Being Fire-Wise in the Garden Route

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partnering people and the environment

Southern Cape
Fire Protection Association

Be FireWise | A Guide for Landowners

Table of Contents

1. Introduction

Climate change is a reality. Fires will become more intense and more frequent. It is not a case of **if** a fire should occur, but **when it will occur**. As landowners, we need to become more fire-aware and fire-wise when it comes to protecting our properties and homes. This resource is intended to provide you with all the necessary information to help you make informed choices and take the necessary actions.

Common Misconceptions

a) *Fire Fighters will Protect my Home During a Veldfire*

- **NO.** A firefighters' first priority is to **reduce the risk of loss of life** and to **stop the spread** of the runaway fire. This means they cannot always attend to each and every home threatened.
- Therefore, the **homeowner** is both the **first and the last line of defence** against **veldfires** near urban areas.
- Firefighters increasingly need to prioritise – those houses where homeowners have done very little to **reduce their fire risk** would **not** be their top priority.

b) *There is Nothing I can Do to Protect My Home from a Really Big Fire*

- **NO.** Most houses that burn down in veldfires do so **after the fire** has passed through the area.
- This is because radiant heat and **windblown embers** may **set alight flammable materials** around the house.
- Small outbreaks of fire can be easily put out if caught early.
- However if the home has been evacuated, no-one will be around to put out these small fires and the house may be lost.
- By **maintaining** your home carefully and **planning for survival**, you will reduce the possibility of it catching alight in the first place.

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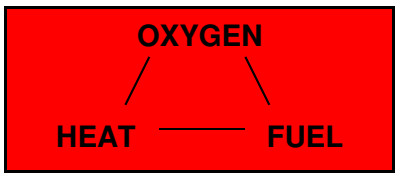
2. Understanding Fire

2.1 WHAT IS FIRE?

Fire is a chemical reaction that needs 3 things to burn:



- **FUEL** can be solids, liquids or gas (e.g. petrol fumes can ignite).
- **FUEL is the one factor you can most control in your fire-prevention activities!!**

NB Remove any one element and the fire is extinguished

2.2 HOW DOES FIRE SPREAD? Through:

- **Radiation:** the heat travelling through the air – this heat generated by a fire can kill through heatstroke well before the flames reach you
- **Convection:** direct flame contact.
- **Flying Embers (firebrands):** sparks and embers that can fly far ahead of the flame front and need very little fuel to ignite.

2.3 WHAT MAIN FACTORS INFLUENCE VELDFIRE BEHAVIOUR?

a) Slope

- Fires spread **faster uphill** and on **steeper** slopes.
- **North and North-west aspects** of slopes are the most **vulnerable** to fire (they have fuels that are lighter and warmer making them easier to ignite).

b) Ambient Temperature

- **fire intensity** increases when it is hot – temperatures above **25ºC**

c) Wind Direction and Speed

- **Wind** has a huge impact on fire **direction** (can **shift very quickly**) and fire **speed** (stronger winds = faster rate of spread).
- Fire can develop **its own wind**.

d) Fuel Types and Loads

The **type** and **amount** of **fuel** on your property **greatly affects** your **fire risk**

There are basically 3 types of fuels

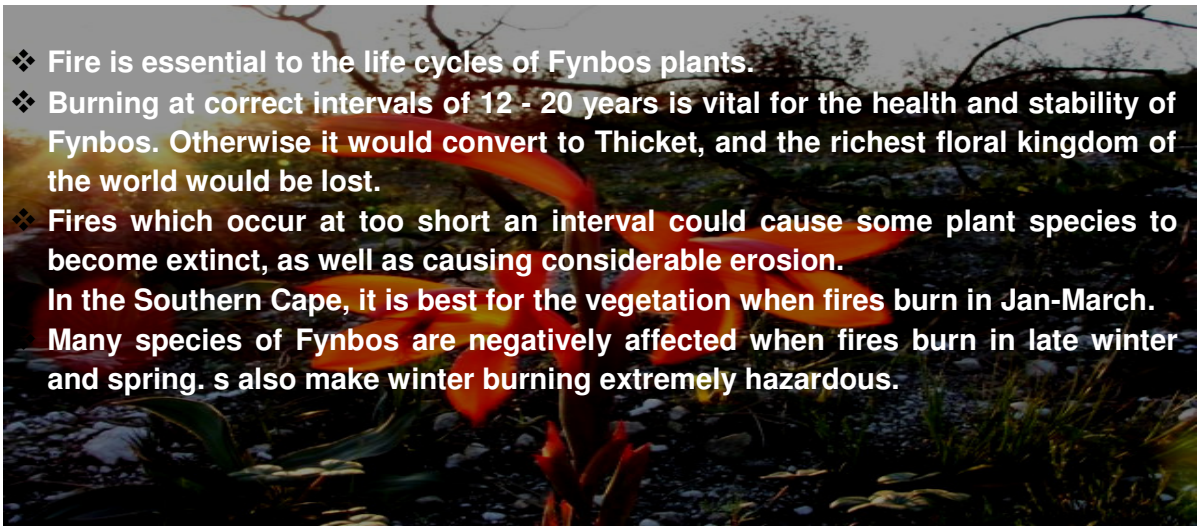
- **Ground Fuels –** litter layer, roots and rotten buried logs. Can smoulder for months.
- **Surface Fuels –** grass, forest litter and brush up to 2 metres in height. Can "carry" fires to the aerial fuels.

- **Aerial Fuels –** fuels higher than 2 metres, including includes limbs, leaves, trunks and crowns of heavy brush and timber.

WHAT TO WATCH OUT FOR!!!

Do You Have?	What's the Problem?	What should I do?	Why?
Lots of large dead branches and lots of grass and leaf litter	Most dangerous fuel conditions as they ignite quickly and fire spreads quickly	Remove as much of the dead branches as possible or make sure they are spread out	Reduces risk of rapid rate of spread of fire
Lots of grass and leaf litter	Ignite very quickly and can spread fire quickly to other fuels	Be aware of risk and take added precautions	Can prevent fire from getting out of hand
Lots of pine needles, bark and cones	They produce embers that can be lifted and carried far and burn for a long time	Be aware of added risk, make sure house gutters are kept clear.	Most house catch alight from flying embers than anything else
Ladder fuels i.e. bushes growing under trees	Flames carried to tree canopies can start a very dangerous fire	Remove ladder fuels from under trees near homestead	Removes the risk of fire getting into tree canopies and threatening roofs
Fuels with high oil content e.g Rhus spp, fynbos in general	These species burn hotter and are extremely flammable	Make sure such plants are not planted near houses	Radiant heat can cause wooden structures to ignite
Old and tall vegetation	These result in more intense fires	Keep tall tree canopies at least 10m apart when near a home	Reduces the intensity of the fire
Slashings of dead plant material between vegetation	These make a fire spread faster	Remove slashings if close to infrastructure	Reduces the risk of infrastructure catching alight
A high percentage of dead material present e.g old matures stands of timber, fire- or wind-damaged fuels	Results in the total fuel load being much more flammable	Be aware of the added risk and remove dead material close to buildings	Lots of dead material will cause even wet live wood to burn

2.4 FIRE AND THE CAPE FLORISTIC REGION (FYNBOS VEGETATION)



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3. Identifying Your Risks and Hazards

RISKS: human-related activities that make fires start

HAZARDS: flammable materials in which the fire starts

3.1 Identifying Hazards

Your home, outbuildings and extras such as decks, garages and fences, are all elements that become **fuel** for a wildfire under the right set of conditions.

- **Firebrands** can land on wooden roofs or gutters, or blow into unscreened attic and foundation vents, and ignite structures during wildfires.
- **Flames** that come into direct contact with any part of a building or combustible items stored next to the building can ignite the structure.
- **Radiant heat** can break windows or melt non-metallic coverings over windows, vents, eaves or doors, allowing heat or firebrands to ignite the inside of the house.

NB. A building with non-combustible roofing and siding, double-pane windows and properly screened openings is much less likely to ignite than one without these features

- **Potential fuels** in the yard include
  - firewood stacked next to exterior walls
  - pine needles or dead leaves in gutters, under decks or in uninterrupted beds leading up to the house
  - Type and arrangement of living plants in the "ignition zone" i.e. 10 to 30m away from the home
  - "ladder fuels" – watch out for grasses leading to shrubs or vines that can carry fire up into larger bushes or trees that can then ignite your home
- **The lay of the land**
  - Homes on steep slopes or at the top of steep gullies or ravines are more vulnerable to wind-driven fire as these land formations accelerate wind flow and can concentrate heat
  - Homes on northern slopes are at greater risk – these slopes tend to be drier and more fire-prone

3.2 Rating your Risks and Hazards - Wildfire Risk and Hazard Assessment Form

- The Risk and Hazard Assessment Forms (**see Appendix 1a**) can be used to determine your overall risk rating and level of wildfire threat

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4. Managing your Risks and Hazards

Designing, constructing, modifying, maintaining your home to make it is less vulnerable to fire

REMEMBER!! The main reason a house catches fire is through flying embers setting apparently unimportant fuels alight

The following are key **Risks and Hazards** (see **Appendix 1b** for **Actions to Reduce Risks**)

4.1 DEFENSIBLE SPACE

- **Defensible space** is a cleared area between a structure and the veld vegetation that may "save" a home … this doesn't mean you have to clear everything around your home for 10m or more: it means you should make sure a veld fire cannot just roll up **unabated** to the house

4.2 BUILDING DESIGN AND CONSTRUCTION: (For Actions Required, see Checklists)

a) Roofing:
The most critical part of a home is its roof – the **materials** it's constructed from and its **maintenance.** Fire-resistant materials are essential for the structure to survive.

b) Walls:
- Best exterior is brick or stucco
- If wooden walls are the preference, use plywood or other less porous wood

c) A fire can enter a home through several other ways:
- Heat can accumulate under eaves, cantilevered floors and balconies
- Embers (firebrands) can get into the attic and other rooms through unprotected vents
- Radiant heat can pass through windows, igniting curtains and nearby furniture
- Embers can be trapped in veranda corners – any leaf litter there will catch fire
- Yard litter or junk (old cars, timber piles, etc) can also be a source of heat in a fire

4.3 THE ACCESS TO THE HOME

- Streets and the home need to be adequately marked so that fire-fighters can find it
- The roadway has to be wide enough to allow fire trucks to move into an area at the same time the residents are evacuating
- There has to be adequate area to allow the fire trucks to manoeuvre and turn around

4.4 LOCATION OF THE HOME

- Flat ground is safer – for every **10º increase in the slope**, the **rate of spread** and intensity of a veldfire will **double**
- So, the steeper the terrain, the further back from the slope the home should be set

4.5 OTHER HAZARDS

- Firewood stored close to the home and/or windows
- Compost heaps sited too close to the house or wooden gates and furniture
- Thatched gazebos are particularly hazardous
- Grass doormats, wood chip mulch in gardens, shrubs growing against the house

4.6 SECURE AN ADEQUATE WATER SUPPLY

- Having the means to put out a fire is essential.

4.7 ENSURE ADEQUATE FIRE-FIGHTING EQUIPMENT, SAFETY GEAR AND TRAINED STAFF

a) Fire-fighting equipment – some useful equipment is as follows:

- Fire beaters – a hand-held tool with a wooden handle and a flexible flat rubber head
- Rakes, spades, shovels, slashers, axes and rake hoes (has a dual-purpose head used for clearing control lines during a fire)
- Chainsaw and brush cutter
- Fire hoses, fittings, buckets (preferably metal) and mops
- Knapsack spray – a hand-operated water pump with a 20l capacity
- Portable pump
- Ladders
- Torches with spare batteries, cell phones and portable 2-way radios
- Towels and protective woollen blankets
- "Bakkie sakkie" – a 600l water tank, complete with a pump and a set of hoses, that can easily be slipped onto the back of a 1-ton bakkie

b) Protective clothing and equipment:

- **Must** be made of **natural material** such as **leather, wool and cotton** and should be stored in a single accessible place
- Cotton overall
- Long-sleeved cotton shirt and long denim trousers
- Sturdy leather boots or shoes, woollen socks and leather gloves
- Cotton hat with a wide brim and goggles to protect eyes from smoke
- Large damp cotton handkerchief to protect nose and mouth
- Damp cotton towel to protect neck
- Water bottle and First aid kit

c) Trained, competent staff:

- All staff required to carry out fire-fighting activities should be competent and be issued with basic safety equipment
- Fire-fighter safety must comply with relevant occupational health and safety standards
- It is also recommended that staff receive training in first aid

4.8 ADDITIONAL WILDFIRE PREVENTION MEASURES FOR RURAL PROPERTIES

- Remove branches from trees that could cause a power line to short circuit
- Restrict the use of machinery on days when the fire danger is high
- Take great care when using welding, cutting and grinding equipment outdoors
- Store liquid fuels in a separate building away from houses
- Adopt safety standards for burning rubbish or disposing of hot ash
- Make sure all fires are extinguished properly before leaving them unattended
- **NEVER** conduct a controlled burn without the relevant permits and **ONLY** on low-risk days

4.9 PROTECTING YOUR LIVESTOCK

Loss of farm animals can easily be prevented by:

- Preparing and maintaining fuel-reduced areas onto which stock can be moved and held during a wildfire
- Shade and water must be available in these areas
- Take measures to protect your fodder reserves

- **See Appendix 4 "Checklist for Managing Veldfire Risks and Hazards"**

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5. Veldfire Survival Plans

5.1 STAYING OR GOING?

- ❖ Once you have assessed the fire risk and have taken the physical steps to reduce the hazards, you must plan for a fire emergency
- ❖ Decide whether to stay and defend your property, or evacuate

EVACUATING	STAYING
It is dangerous to make a last-minute decision to evacuate: • Veldfires can move quickly and are unpredictable • Should you be trapped in your car, or worse, stranded on foot, your chance of survival is poor	A home is more likely to be saved if there are able-bodied people to quickly extinguish small fires on or near the house during a veldfire
If you decide to **evacuate**, you must **leave early**, well before the fire approaches the area	Small outbreaks of fire can be easily extinguished if caught early
First make sure that all the openings around your home are closed	You need the proper equipment to fight the fire
If a house has been evacuated, no one will be around to extinguish these small fires and the house may be lost	You must be mentally and physically prepared to fight the fire
Remember to take your valuables with you	
If you are told by authorities to evacuate, you must do so immediately	It would be extremely dangerous to ignore an official instruction to evacuate

5.2 IF YOU CHOOSE TO STAY

a) **Be Prepared!!**

- ❖ Maintain at least a 3-day supply of drinking water and food that does not need refrigeration or cooking
- ❖ Maintain a portable radio, flashlight, emergency cooking equipment, portable lanterns and batteries
- ❖ Maintain first aid supplies to treat the injured until help arrives
- ❖ Make sure your valuables and important documents are packed together and readily accessible in case of an emergency escape
- ❖ Check condition of fire extinguisher and keep in house
- ❖ Plan for a breakdown in telecommunications
- ❖ Make sure that everyone knows how to protect themselves with **STOP, DROP AND ROLL**

- Prepare a kit of protective clothing and fire-fighting equipment including
  - Goggles and a scarf
  - A fire-fighting kit consisting of ladders, mops, buckets, spray packs, heavy rubber fire beaters and garden hoses
  - Heavy woollen blankets for protection from radiant heat

- Identify a safe escape route and rendezvous point if it becomes too dangerous
  - Burglar bars and safety gates can trap your family in the home, so be sure to consider these in your escape plan
  - Ensure that all household members know the plan and can carry it out

- Ensure easy access and turning space for emergency vehicles
- Check the periphery of your home for potential hazards
  - Remove combustible vegetation and garden furniture

b) **Once a fire is nearby**

See Appendix 5 "Checklist for Actions When Fire Front is Approaching"

- Remember that water pressure my reduce once the fire gets closer, due to other fire fighting efforts
- Be sure your car is not parked on or near flammable fuels
- When dealing with spot fires on the roof, you can even tackle them from inside, pulling away ceilings to gain access to the roof structure.
- **Remember spot fires can occur hours ahead of the main fire**
- If you need to, escape from the side of the house furthest from the fire:
  - Use heavy wet blankets for shielding
  - Move to a safe, open area with limited fuel e.g. a carpark

5.3 AFTER THE FIRE HAS PASSED THROUGH

- After the fire has passed through, it is safer to leave your home and deal with spot fires in the yard
- Check the surrounding area for safety hazards, trees, electrical or telephone poles that may still be burning: douse them with water, but avoid any water coming into contact with electrical wiring
- Be alert for embers from smouldering fires that could still be blown against the house and start it burning
- Be alert for fires that can smoulder underground in root systems for days if not weeks
- Remember that any fire-fighting equipment left outside may be damaged by the fire
- Pumps, hoses and plastic hose connectors on outside taps may have melted

5.4 CHECKLIST FOR VELDFIRE PREPAREDNESS

Do you and your family know how to call for help? When a fire is detected, call your local authority fire brigade (have number ready)	**Yes**	**No**
Have you identified your fire risks and hazards?	**Yes**	**No**
Have you reduced the risks around your home so that it can be defended?	**Yes**	**No**
Have you developed a veldfire and survival plan to assist in the evacuation and defence of your property?	**Yes**	**No**
Does everyone in the household understand the plan, including the children?	**Yes**	**No**
Have you decided if you will evacuate or stay on days of extreme fire danger?	**Yes**	**No**
If you have decided to evacuate, do you know where to go?	**Yes**	**No**
Are your valuables and important documents packed together for ready access in an emergency?	**Yes**	**No**
Have you planned what to do with your pets on a day of extreme fire danger?	**Yes**	**No**
Do you have appropriate clothing handy in case you have no time to evacuate safely?	**Yes**	**No**
Do you know what is required of you to protect yourself from the radiant heat of the fire front as it passes through?	**Yes**	**No**

5.5 HEAT EXHAUSTION (also known as Heat Fatigue)

- **Know the four signs of heat exhaustion**:
  - Dry skin: skin has a 'grey' look
  - Headache
  - Dizziness
  - Cramps: if the person is given water s/he will vomit (the body has dried out so much that it sees water as a foreign substance)

- **Know how to treat heat exhaustion:**
  - Take the person into the shade
  - Loosen his or her clothing
  - Give the person water with salt in (sugar as well if it is available) bit by bit (a tiny amount at a time e.g. a capful, else the person will throw it back up)

- If there is no recovery, take the person to hospital else they will die – this can occur within **3 hours**

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6. Understanding the Law and your Legal Responsibilities

6.1 THE NATIONAL VELD AND FOREST FIRE ACT 101 OF 1998

- The law states that **landowners/users are responsible** for fire protection on their land:
  - Landowners are responsible for preventing fires from leaving their land
  - If a fire does escape their land, the landowner is assumed to be **guilty of negligence**
- There are penalties for not complying with the act

6.2 WHAT ARE THE LEGAL DUTIES REGARDING WILDFIRE PREVENTION?

- You **may not start a wildfire**
- You may **only start a fire**, including cooking or braai fire, in a **designated area**
- Every landowner must:
  - have **equipment and personnel** available to **fight wildfires**
  - have a **person** on their property who keeps a **lookout for fires**
  - establish a system of **firebreaks**
  - **manage** the **fuel load** on land under their control.
  - **remove invasive alien vegetation** from the land
- A landowner **may not burn** firebreaks or carry out controlled burns when the **Fire Danger Rating is high**

6.3 WHAT ARE THE LEGAL DUTIES REGARDING WILDFIRE SUPPRESSION?

- You **may not allow a wildfire to spread** across your land
- You should develop a **fire management plan** which should identify:
  - The **fire hazards** on different parts of a property
  - The best position for **firebreaks**
  - Areas where **controlled burns** should be carried out
  - A **timetable** for carrying out controlled burns and for burning firebreaks
- You must **report a wildfire** that is burning on your land to your **neighbours** and the **Southern Cape Fire Protection Association (O44 279 1415)**
- If you are requested to **help fight a wildfire**, you **may not refuse** to do so
- You **cannot interfere** with or obstruct someone who is **fighting** a **wildfire**

6.4 PRESUMPTION OF NEGLIGENCE

If a person brings civil proceedings and proves that:

- He or she suffered loss;
- The loss was caused by a wildfire; and
- The wildfire started on or spread from land owned by the defendant,

The defendant is presumed to have acted negligently in relation to the wildfire **UNLESS:**

- The defendant proves that he or she was not negligent; or
- **The defendant is a member of a FPA in the area where the fire occurred**, in which case the person bringing the claim must prove that he or she was negligent

6.5 WHAT CAN I DO?

- Look after your own land by removing hazardous invasive alien plants
- Establish fire breaks and ensure that you have sufficient equipment and trained personnel available during fire danger weather
- Co-operate with neighbours in your fire prevention and suppression efforts
- Prepare a plan of action to address the following:
  - Prevention
  - The location of firebreaks
  - Controlled burning pattern
  - Suppression
- **The Southern Cape FPA is registered - become a member**
- Through the FPA, negotiate insurance rebates and rates rebates

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7. Prescribed Burns

7.1 KNOWING WHERE, WHEN AND HOW TO BURN

Three main **goals** of prescribed burning are:

- **Fynbos Rejuvenation**
- **Wildlife Habitat Improvement –** different veld ages allows greater animal diversity because of the habitat preferences of different species
- **Fuel Reduction –** to reduce the fire hazard **(**See 8.4 Alternative Fuel Load Reduction Methods)

7.1.1 FACTORS THAT INFLUENCE FIRE BEHAVIOUR

a) **FUELS (i.e. vegetation)**
- ❖ Dry fuels will burn more easily
- ❖ Patchy vegetation will burn slower, continuous sections of vegetation faster

b) WEATHER

- ❖ **Wind** – more fires have escaped control due to wind than to any other factor
  - ➢ Wind spreads burning embers and can bend flames closer to unburned fuels
  - ➢ **NEVER BURN** when weather fronts are approaching as they bring strong, erratic winds and can influence fire behaviour **15km away**.

- ❖ **High Temperatures**
  - cause relative humidity and fuel moisture to drop which increases fire intensity.
  - cause erratic fire behaviour by influencing local winds

- ❖ **Atmospheric Stability**
  - ➢ Temperature inversions restrict smoke and heat from dispersing
  - ➢ Unstable air:
    - causes high convection columns which act like chimneys for the fire below
    - promotes the development of fire whirls and other erratic fire behaviour

c) TOPOGRAPHY
- ❖ **Aspect** – North-westerly slopes pose the greatest fire danger
- ❖ **Position on Slope -** Fires starting at the base of slopes will be more intense
- ❖ **Steepness of Slope** – the steeper the slope, the quicker the rate of spread

7.1.2 FACTORS THAT INFLUENCE PRESCRIBED BURNS

a) Season

- ❖ Provided the necessary permit has been applied for and granted, prescribed burns can be carried out between January and April, although any fires on red days are prohibited

Remember:
- ❖ **Generally, no burning on Fridays and before Public Holidays**
- ❖ **No burning may be carried out on Saturdays, Sundays or Public Holidays**
- ❖ **Burning at night -** is permissible and considered safer if personnel safety can be maintained

b) **Frequency**
- ❖ Once all Protea species have flowered for at least 3 years **OR** every 12 to 20 years

c) Size of area
- ❖ Due to the threat of unexpected weather changes, you shouldn't burn an area larger than that which can practically be burnt in 24 hours

- ❖ However, with fynbos, the minimum recommended area to be burnt is 25ha to minimize the foraging impacts of herbivores and granivores

- ❖ It is important to maintain a mosaic of vegetation ages within a property

- Helps to maintain species diversity
- Allows re-colonisation of burnt patches by mobile species from unburnt patches

7.1.3 SOME OTHER IMPORTANT FACTS

- **Repeated burning** results in loss of species, and negatively affects soil by causing:
  - **Soil compaction**: results in reduced water retention and reduced nutrient uptake
  - **Soil disturbance**: results in loss of organic material and topsoil
  - **Soil erosion**: results in loss of nutrients and productivity and a decline in water quality due to build-up of sediments
- Do not burn on slopes greater than 40% (22º)
- **Most wildfires are started by controlled burns getting out of hand**
- Fuels are your biggest dangers/threats when burning or a fire breaks out
  - Fuel loads at the base of trees are extremely dangerous - they act as a fuel ladder getting fire to crowns of trees and so spreading to roofs
- Two ways of managing your fuel loads are:
  - Reducing your fuel load before burning
  - Changing the arrangement of the fuel load – pile some of the fuel to break the continuity (see section 7.4)

7.1.4 TABLE SUMMARISING BURNING CRITERIA

Predicted weather parameters should preferably fall within the following guideline limits before a burning operation can be initiated:

Environmental Conditions	Minimum	Maximum	Ideal
Rainfall the day before burning	10mm		
No of days since last rain		3	
Minimum initial rainfall	70mm		
Temperature		28ºC	22 - 26ºC
Wind speed		15km/h	5-15km/h
Relative Humidity	30%		38 – 60%
Difference between Burning Index (BI) and FDI		10 points	
FDI forecast for 3 days after burn:			
1st day		50	
2nd and 3rd days		55	

IMPORTANT!
If any of the following conditions develop, stop burning immediately:

- Relative humidity drops below 30%
- Changes in wind speed and/or direction
- Fire behaviour becomes erratic

7.1.5 FIRE BEHAVIOUR INDICATORS

a) **Smoke Columns -** check your smoke column to help predict what a fire is doing

- **Leaning Smoke Column**
  - Means a wind-driven fire
  - Expect rapid rates of spread
  - Expect short range (10m) spotting

- **Sheared Smoke Column (Smoke rises straight up and flattened off at the top by strong winds)**
  - Potential for long-range spotting (kilometres away!)
  - Strong winds could surface

- **Well-Developed Smoke Column (**Often capped with a very white cloud)
  - Intense burning conditions
  - Unpredictable fire spread in all directions

- **Changing Smoke Column**
  - If it changes colour or begins to rotate, fire behaviour is going to pick up

b) Trees torching - means the situation is worsening and relative humidity is dropping

c) A Smouldering fire that is beginning to pick up - if the fire suddenly begins to burn vigorously, conditions have changed – could be the result of higher temperatures, lower relative humidity, an increase in wind or all three

d) Firewhirls - indication of unstable air and that the fire is going vertical. It may be on the verge of crowning and can cause an increase in spotting

e) Spot Fires - if more spot fires are breaking out than you can handle, conditions are deteriorating rapidly

7.2 ACQUIRING THE NECESSARY PERMITS

- These need to be obtained from either Local or District Municipalities' Fire Chiefs or from authorised members of the FPA

7.3 KNOW AND UNDERSTAND THE FIRE DANGER RATING SYSTEM

- The Fire Danger Rating identifies conditions when the risk of wildfires is:
  - Extreme
  - High
  - Moderate
  - Negligible
- Fire warnings are listed on the weather programmes

- When the fire danger rating in a region is **extreme** or **high**, no person may
  - Light a fire
  - Use a fire
  - Maintain a fire in the open air in that region

7.4 ALTERNATIVE FUEL LOAD REDUCTION METHODS

If your reason for burning is **only** to reduce your fuel load, then burning is **not** your **only option**. Because burning is so dangerous, you could rather consider one of the following:

- **Natural decomposition** - fuels decompose slowly through natural processes

- **Hand pile without burning** – stacking fuel loads into piles interrupts the fuel's horizontal continuity. Piles should be 2-3m in diameter, 2-3m high and 10 to 15m apart
- **Lop and scatter** – this rearranges fuel continuity, increases fuel moisture by bringing slash in contact with the ground, and accelerates decomposition.
- **Chopper Roll,** a machine that chops up vegetative material coarsely and **Chipping,** a machine that chips vegetation very finely. Both methods accelerate decomposition and change fuel continuity and moisture content
- **Firebreak** – changes continuity of fuels and helps control fire spread. Is done by hand-hoeing, brush-cutting or grading, with brush-cutting being recommended method
- **Slashing** – you can slash understorey and weeds and thus change the fuel arrangement

8. Firebreaks

- **Chapter 4 of the National Veld and Forest Fire Act 101 of 1998, places a duty on landowners to prepare and maintain firebreaks**
- If you are a **member of a FPA Management Unit,** a **fire action plan for the area** will be developed including a plan for where firebreaks should be prepared

8.1 FIREBREAKS - A prepared barrier from which most of the flammable material has been reduced or removed and is designed to:

- Stop light surface fires (they should not be able to cross the break)
- Serve as a line from which to work and back-burn if necessary
- Facilitate the movement of people and equipment to attack an oncoming fire
- Can be the control line during prescribed burning

- Natural features can serve as firebreaks such as lakes, rivers, swamps, cliffs and moist indigenous forests
- Artificial features such as roads, paths, railway tracks, grazing paddocks, cultivated lands and building sites can also be used
- **Do not rely on a firebreak to stop a wildfire – it only really reduces the hazard**
- **Must** be correctly placed (and regularly maintained) to give the most efficient results:
  - One of the **best sites** is on the **crest** or on **both sides** of the **crest** of a **ridge**
  - **HOWEVER**, often rare and endangered plant species are found on ridges and before firebreaks are made, a botanical survey should be conducted
- **REMEMBER,** you may **NOT** remove any indigenous vegetation within 10m of a water course
- Making firebreaks at 45° angles to the slope increases the effectiveness

8.2 REQUIREMENTS FOR FIREBREAKS

- The firebreaks must be on the boundary of the property **unless** there is an exemption granted by the Minister or an agreement with an adjoining landowner that the firebreaks be located somewhere else (if landowners are members of an FPA)
- The firebreaks must be "sufficient to control the spread of wildfires". So ensure it:
  - Is wide and long enough to have a reasonable chance of preventing a wildfire from spreading to or from a neighbouring property

- Is reasonably free of flammable material capable of carrying a wildfire across it
- Does not cause soil erosion

NB. You are required to notify your neighbour if you plan to burn along the common boundary

8.3 PREPARING FIREBREAKS

- The recommended method is to **brushcut or slash** firebreaks (burning of firebreaks often results in runaway wildfires and erosion) to a height of 10cm.

- **Typical fynbos firebreak specifications:**

  - Width of firebreak – general rule of thumb: **2.5 - 3 times the height** of the **vegetation** on the side from where the wildfire threat is likely to come
  - Height of vegetation in firebreak: **10cm**
  - Invasive alien stems: must be treated with herbicide within **1hr** of cutting
  - Indigenous trees: can remain
  - Tall gum trees: must be pruned to **4m** high
  - Gum trees **less** than **15cm** diameter: cut and treat with herbicide
  - All dead and cut material must be spread above the firebreak in the veld. Do not heap or stack it. Do not spread it on top of or near invasive alien plants.
  - Do not spread or stack any vegetation on footpaths and place it at least **20m** from all roads, footpaths, streams and the firebreak

NB.

- **Incorporate existing features**: use natural barriers whenever you can e.g. rock outcroppings, bluffs, lakes, streams, wetlands
- **Try not to destroy protected trees**: even though the law entitles you to do so. Try adjust the firebreak accordingly. Remember most of our indigenous trees are fairly fire-resistant in any case
- **Use ridge lines**: they provide a break between slopes and thus help slow down the rate of spread of fire. They are one of the best places for firebreaks in steep country

9. Fire Protection Associations (FPAs)

9.1 THE PURPOSE, DUTIES AND BENEFITS OF FPAs

a) **Purpose**
- FPAs are voluntary associations that may be formed by landowners to prevent, predict, manage and extinguish wildfires under the National Veld and Forest Fire Act of 1998

b) **Duties**
- Develop a fire management strategy and plan for the area
- Establish rules and regulations
- Provide training

- ❖ Appoint a fire protection officer
- ❖ Take actions to suppress unwanted fires

c) **Benefits**

- ❖ The two **main benefits** to landowners from joining an FPA:
  1. In civil actions, the landowner is not automatically assumed negligent if a fire leaves his/her property (refer back to section 6)
  2. The landowner may be exempt from making firebreaks on all of their property boundaries

- ❖ **Other benefits:**
  - ➢ Benefits of co-operation in fighting and preventing wildfires through wildfire management strategies developed by FPAs
  - ➢ Advice and assistance to members in meeting the statutory requirements for readiness for fire fighting, including skills development
  - ➢ Decreased risk of wildfires as the capacity of members of the FPA increases
  - ➢ Improved communication among members e.g. fire hazard conditions
  - ➢ Free access to research commissioned by the Minister on the prevention and combating of wildfires

9.2 JOINING THE SOUTHERN CAPE FPA

This is an easy process – please fill in attached membership application form (Appendix 6).

10. References and Sources

References:

- ❖ William, C.T. (2003) *Fire manager's handbook on veld and forest fires*. Southern African Institute of Forestry and Deer Valley Press, Menlo Park, South Africa.
- ❖ Bell, C. (no date) *Firescaping your garden*. A leaflet produced by the Botanical Society of South Africa and the Ukuvuka Campaign, Cape Town, South Africa.
- ❖ Firewise Communities USA (no date). *Firewise: community solutions to a national problem*. National Wildland/Urban Interface Fire Program, USA.
- ❖ Department of Water Affairs and Forestry (DWAF) (2004) *The Veldfire Bulletin*, April. DWAF, South Africa.
- ❖ Department of Water Affairs and Forestry (DWAF) (2003) *The Veldfire Bulletin,* September. DWAF, South Africa.
- ❖ Working on Fire (no date). *You, wildfires and the law*. Firewise Publications, FFA Group, Nelspruit, South Africa.
- ❖ Department of Water Affairs and Forestry (DWAF). National Veld and Forest Fire Act 101 of 1998. DWAF, South Africa.
- ❖ Ukuvuka Operation Firestop (no date) *House fires. Are you prepared?* A leaflet produced by the Santam / Cape Argus Ukuvuka: Operation Firestop, Cape Town, SA
- ❖ Working on Fire (2007) *Firewise communities workshop: participant workbook*. FIREWISE Publications, FFA Group, Nelspruit, South Africa.
- ❖ FireSafe Council (2004) *Homeowner's checklist: how to make your home fire safe*. A leaflet produced by the FireSafe Council.

- National Fire Protection Association (NFPA) (2002) *NFPA 1144: Standard for protection of life and property from wildfire*. NFPA, Quincy, MA.
- The Landowner's Guide to Fire Management – A Fact Sheet produced by CapeNature

Sources:

- Nigel Wessels – (Former) Reserve Manager, Outeniqua Nature Reserve, Witfontein, George 6539, South Africa.
- New Plant Nursery – Blackwood Farm, Victoria Bay Road, George
- Zane Erasmus – Programme Manager: Fire, CapeNature, 3 Windsor Street, George, 6530
- Paul Gerber – Fire Advisor, Department of Water Affairs and Forestry, Private Bag 12, Knysna, 6570
- Len du Plessis – Regional Co-Ordinator: Planning and Implementation, South African National Parks, PO Box 3542, Knysna, 6570

Be FireWise Appendix 1a | A Guide for Landowners

Wildfire Hazard and Risk Identification Form

Assign a value to the appropriate element, and add all points to determine degree of risk

ELEMENT	POINTS	NOTES
A. Means of Access		
1. Ingress and Egress		
a) Two or more roads in/out	**0**	
b) One road in/out	**7**	
2. Road Width		
a) Greater than 6m wide	**0**	
b) Less than 6m wide	**4**	
3. Road Condition		
a) Tarred road, gradient less than 5% (3º)	**0**	
b) Tarred road, gradient greater than 5% (3º)	**2**	
c) Gravel road, gradient less than 5% (3º)	**2**	
d) Gravel road, gradient greater than 5% (3º)	**5**	
4. Municipal Fire Brigade Service Access		
a) Shorter than 90m with turnaround	**0**	
b) Longer than 90m with turnaround	**2**	
c) Shorter than 90 with no turnaround	**4**	
d) Longer than 90m with no turnaround	**5**	
5. Road Signs		
a) Present, 10cm in size and reflectorised	**0**	
b) Not present	**5**	

B. Vegetation (Fuel Models)		
1. Characteristics of dominant vegetation adjacent to property		
a) Indigenous forest and/or coastal fynbos	**5**	
b) Short shrub and fynbos, gum, pine and wattle plantations	**10**	
c) Tall grass, mature mountain fynbos, dense woody alien plants	**20**	
d) Percentage of dead wood present amongst indigenous wood (5-10%)= **5 points;** (10-30%)= **10 points;** > 30%= **20 points**		
2. Defensible Space		
a) 30m of vegetation treatment from the property	**1**	
b) 20 to 30m of vegetation treatment from the property	**3**	
c) 10 to 20m of vegetation treatment from the property	**10**	
d) 10m of vegetation treatment from the structure(s)	**25**	
C. Dominant Topography within 90m of Structure(s)		
a) Slope less than 9% (6º)	**1**	
b) Slope 10% to 20% (6º to 12º)	**5**	
c) Slope 20% to 30% (12º to 17º)	**10**	
d) Slope 30% to 40% (17º to 22º)	**20**	
e) Slope greater than 40% (22º)	**25**	
D. Additional Factors (Score 5 for any that apply, 0 for those that do not apply)		
1. Topographical features that adversely affect wildfire behaviour i.e. hot and dry northern slope aspects, gullies, kloofs	**0/5**	
2. Sources of possible ignition that occur within the area assessed		
a) Lightning	**0/5**	
b) Railways (sparks from trains a danger)	**0/5**	
c) Mountain passes (cigarettes from cars a danger)	**0/5**	
d) Power-lines	**0/5**	
e) Picnic and camping sites (cigarettes/braais a danger)	**0/5**	
3. Areas periodically exposed to unusually severe fire weather & strong dry winds	**0/5**	
4. Neighbour boundary density factor (or potential sources of accidental ignition) - add the no of properties or neighbours (per km^2) in the area surrounding your property		

a) Less than 1 per km^2	**1**	
b) 2-4 per km^2	**2**	
c) 5-7 per km^2	**3**	
d) 7-10 per km^2	**5**	
e) More than 10 per km^2	**10**	
E. Dominant Roofing Assembly		
1. Tin, slate or tile roof	**3**	
2. Asbestos roof	**15**	
3. Thatch	**25**	
F. Dominant Building Construction Type		
1. Dominant Materials		
a) Noncombustible/fire-resistant siding, eaves and deck	**0**	
b) Noncombustible/fire resistant siding, combustible deck	**5**	
c) Combustible siding and deck	**10**	
2. Building Setback Relative to Slopes of 30% or More		
a) Greater than 10m to slope	**1**	
b) Less than 10m to slope	**5**	
G. Available Fire Protection		
1. Water Source Availability		
a) Pressurized water source (hydrants) availability	**0**	
b) Non-pressurized water source availability (off-site)		
- continuous for 2 hours	**3**	
- continuous for 1 hour	**5**	
c) Water unavailable	**10**	
2. Organised Response Resources		
a) Fire Station less than 8km away	**1**	
b) Station more than 8km away	**3**	
3. Fire Detection Facility		
a) National Emergency Number/Camera Monitored 24 hours	**1**	
b) Manned lookout	**2**	
c) Fire Danger Index warning – boards available or SMS messaging	**4**	
d) None	**10**	

4. Personal Fire Fighting Equipment		
a) Fire fighting equipment available and in good working order	**0**	
b) Fire fighting equipment not available	**20**	
TOTAL		

Total Points	Hazard Assessment
Less than 50	Low Hazard
50-74	Moderate Hazard
75-120	High Hazard
Greater than 120	Extreme Hazard

Be FireWise Appendix 1b | A Guide for Landowners

Building Design and Construction: How to Reduce the Flammability of a Home

Potential Problem Areas Around a Home

Be FireWise Appendix 2 | A Guide for Landowners

The Why and How of Controlling Invasive Alien Vegetation

WHY ARE INVASIVE ALIEN PLANTS SUCH A PROBLEM?

- Due to their **high fuel loads**, they **increase** the **intensity of wildfires** and so pose a threat to life and property
- They **consume** large amounts of **water** and reduce water security
- They **displace indigenous** fynbos species and impact on biological diversity
- They **reduce** the **agricultural potential** of land
- They **increase** the speed of **water run-off** which can lead to **erosion**
- They **contribute** to the **congestion of water courses** which can lead to **flooding**

HOW SHOULD I CONTROL INVASIVE ALIEN PLANTS?

For the **successful control** of invasive alien vegetation, a **long-term, three-phase** strategy is essential:

- **Initial Control** – drastic reduction of the existing population
- **Follow-Up Control** – control of seedlings and coppice regrowth
- **Maintenance Control** – on-going, low-level control to keep alien plant numbers down

The aim should be to reach maintenance control phase and to rehabilitate land that has been infested with invasive alien plants

WHERE SHOULD I START?

If your property is very large, and there are many invasive plants present, it is best to prioritise your clearing operation according to the following:

Area	Why
1. The area immediately around buildings	Increased risk of fire
2. Low-density infestations	To reduce the spread of invasive plants into surrounding areas

3. The tops of slopes, watercourses, and steep, long bare slopes	To inhibit the spread of seeds downhill or downstream, where they will infest new areas
4. Sites where initial control work has been completed and regrowth is present	To prevent densification and further infestation
5. Disturbed sites	To prevent new infestations from mass germination of alien seeds in the soil

NB. Generally, it is best to control seedlings while they are less than 0.5m tall to avoid costly control work later on

THE TOP 10 INVADERS IN THE SOUTHERN CAPE: CONTROL METHODS

1. PORT JACKSON (*Acacia saligna*)

Seedlings: **Handpull** (only when soil damp). These seedlings have a very long taproot, which makes them very difficult to pull out.

Seedlings/Saplings/Coppice: **Foliar Spray**

Adult: **Frill/Cut Stump (apply herbicide immediately)** [Refer to table below for an explanation of control methods]

(You may see that some Port Jackson plants have a brown gall on their stems – this is a rust fungus that is a biological control agent – if the plants are being effectively controlled by the fungus i.e. are not producing flowers and seeds, rather leave these plants to aid the spread of the biological agent)

2. BLACK WATTLE (*Acacia mearnsii*)

Seedlings: **Handpull** (only when soil damp). These seedlings have a very long taproot, which makes them very difficult to pull out.

Coppice: **Foliar Spray**

Adult: **Ringbark/ Bark Strip** (use for isolated trees and in rainy season when bark is wet). [Refer to table below for an explanation of control methods]

Cut Stump (will re-sprout if not treated with herbicide immediately

3. SILKY HAKEA (*Hakea sericea*)

Seedlings: **Handpull**

Adult:	**Cut Stump** as close to the ground as possible (Seeds of hakea enjoy 100% germination success rate so it's important to remove re-growth before they reach seed-producing age. Hakea does not re-sprout, but small branches or even leaves left on the stump can develop into a new bush. It is not necessary to treat stumps with herbicide. The needle-like leaves are really prickly and can cause skin irritations – so take care and use gloves).

4. ROOIKRANS (*Acacia cyclops*)

Seedlings:	**Handpull**
Seedlings/Saplings/Coppice:	**Foliar Spray** (only if blanket spraying can be safely applied)
Adult:	**Cut** (plant does not coppice, but must be cut as low as possible,) (Rooikrans also has a biological agent that causes the seed pods to become malformed – if the agent is controlling the plant effectively i.e. it is not producing flowers or seeds then leave the plant growing to aid the spread of the biological agent, especially if the plants are growing on steep coastal slopes where removal could result in erosion)

5. LONG-LEAVED WATTLE (*Acacia longifolia*)

Seedlings:	**Handpull.** If dense, **foliar spray**
Seedlings/Saplings/Coppice:	**Foliar Spray or Cut Stump/Frill** (cut as low as possible and then treat coppice that appears with foliar application)
Adult:	**Frill/Cut Stump** (apply herbicide immediately) (You may see that the plants have become infested with round-shaped galls – this is a biological agent – a wasp lays its eggs in the seed pods and prevents them from producing seed. If the plant is being effectively controlled i.e. it is not producing flowers or

seeds, then leave it growing to aid the spread of the biological agent)

6. STINKBEAN (Paraserianthes lophantha)

Seedlings:	**Handpull**
Adult:	**Frill/Cut Stump** (apply herbicide immediately) (Stinkbean seeds give off an offensive smell when crushed and moistened)

7. BLACKWOOD (*Acacia melanoxylon*)

Seedlings:	**Foliar spray**
Adult/All:	**Frill/Cut Stump** (apply herbicide immediately) (Handpulling the seedlings is not recommended as they have deep tap roots that tend to break off. Blackwood often coppices and regenerates vigorously from root suckers. Suckers should be cut when at knee-height – keeping this up will eventually deplete the system of energy. Spraying herbicide on suckers is ineffective as there is not enough surface area to absorb sufficient herbicide to kill off the root system)

8. AUSTRALIAN MYRTLE (*Leptospermum laevigatum*)

Seedlings:	**Handpull/Foliar spray**
Adult:	**Cut Stump** (apply herbicide immediately) (Myrtle branches grow very low down on the trunk and if left on the stump, they will continue to grow. It is therefore very important that the plant is cut as close to the ground as possible. Myrtle does not re-sprout if cut below the bud point)

9. CLUSTER PINE (*Pinus pinaster*)

Seedlings:	**Handpull**
Saplings:	**Cut**
Adult:	**Cut/Frill/Ringbark**

(Young pines have a distinct smell – check for this before handpulling. Young fynbos plants can easily be mistaken for pine seedlings)

10. LANTANA (*Lantana camara*)

Young: **Foliar Spray**

Adult: **Foliar Spray/Cut Stump** (apply herbicide immediately)

(Lantana is poisonous and the leaves are often thorny and can irritate the skin so take care and wear gloves)

TABLE FOR EXPLAINING CONTROL METHODS

METHOD	WHAT YOU NEED	HOW YOU DO IT
Handpull	Gloves	Grip stem of seedling as close to the ground as possible and pull out in one smooth motion taking care to remove the entire root system. Stack the seedlings on brush piles or rows along contours to facilitate easy follow-up by allowing ease of movement between rows
Foliar Spray (Including "blanket spraying" where density of re-growth is particularly high)	Herbicide sprayer with nozzle, registered herbicide, rubber gloves, goggles, mask, rain suit, gumboots. Use flat fan nozzle for full cover spray or cone nozzle for spot spraying	Ensure correct herbicide and application rate for the species. **Only** foliar spray when the density of the alien plants is high and where few non-target indigenous plants will be destroyed. Apply herbicide over the top of the seedlings, holding the nozzle about 50cm above the plants and moving along straight lines. Cover the area in a single layer of spray mist. **Caution: The herbicide may affect fynbos species and frogs.**
Cut Stump and Stack	Bow saw, chain saw, loppers, axe or slasher, herbicide applicator, registered herbicide, gloves, goggles, safety mask, safety clothing	Cut the plant as low as possible to the ground. Make as smooth and horizontal a cut as possible. Apply herbicide immediately to the cambium layer (where the bark and wood join) of the cut stump **within 15 minutes** of making the cut. Ensure all the cambium layer cuts are treated.
Ringbark*	Axe, gloves, goggles, mask * Ringbark only in private gardens or in properly managed and controlled areas as falling trees can be hazardous to people	Remove the bark and cambium from the tree in a continuous band around the trunk, at least 25cm wide starting low down on the tree. For aggressively coppicing species (Port Jackson, Blackwood, Black wattle) strip the bark from the stem from 50cm high to below ground level. **Note**: This method means the tree is left standing, so is recommended for single trees, not for stands. Should not be used in public access areas, or where there is danger from the tree falling over at a later stage.
Frill*	Small axe/hatchet, rubber	Make a series of overlapping cuts around the

	gloves, goggles, mask, herbicide applicator, registered herbicide * Frill only in private gardens or in properly managed and controlled areas as falling trees can be hazardous to people	trunk of the tree, through the bark into the softwood. The thickness of the blade should force the bark open slightly, ensuring access to the cambium layer. Immediately apply the herbicide to the cuts by spraying into the "frill". The frill needs to be deep enough to retain the herbicide. **Note**: This method means the tree is left standing, so is recommended for single trees only. Should not be used in public access areas, or where there is danger from the tree falling over at a later stage.

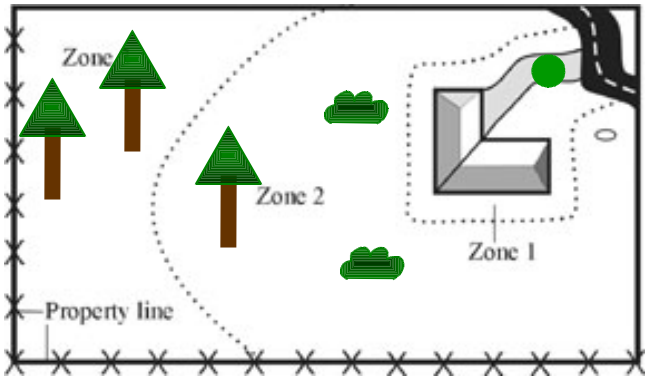
Be FireWise Appendix 3 | A Guide for Landowners

Firescaping your Garden

In creating defensible space around our homes, there is plenty we can do to "firescape" our gardens and make them instrumental in curbing the unabated spread of fire to our homes.

Garden in Zones

- **NB There is no such thing as a fire-proof plant –** all plants will eventually burn if a fire is hot enough
- Place plants according to how long each kind is able to resist burning.



1 ZONE 1. LOW RESISTANCE ZONE AROUND THE HOUSE	2 ZONE 2. MEDIUM RESISTANT RING	3 ZONE 3. FIRE-RESISTANT BUFFER ZONE
• Approximately 3 to 5m wide • No large shrubs • Only low-growing plants and **groundcovers** interspersed with gravel or lawn • Avoid continuous areas of grass adjacent to plantings • Frequently prune plants and mow grass • Remove dead branches, stems and leaves	• Approximately 10m wide • Can plant a fynbos garden here • Mix tall and short shrubs to prevent a large dense thicket from developing • To combat erosion and the moonscape effect after a fire: - Plant **sprouters, re-seeders,**	• Approximately 15m wide • The area furthest away from the house on the periphery of the property • Normally used to provide barriers for wind, noise, dust, visual intrusions and to enhance the aesthetics

- Isolated trees can be allowed **but**:
  - Prune it to at least 4m above the ground
  - Remove any branches that interfere with the roof or are within 3-4m of the chimney
  - Remove all "ladder fuels" from beneath the tree
- No climbers or trellises
- Do not plant directly beneath windows or next to foundation vents
- No woodpiles within 10m of the home

Zone 1

Groundcovers for this area:
Sunny: *Cliffortia ferruginea, Otholobium decumbens, Dymondia margaretae, Gazania rigens, Helichrysum argyrophyllum, Hermannia saccifera, Cotula linearilobа, Agathosma ovata, Carpobrotus* and vygies

Shady: *Plectranthus verticillatus, Plectranthus neochilus*, and *Plectranthus ciliatus*

Small Shrubs for this area:
Agathosma serpyllacea, Phylica ericoides, Felicia, Carissa macrocarpa, Cotyledon orbiculata, Scabiosa and *Athanasia dentate*

bulbs and plants with **corky bark** (all respond well to fire)
- Trees can also be planted here – again:
  - Prune branches to 4m off the ground
  - Remove "ladder fuels"
  - Make sure canopies are at least 10m apart
  - Small clumps of 2-3 trees are okay but leave more space between the crowns of these clumps and surrounding trees
  - On steep slopes, allow more space between tree crowns
  - Forest trees have a natural resistance to fire and do not burn easily

Zone 2

Sprouters for this area:
Leucodendron salignum, Chondropetalum tectorum, Erica spp, *Maytenus oleoides, Brachylaena discolor, Salvia spp, Pelargonium cucullatum, Protea cynaroides, Felicia echinata, Olea europaea* subsp. *africana, Kiggelaria Africana*

Corky bark plants:
Leucospermum conocarpodendron, Protea nitida, Mimetes cucullatus and *Aloe plicatilis*

Forest trees:
Rapanaea melanophloeos (Cape Beech); *Brabejum stellatifolium, Cunonia capensis* (Rooiels), *Ilex mitis, Maurocenia frangularia, Halleria lucida* (Tree Fuschia) and *Canthium mundianum*

Bulbs:
Agapanthus, Watsonia, Haemanthus coccineus, Cyrtanthus ventricosus and *Kniphofia*

Re-seeders:
Species of *Protea, Erica, Ursinia, Leucodendron, Phylica, Helichrysum, Roella, Selago, Agathosma*
as well as *Pelargonium cordifolium* and *Felicia aethiopica*

- A greater number of forest trees can remain in this zone but keep the canopies 8-10m apart and trim 4m from the ground – remember, no ladder fuels
- Keep a 3m distance between any shrubs over 1.5m in height
- Intersperse with low-growing **groundcovers** with fleshy leaves that have a high resistance to fire: water once a week to retain their fire-resistant quality
- If a hedge is needed, go for a **re-sprouter** that doesn't accumulate large quantities of dead material
- Bulbs can also be planted here

Zone 3

Succulent groundcovers:
Lampranthus, Malephora, Drosanthemum, Delosperma, Carpobrotus, Gazania, Arctotis, Cliffortia ferruginea and *Aloe brevifolia*

Bulbs:
Tulbaghia violacea, Agapanthus and *Watsonia*

Hedge:
Tarchonanthus camphorates, Chrysanthemoides monilifera

Forest trees:
Apodytes dimidiate (White Pear), *Mystroxylon aethiopicum* (Cape Myrtle), *Olea capensis* subsp. *macrocarpa* (Ironwood), *Olea europea* subsp. *africana* (Wild Olive), *Pittosporum viridiflorum* (Cheesewood), *Podocarpus falcatus* (Outeniqua Yellowwood), *Podocarpus latifolius* (Real Yellowwood), *Rapanea melanophloeos* (Cape Beech), *Ekebergia capensis* (Cape Ash)

REFERENCES:

- Firescaping your Garden by Clare Bell of The Garden Centre, Kirstenbosch
- New Plant Nursery - George

Be FireWise Appendix 4 | A Guide for Landowners

Actions to Manage your Risks and Hazards

1. Defensible Space

- ☐ Determine the vulnerability of your property
  - ☐ Are there forests or thickets of alien vegetation on or near your property?
  - ☐ Is it subject to strong south-easterly winds?
  - ☐ Is your house at the top of a slope?
  - ☐ Are you on a north or south-facing slope?
  - ☐ What is the type, amount and condition of the "fuels" on your property?
- ☐ Reduce your fuel load
  - ☐ Remove invasive alien vegetation
- ☐ Firescape your garden
  - ☐ Remove all dead material within 10m of the home
  - ☐ Remove any tree limbs within 3m of a chimney or stove-pipe
  - ☐ Plant and maintain screening trees to reduce windspeed and filter flying embers
  - ☐ Ensure tree canopies are 10m apart
  - ☐ Position water features, stone walls and lawns between buildings and the direction fires will most likely come from

2: Building Design and Construction – How to Reduce Flammability

Roofing:

- ☐ Treat fire-prone roofs with fire-retardant
- ☐ Keep roof and gutters clear of all debris
- ☐ Avoid complicated roof lines where debris can lodge
- ☐ Thatch roofs must be fitted with sprinklers, be treated regularly with fire retardant and make
- ☐ Fit fire-place with metal screens
- ☐ Install double-pane windows or fit vulnerable windows with clip-on wire-gauze screens
- ☐ Install 6mm wire mesh in attic vents
- ☐ Remove flammable fuels that are adjacent to windows
- ☐ Install shutters over windows and other openings
- ☐ Avoid timber trellises on sides of the house where fire is likely to come from
- ☐ Install a spark arrestor on chimney or stovepipe

3: Access to the Home

- ☐ make sure your house is well-marked with reflective numbers at least 10cm tall
- ☐ make sure street signs are also reflective and unobstructed
- ☐ Make sure access roads are at least 6m wide
- ☐ Access road gradients should not be steeper than 6º

4. Location of the Home

☐ Place the home at least 10m back from a slope that is greater than 22º

☐ If house is built on steep slope , increase width of firebreak to 30m

5. Other Hazards

- ☐ Keep firewood heaps and compost piles away from building walls and vegetation
- ☐ Remove flammable doormats during a fire
- ☐ Store liquid fuels and paints in a separate store away from the house

sure all eaves are boxed
- ☐ Remove branches overhanging the roof
- ☐ Double-glaze skylights or protect with wire mesh
- ☐ Keep roof well-maintained
- ☐ Keep roof well-sealed and box eaves

Other

- ☐ Ensure wooden decks, thatched gazebos and pergolas are treated with fire-retardant
- ☐ Make sure all vents are covered with wire mesh – embers can enter the house through these
- ☐ Keep verandah corners clear of leaf litter
- ☐ Remove all yard litter – acts as fuel
- ☐ Make sure wood piles are not stored near home
- ☐ box eaves and enclose cantilevered floors and balconies

6. Secure an Adequate Water Supply

- ☐ Secure an additional water source – dam, pool, pond
- ☐ Purchase a portable pump for this alternative supply
- ☐ Keep pump well maintained

7. Ensure Adequate Fire Fighting Equipment, Safety Gear and Trained Staff

- ☐ Fire-beaters, chainsaws, rakes, spades, shovels, buckets, ladders, torches with spare batteries, towels and protective woolen blankets
- ☐ all protective clothing made ONLY of NATURAL fibres – cotton, leather

Be FireWise Appendix 5 | A Guide for Landowners

Actions for When Fire Front is approaching

1. Defensible Space

- ☐ **Remove grass doormats and put inside**
- ☐ Sweep porches to clear them of leaves and other potential fuel
- ☐ **Take hoses and fittings inside (Do NOT spray windows – they could crack or shatter)**
- ☐ Put valuables and documents in a safe, accessible place
- ☐ **Identify emergency escape route**
- ☐ Make sure clip-on screens are secured over openings
- ☐ **Close all heavy drapes, open light ones**
- ☐ Close shutters if present
- ☐ **Fill baths, basins, buckets inside the house for emergency water supplies**
- ☐ Water lawns and plants close by to the house, but only when the fire is close by
- ☐ **Make sure you have a good supply of heavy, woolen blankets**
- ☐ Close all doors and windows
- ☐ **Place damp towels at base of doors**
- ☐ **Make sure driveways and turning circles are clear for emergency vehicles**
- ☐ Make sure everyone has goggles and scarves (natural materials only) to place over their nose and mouths
- ☐ **Make sure that your cell phone is charged and that you have a portable radio with spare batteries**
- ☐ Remember the golden rule if a person catches alight: STOP, DROP AND ROLL
- ☐ **Make sure pets are inside with you**
- ☐ Move livestock to a safe area
- ☐ **Keep a fire extinguisher inside with you**
- ☐ Be alert for tell-tale wisps of smoke inside the house
- ☐ **Put cars and petrol lawnmowers inside the garage – close doors, windows, seal vents**
- ☐ Remove all wooden garden furniture – place in garage or inside house
- ☐ **Reverse car into garage with keys in ignition, doors unlocked and ready to go**

APPENDIX 6

SOUTHERN CAPE FIRE PROTECTION ASSOCIATION
MEMBERSHIP APPLICATION

1. MEMBER INFORMATION

Landowner's name	
Trade name	
Name of property	
Responsible person (manager)	

Physical Address	P.O Box / Private bag
	Town
	Postal code

Contact details	Tel	
	Fax	
	Cell	
	E-mail	

Municipal Area	

Management Unit	

2. PROPERTY INFO

Title Deed number	Farm number

Land use per hectare	Natural veld	Ha
	Recreational resorts	Ha
	Agriculture	Ha
	Plantations	Ha
	Other	Ha

Total area	Ha

…… ……/……/20……
Signature

OFFICE USE	
Reference number	
Joining fees	
Membership fees payable	
General comments	

MEMBERSHIP FEES

	Joining fee – once off	Ha charge per year	Minimum charge
< 1000 ha	R250	42c	R200.00
> 1000 ha	R1000	42c	0

Example 1:

First year:
Property: 780 ha
Joining fee: R250
42c x 780 ha = R327.60
Total for first year = R577.60
Second year:
Total for second year = R 327.60

Example 2:
First year:
Property 50 ha
Joining fee: R250 + R200 = R 450.00 (First year)
Second year : R200.00 for the year

Example 3:
Property 5000 ha
First year:
R1000.00 + 42c x 5000 = R 3100.00 first year
Second year = 42c x 5000 = R2100.00 for the year.

Please forward completed form to the following address:

Attention: Margie Hopewell
P O Box 5117
George East
6539

email : opswit.sc@wofire.co.za
Tel : 044 870 8527 Fax : 044 870 8863