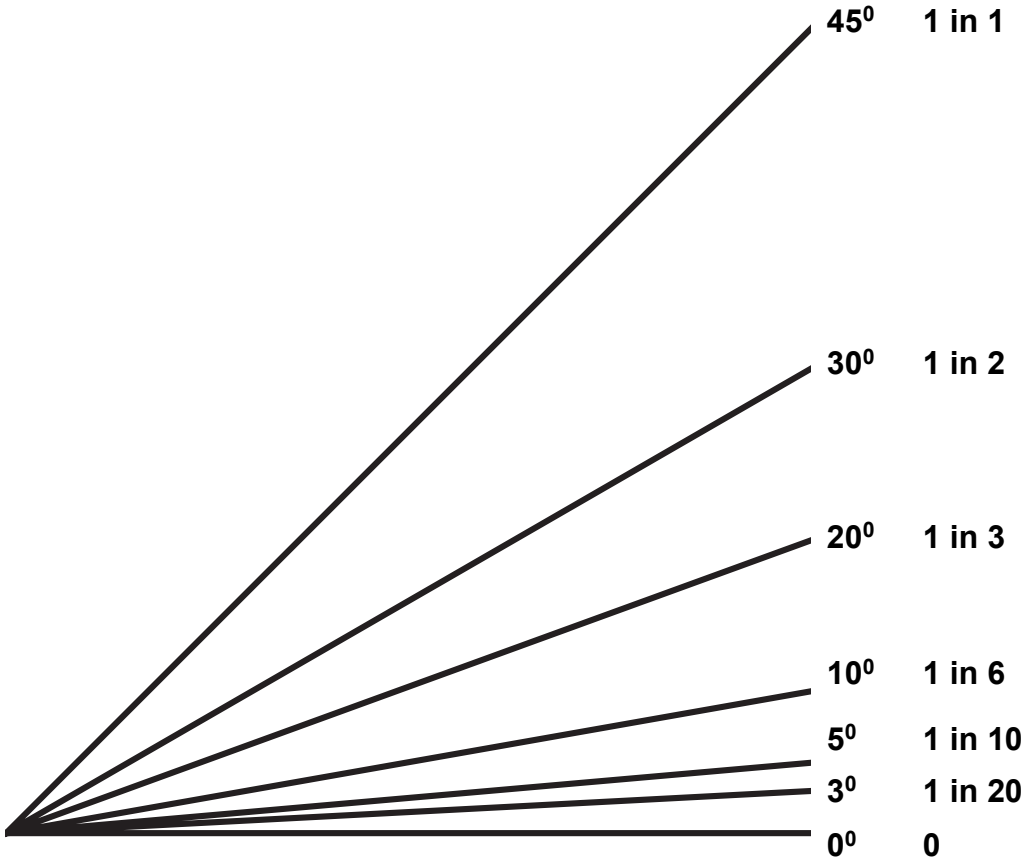
Your nearest NSW RFS Fire Control Centre:

BEAUFORT SCALE

The Beaufort scale is a scale for measuring wind speeds. It is based on observation rather than accurate measurement.

Beaufort	km/hr	Land Specification	Title	Knots
0	< 1	Smoke rises vertically	Calm	0
1	1-5	Smoke drifts slowly	Light Air	1-3
2	6-11	Wind felt on face Leaves rustle Flags flap	Light Breeze	4-6
3	12-19	Leaves and small twigs in constant motion Flags extended	Gentle Breeze	7-10
4	20-29	Raises dust and loose paper Small branches are moved	Moderate Breeze	11-16
5	30-39	Small trees begin to sway	Fresh Breeze	17-21
6	40-49	Large branches in motion Wires whistle Umbrellas used with difficulty	Strong Breeze	22-27
7	50-61	Whole trees in motion Walking against the wind impeded	Near Gale	28-33
8	62-74	Twigs break off trees	Gale	34-40
9	75-88	Slight structure damage	Strong Gale	41-47
10	89-102	Seldom experienced inland Trees uprooted Much structural damage	Storm	48-55
11	103-117	Very rare Widespread damage	Violent Storm	56-63
12	≥118	Severe and extensive damage	Hurricane	64-71

ESTIMATING DEGREE OF SLOPE



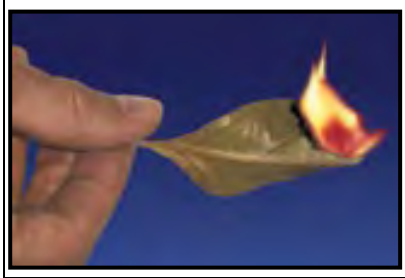
Degrees (approx)	Gradient	Description
45	1 in 1	**Very Steep** A dangerous slope
30	1 in 2	**Steep** Difficult to climb
20	1 in 3	**Steep** Steepest of roads
10	1 in 6	**Moderate/Steep** Too steep to cycle
5	1 in 10	**Moderate** Cycling difficult
3	1 in 20	**Gradual**
0	0	**Level**

For every 10 degrees increase in slope a fire will double in speed. This is because the slope provides a similar effect to the wind, effectively laying the flames down into the slope and pre-heating the vegetation, allowing it to more rapidly ignite.

FUEL MOISTURE CONTENT

THE SINGLE LEAF TEST

Sheltered from any wind, light the end of a dead leaf and once lit, take the ignition source away. The aim is to discover the angle at which a small flame neither goes out nor flares up.

	WET **Leaf burns only if straight down or doesn't burn at all** All fuels in area too wet to be burnt.
	MOIST **Leaf burns if angled downwards but not if level** Fine fuels from area will only burn if on slope or in wind.
	**BORDERLINE** **Leaf burns if level but not angled upwards** Fine fuels from this position will burn very slowly unless helped by wind, slope and fuel continuity.
	DRY **Leaf can be angled upwards and still burn** Fine fuels from area are dry enough to burn.
	TOO DRY **Leaf burns if held straight up** All fine fuels very dry and flammable, fire will run up stringybark trees. Spotting likely, especially if windy.

HOTSPOTS FIRE PROJECT

Fact Sheet: The Burning Approval Process

hotspotsfireproject.org.au

Bush fire hazard reduction burn © K. Taylor, Nature Conservation Council of NSW.

If you want to conduct a burn on your property you must check to see what approvals are required. This fact sheet provides you with an explanation of what you need to think about and do before you conduct a burn. You can refer to the NSW RFS publication *Before You Light That Fire* for more detailed information.

What is the reason for your burn?

If you are concerned about bush fire hazards or the amount of fuel on your property, then you may be looking at conducting a burn to reduce fuel loads. Before carrying out a hazard reduction burn you will need to get environmental approval. This not only minimises the risk of damage to the environment but also protects you from possible fines or legal action.

The easiest way to obtain an environmental approval is to apply for a free ***Bush Fire Hazard Reduction Certificate*** from the NSW Rural Fire Service (RFS). It will contain conditions to reduce the impact on the environment or heritage sites. In the majority of cases a Certificate will be issued for essential hazard reduction works, providing the potential environmental impact is not too great.

If the works are beyond the scope of the Certificate process, the RFS will provide advice on alternate environmental approvals. Certain agricultural practices may not require environmental approvals. Stubble burning, burning of sugar cane and diseased crops, generally do not require environmental approval. For a list of "allowable activities" and more information please contact your Local Land Service office at www.lls.nsw.gov.au/

There may be times when fire is needed to maintain or improve the variety of plant and animal species on your property; this means you are looking at conducting a burn for biodiversity reasons. If this burn is also likely to produce bush fire hazard reduction outcomes, then you should be able to obtain environmental approval with a ***Bush Fire Hazard Reduction Certificate***. If not, then other environmental approvals may be required.

There are a range of environmental approvals that may be required under different NSW legislation depending on the nature of the work. The Department of Planning and Environment (DPE) or Council will be able to assist you in working out which approvals may be required.

What is the difference between a Bush Fire Hazard Reduction Certificate and a Fire Permit?

A ***Bush Fire Hazard Reduction Certificate*** is an environmental approval with conditions about environmental impacts of your works. A ***Fire Permit*** is a fire safety approval. You will need a Fire Permit all year round if the fire is in close proximity to a dwelling, or if you are in a Fire & Rescue NSW area. There may be conditions attached to the permit to ensure safe burning practices.

If you want to burn during a bush fire danger period, you may need to apply for both a ***Fire Permit*** and a ***Bush Fire Hazard Reduction Certificate***. The NSW Bush Fire Danger Period is from 1 October to 31 March. However, this may start as early as 31st of August. Please note that you are not allowed to burn on Total Fire Ban or No Burn days, and that permits are required all year round in some council areas. Check with your local RFS Fire Control Centre if you are unsure as to whether or not you need a permit.

Who do I need to notify?

Regardless of whether you require a ***Bush Fire Hazard Reduction Certificate*** or ***Fire Permit***, you must always give 24 hour's notice to your immediate neighbours and local Fire Control Centre prior to lighting.

What happens if I conduct a burn without the necessary approvals and it causes damage?

If you do not obtain an approval, you may face considerable penalties. If you are unsure about whether you have obtained the right approvals, please contact your local RFS Fire Control Centre and they will be able to guide you through the burning approval process.

For further information on the Burning Approval Process, please contact your local RFS Fire Control Centre or visit www.rfs.nsw.gov.au.

Nature Conservation Council

Lighting a fire - Quick Facts

A quick guide to your responsibilities when lighting a fire or undertaking activities that may result in a fire

There are significant penalties if you light an illegal fire, or if your fire escapes and causes damage to property or the environment.

It is therefore essential that you are aware of the legal and safety requirements before you conduct a burn or use equipment that is likely to ignite a fire.

When lighting any fire you should ensure that you are wearing appropriate clothing, have a water supply available on site and that you have a cleared area around the perimeter of the fire. You must also use all practical means to prevent or minimise air pollution.

The following table provides a general guide to what you need to consider before lighting a fire.

If you require any further information, please contact the NSW Rural Fire Service or Fire & Rescue NSW.

	General Requirements	Total Fire Ban Days
Can I light a camp fire in a NSW State Forest, National Park or Regional Park? (for cooking or recreational purposes)	**Only in some situations** ■ Forests and National Parks may place restrictions on the lighting of fires in parks and reserves. ■ Check with your local National Park or Forestry office to determine their requirements.	**No** ■ All camp fires are banned on Total Fire Ban days.
Can I light a camp fire on my property? (for cooking or recreational purposes)	**Yes,** as long as: ■ You are burning dry, seasoned wood; and ■ You have cleared an area of at least 2 metres around the perimeter of the fire.	**No** ■ No fire is to be lit in the open on Total Fire Ban days.
Can I light my own portable gas or electric BBQ in a NSW State Forest, National Park or Regional Park?	**Only in some situations** ■ Forests and National Parks may place restrictions on the lighting of BBQs in parks and reserves. ■ Check with your local National Park or Forestry office to determine their requirements.	**No** ■ Portable gas/electric BBQs are banned in NSW State Forests, National Parks or Regional Parks on Total Fire Ban days. Note: In some cases you may be able to use gas or electric BBQs constructed by the NSW National Park or State Forest in specified picnic areas.
Can I light a gas or electric BBQ on my property?	**Yes**	**Yes,** as long as: ■ It is under the direct control of a responsible adult; and ■ The ground within 2 metres of the barbecue is cleared of all materials which could burn. As well as the following additional requirements for gas BBQs: ■ It is on a residential property within 20 metres of the house or dwelling; and ■ You have an immediate and continuous supply of water available.

This document is intended as a guide only. Exemptions may apply in some circumstances. If an approval or permit is in place, their conditions will take precedent over the above and following information.

For further information contact
NSW Rural Fire Service - 1800 679 737
www.rfs.nsw.gov.au

Fire & Rescue NSW - (02) 9265 2999
www.fire.nsw.gov.au

PREPARE. ACT. SURVIVE.

	General Requirements	Total Fire Ban Days
Can I carry out hot works such as welding, grinding, soldering or gas cutting in the open? (or any other work that is likely to generate sparks)	**Yes**, as long as: ■ You have adequate firefighting equipment in working order available on site. As a minimum you must have: ■ 16L knapsack spray pump filled with water; or ■ 9L liquid fire extinguisher; or ■ 0.9kg dry powder fire extinguisher.	**No** ■ General purpose welding, grinding, soldering or gas cutting works cannot be carried out in the open on Total Fire Ban days.
Can I carry out harvesting operations? This includes driving or using machinery in any grass, crop or stubble land.	**Yes**, as long as: ■ Any heated area of the machinery does not come in contact with combustible matter; ■ The machinery is in a good and serviceable condition; ■ The machinery is fitted with a spark arrestor (steam powered machines); and ■ You have the following prescribed fire safety equipment on site: ■ 16L knapsack spray pump filled with water; or ■ 9L liquid fire extinguisher; or ■ 0.9kg dry powder fire extinguisher.	**Yes**, as long as: ■ You follow the same general requirements (left). Note: you should also check with your insurance company to understand your policy and 'duty of care' should your machinery cause a fire on a Total Fire Ban day.
Can I light a fire in the open for burning an area of grass, stubble, weeds, shrubs or other excess vegetation?	**Only in some situations** ■ During the Bush Fire Danger Period or when your fire is likely to endanger a building, you must have a current Permit to burn issued by the NSW RFS or Fire & Rescue NSW. ■ You must notify your local RFS Fire Control Centre or Fire & Rescue Station at least 24 hours before burning. ■ You must notify any adjoining neighbours at least 24 hours before burning. ■ You may need an environmental approval for the burn. Contact the NSW RFS or Fire & Rescue NSW to determine whether an approval is required for your activity. ■ Open burning may be prohibited in your local government area or you may need an approval for open burning (air pollution). Contact your local Council to determine whether an approval is required in your area. ■ For more information, please refer to the NSW RFS publication 'Before you Light That Fire' available at www.rfs.nsw.gov.au	**No** ■ No fire is to be lit in the open on Total Fire Ban days.
Can I light a fire to burn a pile of leaves or other garden refuse?	**Only in some situations** ■ The same conditions apply as above in the question 'Can I light a fire in the open for burning...' ■ For more information, please refer to the NSW RFS publication 'Before You Light That Fire' available at www.rfs.nsw.gov.au	**No** ■ No fire is to be lit in the open on Total Fire Ban days.
Can I light household garbage in an incinerator?	**Only in some situations** ■ The fire must be in a properly constructed incinerator that does not allow sparks or burning material to escape. ■ There must be a minimum 5 metre area clear of any combustible material around the incinerator. ■ Burning in an incinerator may be prohibited in your local government area or you may need an approval for open burning (air pollution). Contact your local Council to determine whether an approval is required in your area.	**Only in some situations** ■ As per the general requirements (left).

Hotspots Fire Project
NSW Rural Fire Service

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NSW RURAL FIRE SERVICE

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