

Greater Rustenburg Fire Protection Association

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GRFPA BUSINESS PLAN

Revision: 2019



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

The Greater Rustenburg Fire Protection Association is a registered FPA in terms of Section 4(2) of the **National Veld and Forest Fire Act, No. 101 of 1998.**

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Acronyms and Abbreviations used in this document.

DAFF	-	Department of Agriculture, Forestry and Fisheries
DEA	-	Department of Environment Affairs
FPA	-	Fire Protection Association
FPO	-	Fire Protection Officer
GRFPA	-	Greater Rustenburg Fire Protection Association
NVFFA	-	National Veld and Forest Fire Act. No 101 of 1998
PPE	-	Personal Protection Equipment
READ	-	Rural Environment and Agricultural Development
RLM	-	Rustenburg Local Municipality
SAWS	-	South African Weather Service
The Minister	-	The Minister of Agriculture, Forestry and Fisheries of SA
WfW	-	Working for Water
WoF	-	Working on Fire

Introduction

Veldfires are a natural seasonal phenomenon in South Africa and in most ecosystems, fire is a natural and beneficial disturbance of vegetation structure and composition and in nutrient recycling and distribution. They have occurred since time immemorial, caused naturally by lightning and, in the Cape Mountains, by falling rocks. The earliest humans began to use fire a million years ago, and modern humans have been using veldfires for hunting and for managing their environment for possibly hundreds of thousands of years. We continue to use fire in veld and forest, to manage grazing and habitats, and as a measure to help prevent uncontrolled fires.

However, veldfires also pose a risk to life, property, and the environment. Statistics indicate that the incidence and severity of veldfires has increased in recent years, driven by many factors, including changes in climate and land use. Because of urbanisation there is an increased area of interface between open land that contains flammable vegetation fuels and human settlements. This urban-rural interface increases the potential for loss and damage from unplanned fires.

What is a Veldfire Management Strategy and why is it necessary?

Management of veldfires is essential to reduce the negative social, economic, and environmental impacts and promote the beneficial use of fire

In terms of Chapter 2, Section 5 (1)(a) of the National Veld and Forest Fire Act. No 101 of 1998 (Hereinafter referred to as the **NVFFA**) one of the duties of a Fire Protection Association is to **“develop and apply a veldfire management strategy for its area”**. This document is not an operational plan but a strategic document explaining how the FPA will tackle its duties and outlining the code of best practice for members.

The veldfire management strategy of an FPA must:

- demonstrate understanding of the veldfire problem in the FPA's area and the competencies necessary to deal with it
- illustrate that risks have been identified and that its members understand the risks and agree with the strategies and measures adopted in the plan
- communicate the rules that will be applied. (Section 7 of this document)
- promote common standards and co-ordination among FPAs, municipal fire services, and disaster management
- provide information that will develop a country-wide picture of veldfire risks and the resources needed to manage them.

Approval of the Veldfire Management Strategy (Business Plan)

Approval of the business plan is a requirement for registration of an FPA and the plan must be revised every 5 years.

Once the business plan has been approved, the rules it contains are regarded as the norms and standards for veldfire management in the area and the FPA receives the powers to implement these rules.

Figure 1: Outline of this document:



1 Purpose of this Document

This is a strategy document that sets out the approach of the Greater Rustenburg Fire Protection Association (hereinafter referred to as **GRFPA**) to reducing and mitigating veldfire risks within the area.

2 Scope of the Business Plan

2.1 Area

The boundaries of GRFPA correspond with the municipal boundaries of the Rustenburg Local Municipality (hereinafter referred to as RLM), which is one of the five local municipalities of the Bojanala Platinum District Municipality in the North West Province. Area is approximately 3 423km² or 342325 Ha

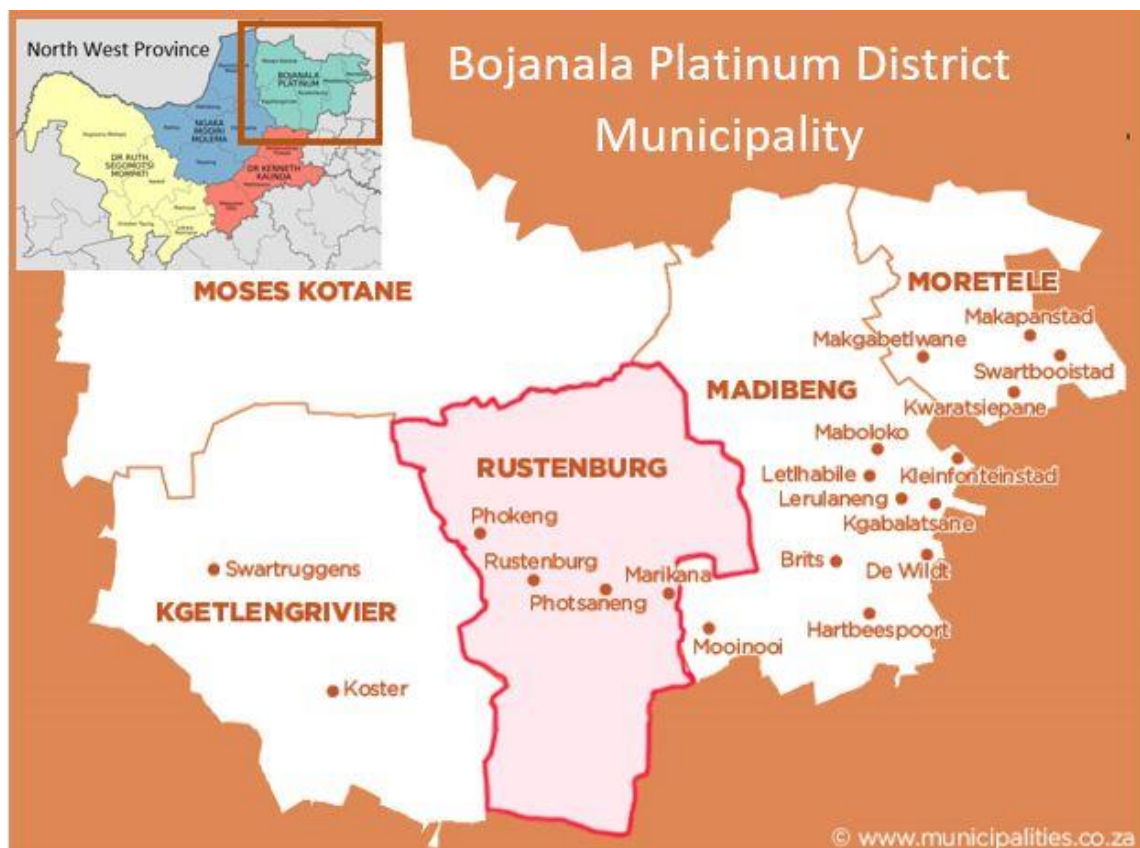
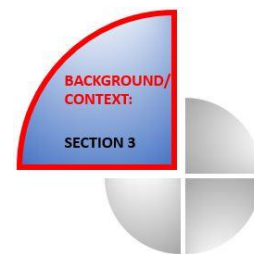


Figure 2. Location of GRFPA area (Rustenburg Local Municipality) within District and Province

2.2 Period of operation

This Business plan will apply for five years from March 2019 to February 2024



3 The Current Situation in the area of the GRFPA

3.1 Background and history of the GRFPA

Prior to 2005 there was no FPA in the RLM and the task of combatting veldfires resided with various farmers associations and structures within the affected communities. In 2005 the GRFPA was registered in terms of the National Veld and Forest Fire Act. No 101 of 1998. In 2015, Mr Namba from DAFF and Mr Mfolwe the Chief Officer of the Fire Department in Rustenburg realised the need to get more support for the GRFPA from land owners. After a concerted effort on behalf of concerned citizens the AGM in 2016 was well attended.

3.2 Social considerations

According to Stats SA community Survey 2016, the total population of RLM is 626 522, of which 68% reside in urban areas and 32% in tribal/traditional areas and farms. Included in the GRFPA area are townships, villages, informal settlements, mine properties, two nature reserves and one UNESCO Biosphere Reserve.

Literacy and skills levels are low. Unemployment levels remain high in the area, especially after the recent retrenchments in the mining industry. There has been an increase in the number of emerging commercial farmers.

The area has important cultural heritage sites.

3.3 Economic considerations

RLM is both a rural and mining economy with the following sectors making the largest contributions:

- Mining: platinum, chrome, granite
- Industrial and Commercial: mainly centred around the city of Rustenburg
- Farming: livestock, poultry, vegetable and other crops
- Tourism: ecotourism, safari lodges, hiking trails, fishing, camping etc

3.4 Environmental considerations

Within the GRFPA boundaries, 258757 ha (75,59 %) remain natural, and thus vulnerable to veldfire.

The following environmental values could be at risk because of veldfires:

- Water catchments
- Biodiversity of natural vegetation: grasslands, wetlands, bush and trees.
- Value of the landscape, scenery, mountain range to ecotourism

The recently declared Magaliesberg Biosphere Reserve and the following conservation areas exist within the GRFPA and are all vulnerable to veldfires.

Name	Approximate size (ha)
Kgaswane Mountain Reserve	5 404
Vaalkop Dam Nature Reserve	14 169
Magaliesberg Protected Environment	11 933
Buffelspoort Valley Conservancy	10 500
Vulture Valley Conservancy	3 800

3.5 Veldfires in the GRFPA area

3.5.1 Veldfires and Climate

Veldfires occur mostly during winter, from about May to October, especially after high-rainfall seasons with lots of dry grass. During this period the climate and daily weather are often dominated by hot dry winds, causing high and extreme fire danger conditions. Veldfires also occur in summer due to the prevalence of thunderstorms and lightning.

3.5.2 Origins and causes of veldfires:

Lightning is the only natural cause of veldfires in the GRFPA area, estimated to be the cause of 10% of current ignitions. Human influences, however, go back many generations and in most cases the fire can be directly linked to human influences, both accidental and intentional. The relative share of fires caused by human intervention is rapidly increasing.

Currently, the reported causes and origins of human induced veldfires are mainly the following:

- Escaped management burns, when owners lose control of firebreak and other prescribed burns
- Ignitions from negligent treatment of picnic, cooking or warming fires, the burning of refuse or disposal of ash from fires at farmsteads and informal settlements
- The use of fire to clear long grass around informal settlements
- Road users starting fires along national and regional roads
- Incendiarism (malicious acts) and arson

3.5.3 Vegetation and fire behaviour:

Table 1 the fire regime and fire behaviour in the main types of vegetation within the area of the GRFPA.

Vegetation/cover type	Cover	Fire regime = frequency, intensity, season and size	Fire behaviour
Mountain grassland	+/- 30%	This grassland type burns mainly in the dry winter season; fires occur naturally about once in two years in any patch of grass areas. Farmers and managers of protected areas apply “control burns”,	During dry windy conditions, grass fires move extremely quickly, especially up hill.
Tall grass, bushes and average woodlands (Acacia Combretum, Protea, Ziziphus, Burkea Celtis, Olea species among other)	+/- 25%	This mixed grass and average bushes type burns mainly in the dry winter season; fires occur naturally about once in two to three years in any patch of vegetation.	Heading fires in tall grasses, during dry windy frontal weather, move at speeds up to 6-8 km per hour, with flame lengths of 2-6 m. Under inversions, fires move slowly but if the grass is dry, flames are 2-4 m long.
Annual crops, mainly maize, sunflower, sorghum, tobacco, chillies, wheat	+/- 25%	Fires occur only after the harvest, when the crop residues may burn under severe frontal weather.	Residue fires burn slowly with low flames.
Invasive alien trees	15	Fires in stands of alien invasive plants usually occur only during severe frontal weather.	Crown fires are the rule, with intense heat.
Other: orchards and gardens	5	Fires are rare	

3.5.4 Veldfire history:

Veldfires have always been a feature of the environment in this area. However, as the area has developed the fires have become a problematic hazard to life, property and the environment.

Reported veldfires are recorded in the national database.

3.5.5 Veldfires and their role in the environment:

Both the use of fire management, and its exclusion, have environmental consequences.

Because veldfires are a historical element of GRFPA environment the natural biodiversity and ecosystems are adapted to the effects of fire. Grasslands recover quickly, and native species of tree resist fire. Many animals are adapted to foraging during and after fires. Fires can improve the growth of green grass which provides grazing for animals in the dry season, remove old, less palatable dry plant material and reduce bush encroachment, stimulate the germination of some useful species of grass, and trees and limit animal parasites. If fire is excluded, the grass accumulates fuel and loses vigour so that when a fire does inevitably occur, it is intense, further degrades the grass community, and exposes soil to erosion.

However, the increased frequency and injudicious timing of unwanted and uncontrolled veldfires puts severe pressure on ecosystems in the following ways:

- absence of vegetation combined with low rainfall and then followed by severe thunderstorms leads to substantial soil-erosion
- leads to the proliferation of invasive alien species and reduces biodiversity
- contributes to air pollution loads,
- degrades the quality of the environment for Eco tourists
- reduces the infiltration rate of water catchment areas.

3.6 Laws applying to veldfires in the GRFPA area

- National Veld and Forest Fire Act
- Conservation of Agricultural Resources Act 43 of 1983 (Regulation 12)
- Air Quality Act
- Fire Brigade Services Act
- Disaster Management Act
- RLM Municipal by-laws

3.7 Current veldfire management

NVFFA places the responsibility for veldfire management on the owner of the land. To assist the landowner in awareness, preparedness, prevention and combatting of veldfires the following structures currently exist in the area

- GRFPA provides:
 - a platform for landowners to coordinate efforts and share resources.
 - Information and awareness campaigns, both digital and through meetings to empower members in the prevention and combatting of veldfires and their duties and responsibilities in respect of the NVFFA.
 - Communication of FDI to all members during fire season
 - Limited equipment supply to clusters
- Disaster Management, WoF and READ and private accredited companies provide:
 - Training and awareness campaigns in rural areas

3.8 Assessment of the effects of past veldfires

3.8.1 Social impacts:

- Loss of livelihoods
- Loss/damage of human habitat i.e. “a roof over your head”

3.8.2 Economic impacts:

Positive economic impacts of veldfires include the maintenance of pastures through maintaining an appropriate grassland fire regime.

Economic costs include the following:

- Loss of pastures requiring expensive replacement by buying fodder
- Loss of livestock
- Loss of crops (citrus & stone fruit, grains, tobacco)
- Loss of income due to poor quality of livestock as a result of burnt grazing pastures
- Loss of different infrastructures on the farms
- Poor tourism during the said periods
- Interruption of power supplies on main Eskom line
- Loss of homesteads and leisure resorts.
- Loss and damage of implements, firefighting equipment and vehicles

3.8.3 Environmental impacts:

Positive environmental impacts of veldfires include the maintenance of biodiversity through maintaining an appropriate grassland fire regime.

Negative environmental impacts arise from:

- High-intensity fires in stands of alien vegetation
- The spread of alien invasive plants through untimely veldfires.
- Increased soil erosion
- Creation of dongas
- Vegetation degradation
- Pollution, smoke emission

3.9 Criteria for evaluating veldfire risk

The GRFPA assigns the following criteria, in order of importance, to evaluate veldfire risks, judge their acceptability and assign priorities:

- Threats to lives: no death from veldfires is acceptable.
- Threat of injury to people.
- Loss of livelihoods.
- Loss of shelter.
- Financial loss and loss of economic activity.
- Loss of catchment values
- Loss of natural species or habitats, and
- Spread of alien invasive plants.

4 THE GRFPA VELDFIRE MANAGEMENT STRATEGY

The final responsibility for veldfire management lies with the owner of the land. The Act affirms this clearly. Veldfire management within an FPA must be a balance between the plans of the individual landowners, and the collective plans of the FPA, established for the common good.

4.1 Aim and objectives of the strategy

4.1.1 Aim:

The GRFPA aims to contribute to community development by mitigating loss of life and human injury in veldfires and by progressively reducing impacts on property and environmental values. The GRFPA aims to have its veldfire management strategy deployed throughout its area during this five-year period.

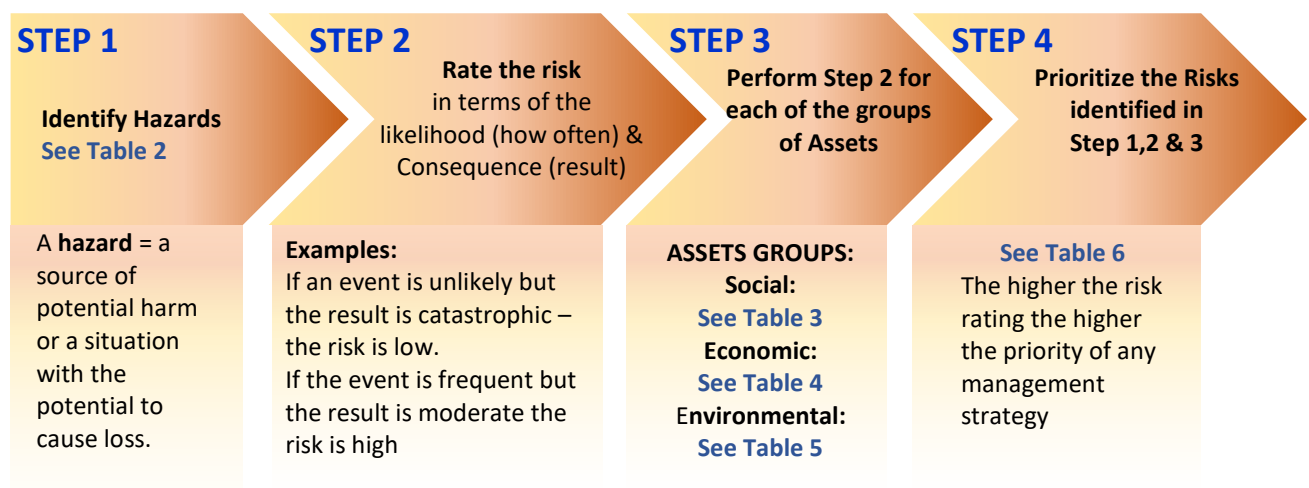
4.1.2 Objectives:

- To reduce veldfire risk in the area
- To create awareness of risk, prevention and preparedness among residents and landowners in the area.
- To promote compliance with the provisions of Chapters 4 and 5 of the NVFFA among all owners in the area;
- To propagate the GRFPA and encourage owners in the area to join;
- To encourage all members to comply with the rules of the GRFPA and to implement basic veldfire management plans on their properties;
- To continue to promote the involvement of all role-players in the GRFPA area including, Disaster management, RLM, Fire Services, WoF, WfW, READ and Umbrella FPA's
- To integrate the veldfire management strategy into the disaster management plan of the Rustenburg Local Municipality.
- To elicit the support of the FPO, the GRFPA Executive, the committee, cluster managers and the members to achieve the aims and objectives set out here.

Figure 3: Steps in risk assessment that underpins the Veldfire Management Strategy

Veldfire risk is defined as the chance of a veldfire igniting, spreading and causing damage to assets of economic, social and environmental value to the community.

In order for there to be a **risk** there must be some **asset** that is exposed to a **hazard**



4.2 Hazards identified:

A Hazard is defined as a source of potential harm or a situation with potential to cause loss.

TABLE 2: Lists and describes the main fire hazards in the area of the GRFPA

Hazard	Description
<u>Grassland Fires:</u>	Fires burn vigorously during the dry months. In extreme conditions , i.e. hot, dry, windy conditions, fires quickly spread and flora and fauna are likely to suffer significantly given the rate and intensity of burns. destruction of grazing, soil erosion, degradation of topsoil through the complete removal of aboveground vegetation and sterilising of soils. In average conditions the greatest negative impact would be seasonal (affects floral and faunal composition) and destruction of grazing.
<u>Invasive Alien Species</u>	Tend to burn more intensely than indigenous vegetation and often occur in dense stands which result in intense fires
<u>Burning of Road reserves</u>	Road users often cause fires that under high / extreme conditions can result in fast spreading veldfires
<u>Eskom Power lines</u>	Faulty, poorly maintained lines can cause electrical sparking under extreme wind conditions which result in fast spreading veldfires.
<u>Burning of Fire breaks</u>	During the time when firebreaks are prepared winds can be very changeable which often result in runaway fires.
<u>Towns, Villages & Townships:</u>	The abundance of flammable fuels (dense grass, garden rubbish, fuel depots etc.) makes the towns, townships and villages a hazard to itself and others.
<u>Informal settlements:</u>	Crowded housing and poor access, together with widespread use of coal stoves and naked flames for cooking and heating make informal settlements a hazard to themselves and the surrounding veld.

4.3 Assets description:

4.3.1 Social Assets:

TABLE 3 lists social assets i.e. assets relevant to people's well-being.

4.3.2 Economic Assets:

TABLE 4 lists assets with economic value.

4.3.3 Environmental Assets:

TABLE 5 lists assets with environmental value. These include features such as landscapes, catchments and natural communities.

TABLE 3: List of social assets within the GRFPA with an analysis of the veldfire risk for each

Asset Group	Hazard	Likelihood		Consequence		Risk Rating
		Assessment	Rating	Assessment	Rating	
Towns Townships Mine Villages	Grassland fires (extreme conditions), alien invasive species and the town itself	The towns are reasonably well protected, with effective management plans in place. This reduces the likelihood of impacts on the towns	Unlikely	Loss of property is significant; moderate risk of injury during fire fighting	Moderate	Medium
Informal Settlements	Grassland fires and the settlements itself, alien invasive species	Similar to above. However, shacks are more fire prone and there are few roads; limited water, access is difficult	Most likely	Loss of property is significant; High risk of injury during fire fighting	Moderate	High
Farmsteads/residential structures and resorts	Grassland fires, (extreme conditions), Alien invasive species, Fire breaks, Road reserves, Eskom powerlines	Although the extreme conditions occur regularly the homesteads are moderately protected	Likely	Possibility of the loss of houses and injury during fire fighting	Moderate	High

TABLE 4: List of economic assets within GRFPA with an analysis of the veldfire risk of each.

Asset Group	Hazard	Likelihood		Consequence		Risk Rating
		Assessment	Rating	Assessment	Rating	
Stock Farms	Grassland fires (extreme conditions)	Most farms have no fire protection plans. Occurs every 2nd year	Likely	Substantial loss of e.g. pasture, stock, property, vehicle/ Implements,	Moderate	High
	Grassland fires (average conditions)	Occur annually on many stock farms	Almost certain	Loss of pasture, no significant loss of stock, property, vehicles/implements	Insignificant	Medium
	Alien invasive species	Fires originating in uncontrolled areas and alien vegetation spread onto stock farms once every year.	Likely	Substantial loss of pasturage requiring purchase of fodder; stock losses.	Moderate	High
	Road reserve	Fires originating in road reserve spread onto stock farms once every year.	Possible	Substantial loss of e.g. pasture, stock, property, vehicle/ Implements,	Moderate	High
	Fire breaks	Runaway fires resulting from fire breaks and controlled burns occur every year	Almost certain	Substantial loss of e.g. pasture, stock, property, vehicle/ Implements,	Moderate	High
Recreational lodges & game reserves	Grassland fires (extreme conditions)	Lodges are well protected and generally removed from the path of the hazards. Game reserves are usually secured	Possible	Effective firefighting programs are in place in reserves, so risk of property loss is moderate; Risk of injury high	Moderate	High
Properties of emerging farmers	Grassland fires (extreme conditions)	Homesteads and farms are not well protected	Possible	Risk of life and total loss of property is high	Major	High

TABLE 5: List of environmental assets within the area of the GRFPA with an analysis of the veldfire risk for each of the levels of risk assessed.

Asset Group	Hazard	Likelihood		Consequence		Risk Rating
		Assessment	Rating	Assessment	Rating	
Water catchments	Grassland fires (extreme & average conditions)	Potential arises every two years	Almost certain	Grassland is adapted to annual fires and is likely to recover easily.	Minor	Medium
	Alien invasive species	Will occur once in every 2 years	Likely	Consequences for the catchments are severe: loss of vegetation, soils sterilisation, and loss of catchments functioning. Recovery would take 40+ yrs.	Major	Extreme
Wetlands	Grassland fires (extreme conditions)	Will occur every two years.	Almost certain	Many species are fire adapted, but increased frequency will result in local degradation; fire exclusion results in fewer more intense veldfires resulting in peat fires with long-term damage.	Moderate	High
	Alien invasive species	May occur occasionally in exceptional conditions	Possible	High intensity fires will result in severe, local impacts, requiring several years to recover	Major	High
Patches of Indigenous trees mostly in mountainous areas and ravines	Grassland fires (extreme conditions)	Given the fire retardant nature of indigenous trees, fires would rarely penetrate.	Rare	Localised loss of small forest patches, requiring a few years to recover.	Moderate	Low
Rare & Endemic plants e.g. Aloe Peglerae Frithea pulchra	Grassland fires (extreme conditions)	Occurs frequently	Likely	Little impact	Insignificant	Low
	Alien invasive trees.	Patches of alien invasive species are isolated and would burn in exceptional conditions	Unlikely	Impact is localised, but would result in much localised loss of species, requiring a few years to recover.	Moderate	Medium
Specific fire vulnerable protected species:	Grassland fires (extreme and average conditions)	Occur about every two years	Almost certain	Fires threaten wetland breeding habitat and food source; smoke disrupting breeding behaviour, possibly resulting in temporary loss in species.	Major	Extreme
	Bushes and alien invasive species.	The scattered patches of aliens may burn under exceptional conditions	Unlikely	May result in disruption of breeding behaviour.	Moderate	Medium

4.4 Veldfire risks within the GRFPA area:

TABLE 6: List of management priorities in the GRFPA FPA.

Risk class	Priority	Asset	Hazards
Extreme	1	Water catchments	Alien invasive species.
		Specific fire vulnerable protected species	Grassland fires (average and extreme conditions)
		Informal Settlements	Grassland (extreme), alien invasive species and the settlements themselves.
		Farmsteads, residential structures, resorts	Grassland extreme, alien invasive species, fire breaks, road reserves, Eskom power lines,
		Stock Farms:	Grassland (extreme conditions); bushes alien invasive species, road reserve, fire breaks, Eskom power lines,
		Recreational lodges & game reserves	Grassland extreme, alien invasive species.
		Emerging Farmers	Grassland (extreme conditions)
		Wetlands	Grassland (extreme conditions), Alien invasive species
Medium	3	Rustenburg Town, mine villages	Grassland (extreme conditions), alien invasive species and the town itself.
		Stock Farms	Grassland (average conditions)
		Water Catchments	Grassland (extreme and average conditions)
		Rare and Endemic plants	Alien invasive species.
		Specific fire vulnerable protected species	Bushes and alien invasive species
Low	4	Bushes & sweet grass	Grassland (average conditions).
		Rare and Endemic plants	Grassland fires (extreme conditions)
		Indigenous tree patches	Grassland (extreme conditions)

4.5 Resources for veldfire management

4.5.1 Institutional Capacity:

The GRFPA has been formed through the combination of the skills and experience of owners who have a history of collaboration. This provides the GRFPA with a strength that is supported by proven management and administrative experience, with simple but effective office systems. The GRFPA has the support of a committed executive and technical and logistical support from the Rustenburg Local Municipality Fire Service.

GRFPA has a weakness in that a small percentage of owners are members.

4.5.2 Personnel:

The GRFPA has at its disposal:

- An experienced candidate FPO
- Cluster managers who are mostly familiar with the resources, layout and fire regime in their areas.
- Community-minded landowners who voluntarily assist in fire suppression.
- Two Working on Fire teams in the area



4.5.3 Equipment and Facilities:

Backpack sprayers, beaters, skid units, igniters and blowers have been donated to the GRFPA by Disaster Management, the Umbrella FPA, RLM Fire Department and GRFPA members. This equipment has been distributed to members within the clusters of the GRFPA.

Most of the equipment in the area is privately owned by members for their own use and to assist each other in fire suppression.

The GRFPA has no facilities.

4.5.4 Communications:

The members of the FPA rely on cell phones and private security/farmers radio networks.

4.5.5 Support from the Bojanala Platinum District Municipality (BPDM) & Rustenburg Disaster Management.

- The RLM fire service is available to members of the GRFPA at no cost during incidents
- Donation of resources

4.5.6 Support from Umbrella FPA's (Bojanala Umbrella FPA (BUFPA) and North West Umbrella FPA

- Representation on district, provincial and national forums
- Negotiating agreements with State Owned Enterprises e.g. Eskom Sanral
- Distribution of resources
- Provide input data for fire danger ratings on behalf of FPAs

4.5.7 Assessment of the adequacy of resources and the need for improvement:

- With a few exceptions, members are poorly equipped.
- Equipment support from BPDM and RLM is limited.
- Non-members constitute a hazard since they do not comply with standards for equipment and personnel: enforcement of minimum standards by the authorities and recruitment of the majority of owners as members of the GRFPA must enjoy priority.
- More members need training in veldfire incident management.
- Better co-operation from WoF teams in the area is needed during incidents. Slow response, transport and chain of command issues need to be addressed.
- The GRFPA Business plan needs to be integrated into the RLM Integrated Development Plan (IDP) so that it can be included in the development strategy and budget of the RLM
- An agreement is needed with the neighbouring local municipalities and adjacent FPA's with regard to support in Joint Operations Centres during major veldfires.
- More work is needed on development of the Integrated Veldfire Fire Management strategy at cluster level.
- Mapping of the area with farm cadastral is needed.
- More work is needed from all stakeholders towards the achievement of the necessary minimum standards, as set out in section 6 below.

4.6 Veldfire risk management strategies

4.6.1 Veldfire Risk Management Options:

The veldfire risk management options for all risk categories i.e. extreme, high, medium and low, have not been developed yet. The GRFPA will follow the standard guide on veldfires risk management options as set out by DAFF. Table 7 shows the suggested options which should be applied to each class of risk.

Table 7. Veldfire risk management options (These are not necessarily mutually exclusive or appropriate in all circumstances)

Management options	Descriptors
Avoid the risk	By deciding not to proceed with the activity likely to generate the veldfire risk. This option is relevant to future land use and development decisions. Examples of risk avoidance strategies include, prohibiting certain types of development in areas prone to veldfires.
Reduce the hazard and the likelihood of exposure	Preparedness. Programmes to reduce the level of fuel available to burn in a veldfire and improve the degree to which assets are protected. Examples of hazard reduction strategies include prescribed burning, the preparation of firebreaks, or manual clearing of fire hazards as well as regular inspections. These measures would be incorporated in fire protection plans for each property or management unit.
Reduce ignitions	Programmes to reduce the number of deliberate and accidental ignitions of human origin. Examples of ignition reduction strategies include education and awareness programmes, total fire bans, reduction in activities during high-risk season or periods, arson investigation programmes, and issuing of permits to burn during the veldfire danger season. These measures are captured in fire prevention plans, which would also provide for education and enforcement.
Reduce consequences	This option includes various measures to reduce the consequence of veldfires, such as preparedness and contingency plans, veldfire recovery plans, community education programmes for self-protection (lives and property), and building restrictions and standards for areas prone to veldfires.
Transfer the risk	Once risk has been mitigated to the desired extent, transfer risk through adequate insurance.
Accept residual risk	Veldfire risk management strategies are designed to reduce the level of risk; but will not eliminate the risk entirely. Some level of residual risk may remain, which will be managed with fire response strategies such as fire suppression operations, early fire detection, and evacuation as well as effective training programmes.

4.6.2 Risk Management Strategies:

4.6.2.1 General Strategies

4.6.2.1.1 Education and awareness

The GRFPA will endeavour, within the constraints of its limited resources, to create awareness designed to:

- Reduce ignitions
- Achieve maximum compliance with rules and regulations
- Familiarize landowners with the Fire Danger Rating and what activities are dangerous and what precautions should be taken for each rating **See Annexure B**
- Achieve maximum self-protection, including lives and property
- Encourage landowners to become members of the GFRPA.

4.6.2.1.2 Prescribed fire for environmental management

Grassland habitats require fire to maintain grassland condition and biodiversity. To protect environmental assets through optimum application of fire the GRFPA will promote the desired fire regime. The rules also provide for minimum standards in the control of alien invasive species

4.6.2.1.3 Improved veldfire management on non-members` properties

The GRFPA will work with the authorities to promote compliance with the requirements of the Act among non-members. At the same time, by emphasizing the benefits of membership, the FPA will recruit new members.

4.6.2.2 Integrated Veldfire Management Plans

What is Integrated Veldfire Management?

"Integrated Fire Management (IFM) is a series of actions implemented through reduction, readiness, response and recovery planning and management. Activities in IFM include fire awareness, fire prevention, prescribed burning, resource sharing and coordination, fire detection, fire suppression, fire damage rehabilitation and research at a local, provincial and national level to create a sustainable and well-balanced environment, reduce wildfire damage and promote the beneficial use of fire." from Working on fire

The GRFPA will develop standards of integrated veldfire management plans for the different requirements of the kinds of land use in its area, to be agreed between members, and differentiate according to risk levels. Owners will be required to implement these plans and execute annual plans of operations for their implementation.

Graphic 3: Elements of Veldfire Management Plan



The plans will incorporate both fire protection and the use of prescribed burning, will conform with and in part define the requirements of local disaster management plans, and will include the following:

- Veldfire prevention plans
- Veldfire preparedness plans including:
 - specifications for levels of preparedness for different fire danger ratings
- Fire suppression plans, including:
 - definition of conditions determining levels of response under different fire danger ratings
 - rules for escalating the incident command
- Recovery plans
- Compliance with Chapters 4 and 5 of the Act
- Compliance with the rules of the GRFPA

5 Operational Plans for implementing the Veldfire Management Strategy

5.1 Fire Prevention Plan

This plan includes:

- The timeous preparation and maintenance of firebreaks
- Education on fire prevention
- Arrangements between neighbours
- Strict adherence to the Fire Danger Index (FDI) which will be sent to members during the fire season. See **Annexure B** for a detailed explanation of the Fire Danger Rating System and what activities are dangerous and what precautions should be taken for each rating
- Members are urged to read **Annexure C** containing useful information from DAFF on protecting your property from veldfires and reducing veldfire risk.
- A ban on all open fires when the index is Orange or Red.

5.2 Fire Preparedness Plan

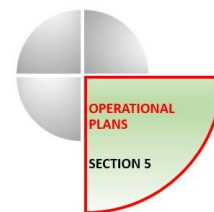
- Members must be prepared for the event of a veldfire
- Members must have firefighting equipment ready and available
- All members must keep their equipment in good condition at all times.
- There must be a responsible person on the property
- There must be sufficient personnel to fight fires
- Any person fighting a fire must have:
 - minimum protective clothing
 - minimum training in fire suppression
- There must be an adequate supply of water

5.3 Fire Suppression Plan

- When smoke or fire is detected on your own or your neighbour's property immediately notify the affected landowner/s and neighbours and the Cluster manager
- The immediate and aggressive fighting of an veldfire on your own or your neighbour's property is each member's responsibility.
- If the fire can't be controlled by members, notify the cluster/sector manager, a member of the GRFPA executive or the FPO and the RLM Fire Station Control Room.

5.4 Fire Recovery Plan

- The landowners on whose property the fire occurred has the responsibility to sweep behind the line of fire ensuring that the fire does not flair-up at a later stage.
- Check for burning debris on the perimeter area
- Account for all staff
- Communicate with neighbours and cluster managers
- Movement of cattle, sheep and game to existing grazing has to be planned and coordinated accordingly.
- Culling of injured animals has to be arranged and fatalities well recorded before burial.



5.5 Plan for co-ordination with neighbouring FPA's

The GRFPA, together with the following neighbouring FPA's, falls under the **Bojanala Platinum Umbrella FPA**.

- Madibeng FPA
- Kgetlengrivier FPA
- Moses Kotane FPA

In the event of cross border incidents, the FPO or chairperson of the GRFPA will co-ordinate with the relevant contact people.

5.6 Plan for fire investigations, records and reporting

- Members are required to report all fires on their properties to the GRFPA including, location, extent of fire (ha burnt), losses incurred, injuries, damage to infrastructure.
- Where warranted, the GRFPA will request the FPO to conduct a fire investigation

6 Monitoring and review and the information systems for this purpose

The GRFPA shall hold an Annual General Meeting (AGM) where the Chairperson and FPO shall maintain the reporting system for the Minister through DAFF delegated official.

The requirements for reporting set in the Regulations are as follows:

The annual report must include the following

- (a) a progress report on the attainment or otherwise of
 - (i) the aim and objectives specified in the business plan;
 - (ii) the implementation of the business plan as a whole;
- (b) a statistical summary of the causes, extent and consequences of veldfire in the area of the fire protection association;
- (c) a summary of offences allegedly committed, prosecutions undertaken and convictions achieved in terms of the Act and any relevant by-laws in the area of the fire protection association;
- (d) a report on compliance with the Act as required by section 6(1)(e);
- (e) any other matters or observations that relate to successes in or problems with the management of veldfires;
- (f) a report about how organs of State and municipalities have or have not complied with the rules of the fire protection association;
- (g) a summary of changes in membership, including new members and termination of membership, with reasons given for termination;
- (h) an account of any major changes to the business plan that have been made to improve the functioning of the fire protection association; and
- (i) any other relevant information.

7 Rules of the GRFPA:

Legislation pertaining to veldfire management includes:

- Chapter 4 of the National Veld and Forest Fire Act: Firebreaks
- Chapter 5 of the National Veld and Forest Fire Act: Fire Fighting
- Conservation of Agricultural Resources Act, 43 of 1983: Clearing of Alien vegetation
- Rustenburg Local Municipality Fire Brigade By-laws (part C Section 9): burning of refuse
- Air Quality Act
- Fire Brigade Services Act
- Disaster Management Act

Owners, defined in the ACT to include the occupier, the lessee and the person in charge of land, are bound by the above legislation, whether they belong to an FPA or not.

In compliance with Section 5(1)(c) and Section 5(4) of the ACT, The GRFPA has made rules which include provisions from the above ACTS and the GRFPA constitution. Once approved, the rules are binding on members and the GRFPA receives the powers to implement these rules.

These rules have been set out in detail in ANNEXURE A.

8 List of the powers and duties which should be delegated by the Minister to the Fire Protection Association in terms of section 5(1)(k) of the Act

There are currently no delegations to the GRFPA in terms of this Section of the ACT

GLOSSARY OF TERMS USED:

Act

The [National Veld and Forest Fire Act no. 101 of 1998](#).

Assets

Anything valued by people which includes houses, crops, forests and, in many cases, the environment.

Climate

The atmospheric conditions of a place over an extended period of time.

Consequence

the outcome of a veldfire: can be an adverse effect to health, property and the environment or a gain

Fire Ban period

A total ban on fires in the open air when the FIRE DANGER INDEX (FDI) is High (Orange) or EXTREME (RED) or a warning has been issued by the Minister, SAWS or the media.

Fire behaviour

The manner in which a fire reacts to the variables of fuel, weather and topography.

Fire danger

Sum of constant danger and variable danger factors affecting the start, spread, and resistance to control, and subsequent fire damage; often expressed as an index.

Fire danger index (FDI)

A relative number denoting an evaluation of rate of spread, or suppression difficulty for specific combinations of temperature, relative humidity, drought effects and wind speed. The numbers may range from 1 to 100.

Fire danger rating

A relative class denoting an evaluation of rate of spread, or suppression difficulty for specific combinations of temperature, relative humidity, drought effects and wind speed. Rated as low, moderate, high, very high or extreme, indicating the relative evaluation of fire danger.

Fire frequency

A general term referring to the recurrence of fire in a given area over time

Fire hazard

A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control.

Fire management

All activities associated with the management of fire prone land, including the use of fire to meet land management goals and objectives. (AFAC).

Fire preparedness

All activities undertaken in advance of veldfire occurrence to decrease its extent and severity and to ensure more effective fire suppression.

Fire prevention

All activities concerned with minimising the incidence of veldfire particularly those of human origin.

Fire protection association

an association registered in terms of [Chapter 2 of the Act](#) for the purposes of predicting, preventing, managing and extinguishing veldfires.

Fire protection officer: a person who performs the function of chief executive officer of a fire protection association, appointed in terms of [Section 5 of the Act](#).

Fire regime

The history of fire in a particular vegetation type or area including the frequency, intensity and season of burning. The description of the occurrence, distribution, size, and interval period of fires, is known as fire regimes and it may change over time due to variation in rainfall patterns, land use changes and fire management practices.

Fire ecology type

A fire-ecology type is a class of vegetation types that is relatively uniform in terms of the fire regimes (e.g. frequency, season, intensity and size) within the constituent vegetation types.

Fire restriction period

The period of the year during which a permit is required to light, use or maintain fires in the open air.

Fire suppression

The activities connected with restricting the spread of veldfire following its detection and making it safe.

Fire season

The period during which veldfires are likely to occur, spread and do sufficient damage to warrant organised fire control.

Fuel

Any material such as grass, leaf litter and live vegetation which can be ignited and sustains a fire. Fuel is usually measured in tonnes per hectare.

Firebreak

a strip of land where vegetation has been removed or modified to contain or to reduce the spread and intensity of any veldfire that may occur in or enter a property.

Fuel reduction

Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and/or to lessen potential damage and resistance to control.

Hazard

A source of potential harm or a situation with potential to cause loss.

Integrated veldfire management

Integrated Fire Management (IFM) incorporates different fire management activities in a strategic framework to reduce the overall impact of unwanted wildfire damage and promote the beneficial use of fire.

Integrated veldfire management Plan

a plan for a given property of land that incorporates plans for both fire protection as well as the management of veldfire, for example, through prescribed burning for asset maintenance and habitat management.

Likelihood

The chance of something happening.

Mitigation:

any risk management measure that reduces risk, including fuel reduction burning, other prevention measures, preparedness and so on.

Monitor

To check, supervise, observe critically, or record the progress of an activity, action or system on a regular basis in order to identify change.

Preparedness

All activities undertaken in advance of the occurrence of an incident to decrease the impact, extent and severity of the incident and to ensure more effective response activities.

Prescribed burn or Controlled Burn

A fire ignited under specified environmental conditions to a predetermined area and at the time, intensity, and rate of spread required to attain planned resource management objectives. It is undertaken in specified environmental conditions.

Prevention

All activities concerned with minimising the occurrence of incidents, particularly those of human origin.

Recovery

The coordinated process of supporting emergency affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing.

Risk

The exposure to the possibility of such things as economic or financial loss or gain, physical damage, injury or delay, as a consequence of pursuing a particular course of action. The concept of risk has two elements, i.e. the likelihood of something happening and the consequences if it happens.

Risk analysis

A systematic use of available information to determine how often specific events may occur and the magnitude of their likely consequences.

Risk assessment

The overall process of risk identification, risk analysis, and risk evaluation. (AS/NZS 4360)

Risk evaluation

Process of comparing the level of risk against risk criteria.

Risk management

The culture, processes and structures that are directed towards realizing potential opportunities whilst managing adverse effects. Application of available resources in such a way that overall risk is minimized.

Rural

Any area wherein residences and other developments are scattered and intermingled with forest, range, or farm land and native vegetation or cultivated crops.

Urban-rural interface (URI)

The line, area, or zone where structures and other human development adjoin or overlap with undeveloped bush land.

Veldfire

a veld, forest or mountain fire, where veld means the open countryside or peri-urban land beyond the urban limit or homestead boundary.

ANNEXURE A: Rules and Regulations of the GRFPA



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1 Terminology

- 1.1. **Skid Unit:** A water tank and pump which can easily be slipped onto the back of a bakkie.
- 1.2. **Rake Hoe:** Hand held tool with a dual purpose head. Used to clear control lines during a fire
- 1.3. **Fire beater:** Hand held fire-fighting tool consisting of a wooden/aluminium handle and a flexible flat rubber head.
- 1.4. **Backpack spray:** A hand operated 15 – 20 litre capacity water pump that is worn on the back of a firefighter.
- 1.5. **Drip Torch:** A hand held device for igniting fires. It consists of a fuel tank, a wick and nozzle through which the burning fuel is “dripped” onto vegetation.
- 1.6. **Water bowser:** A vehicle (or trailer) fitted with tank, pump and hoses e.g. Buffel, Unimog
- 1.7. **Landowner:** An “owner” means any landowner with a title deed as well as a lessee or other person legally controlling land , the executive body of a community, the manager of State land, and the chief executive officer of any local authority, or their duly appointed agents in the cases of State land (including SANDF land) and local authorities.
- 1.8. **Fire Restriction Period:** the period between 30th June and 31st October each year when the lighting or maintaining of an open fire is restricted to fire safe areas.
- 1.9. **Fire Ban period:** when the FDI is Orange or Red or when a warning has been issued by the Minister via SAWS and the media)



2 Membership (in accordance with Clause 8,9,10 & 11 of the GRFPA constitution)

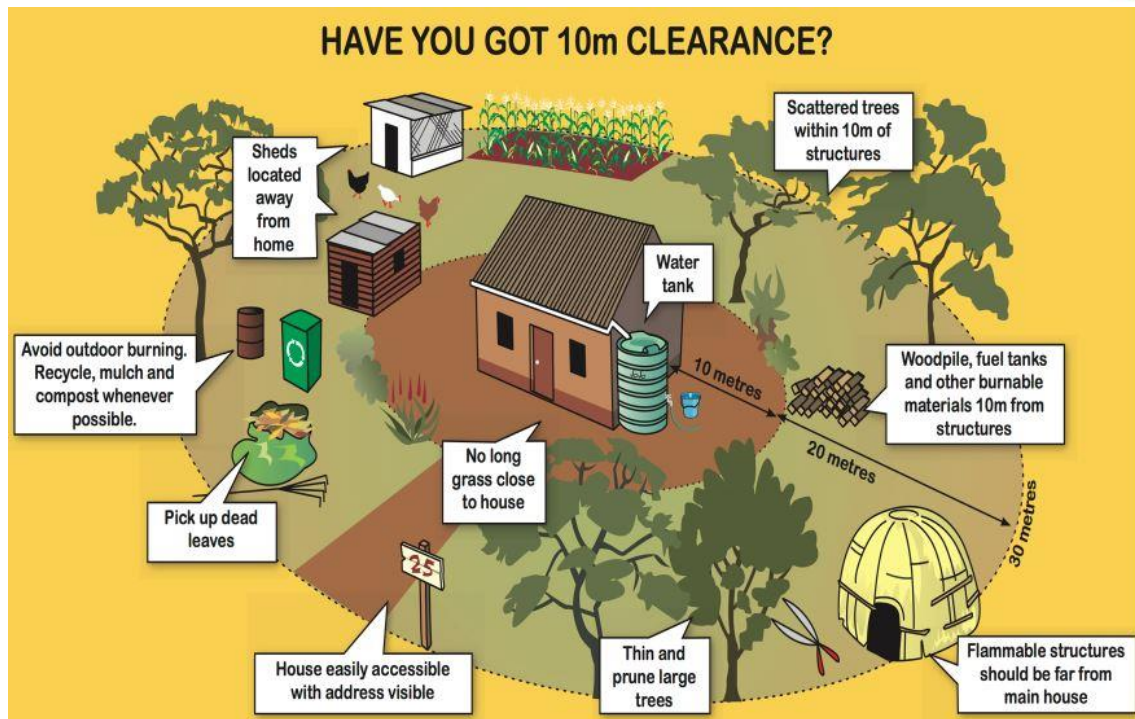
- 2.1. All land “owners” as defined by the NVFFA, and within the area of the RLM, can become members.
- 2.2. Every Municipality or organ of State must be a member.
- 2.3. Membership runs from 1st Jan to 31st December each year.
- 2.4. To become a member, landowners must complete and submit a “Membership Application Form” and pay the prescribed annual membership fee. Membership = Application Form + Annual Fees
- 2.5. Membership forms can be submitted online on the GRFPA website, or via email to the secretary.
- 2.6. Annual fees to be paid directly into the GRFPA bank account **before the 31st of March of each year**, after which, in terms Clause 10 (c) and (d) of the GRFPA Constitution, membership is automatically terminated and a re-joining fee will have to be paid as determined by the Executive Committee.
- 2.7. It is the responsibility of members to notify the Secretary of the Association in writing of any change of membership details, including change of ownership.

3 General

- 3.1. Members must comply with the National Veld and Forest Fire Act, 101 of 1998 and strive to comply with the Conservation of Agricultural Resources Act, 43 of 1983, in terms of alien vegetation clearing.
- 3.2. Members must be conversant with the overall Business Plan, including the Veldfire Management Strategy for the GRFPA and other Acts and by-laws as mentioned in the Business Plan.
- 3.3. Members must undertake to abide by the Constitution and Rules of the GRFPA as stipulated in Chapter 2 section 4(6) of the National Veld & Forest Fire Act.
- 3.4. Members must attend the annual general meeting (AGM) to elect office bearers and decide on any amendments to the constitution, Business Plan and fee structure.

4 Housekeeping

- 4.1. It is the responsibility of every member to ensure that the buildings on their property are protected and made safe against the danger of fires. (Examples of remedies are to create breaks and clean areas around properties and orchards, clean gutters, sprinklers on thatched roofs, etc.)
- 4.2. Members are responsible to isolate any fire hazardous area (e.g. storage of fuels, open cooking areas, ash pits) that are present or likely to develop on their property to eliminate any danger it may create to themselves or adjoining properties.



5 Compliance with Fire Danger Rating (FDR) System

- 5.1. Members must be conversant with the daily Fire Danger Rating System and comply with the instruction and rules pertaining to the system.
- 5.2. During the fire season the daily Fire Danger Index (FDI) will be sent via SMS to paid up members.

6 Cooking/Warming Fires and designated fireplaces

- 6.1. Domestic/social fires used outside of residences for preparing meals, beverages or for warmth during cold conditions must be:
 - a) Made within a "fire safe area"
 - b) not left unattended
 - c) properly extinguished with water or sand
- 6.2. A "fire safe area" is a specifically prepared and maintained area which is:
 - a) surrounded by ground that is clear of all combustible matter for at least 2m
 - b) a permanently constructed fireplace
- 6.3. Fires may not be made:
 - a) If the weather conditions are unsuitable (fire danger rating is high: orange or red)
 - b) In areas that have not been sufficiently cleared of combustible material.
 - c) In areas with a deep litter layer.
 - d) In no-fire zones as indicated by the landowner.
 - e) Near thickets of dense vegetation or any other combustible material.
 - f) If the fire is to be left unattended.
- 6.4. **The landowner is responsible to inform contractors and staff of this rule and remains responsible for the actions of said contractors and staff.**

7 Firebreaks

Chapter 4 of the National Veld and Forest Fire Act (NVFFA) applies to all land owners whether FPA members or not.

7.1. Legislation

According to the NVFFA (Section 12) *“Every owner on whose land a veldfire may start or burn or from whose land it may spread must prepare and maintain a firebreak on his or her side of the boundary between his or her land and any adjoining land.”*

7.2. Definition of a firebreak

A firebreak is a natural or constructed barrier utilized to stop or check fires, or to provide a control line from which to work.

7.3. Purpose of Firebreaks

The purpose of a fire break can influence its construction.

The purpose of firebreaks could be to:

- Prevent fire spread of controlled or uncontrolled fires
- create a point from where:
 - fires may be extinguished
 - back burns may be started
 - fires can be attacked
 - to access a fire

7.4. Firebreak requirements

According to the NVFFA (Section 13) an owner who is obliged to prepare and maintain a firebreak must ensure that, with due regard to the **weather, climate, terrain and vegetation** of the area:

- a) *It is wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land.*
- b) *Will not cause soil erosion.*
- c) *Is reasonably free of inflammable material capable of carrying a veldfire across it.*

The GRFPA does not prescribe a set width for firebreaks, but places the responsibility on owners to assess the veldfire risk, the purpose of the break and adjust the width of the firebreak accordingly.

When preparing firebreaks by burning, members must:

- a) notify the owners of adjoining properties of their intention to burn. Members must meet the requirements of the NVFFA Chapter 4, Sec 12 (2-10) in respect of agreements with neighbours.
- b) notify the GRFPA Cluster manager of their intention to burn, and the commencement and completion of the burn. (this avoids unnecessary alarm when smoke is sighted)
- c) have sufficient fire fighters available to prevent the spread of the fire.
- d) notify the GRFPA of any uncontrolled spread at the site where firebreaks are being burnt.
- e) check and comply with the instructions and rules of the Fire Danger Index (see 5. Above)
- f) observe all restrictions on the burning of firebreaks during restricted periods (1 July to 31st October) and fire ban periods (when the FDI is Orange or Red or when a warning has been issued by the Minister via SAWS and the media)
- g) Members must comply with the national policy applicable to exemptions.



7.5. Exemptions

Exemptions from the duty to prepare firebreaks can only be granted, under special conditions, by the Minister of Agriculture, Forestry and Fisheries in consultation with the GRFPA

7.6. Timing of firebreaks

Firebreaks must be prepared and maintained on an annual basis and completed by no later than the 30th June, after which date the form: **“Intention to burn after the date of 30th June”** is available on the GRFPA website and must be submitted to the Cluster manager of the GRFPA.

8 Prescribed burning

Members intending to conduct a prescribed burn a block burn or the burning of crop residue must please contact the relevant Cluster Manager of the GRFPA

9 Members duties in respect of readiness for fighting fires:

Members must comply with Chapter 5 of the National Veld and Forest Fire Act by having **equipment, protective clothing and trained personnel** as is reasonable for the extent of the member’s property (NVFFA Section 17)

9.1. Equipment

Every owner or group of owners must have the **minimum firefighting equipment, sufficient to manage firebreak burning and unplanned fires.**

The GRFPA does not make prescriptions with regard to equipment and personnel required for firefighting, but urges owners to assess their needs according to the criteria below or the criteria of their relevant insurance companies. The Cluster managers or FPO can be consulted should members need help in this regard.

The type and quantity of equipment reasonable for each property may depend on:

- a) the size of the property,
- b) the fire frequency and risk to which the property is exposed,
- c) the topography and vegetation on the property,
- d) the means of access to the property i.e. can a fire engine access your property?
- e) the number of personnel available

Recommended equipment includes:

- a) beaters
- b) backpack sprayers,
- c) rake hoes
- d) skid units (Bakkie Sakkie)
- e) water bowser e.g.: trailer, tanker, Buffel, Unimog
- f) Blowers (especially useful for mountain fires where water is not available)
- g) cell phone or radio
- h) a first aid kit

9.2. Protective Clothing for any person involved in fire fighting

- a) ONLY 100% cotton clothing – Including all undergarments
- b) clothes with a high synthetic content could melt in the event of close contact with a fire & result in serious injuries to the fire fighter.
- c) Plastic boots are not recommended as these will melt when in close contact with fire for prolonged periods.
- d) A cotton T-Shirt worn as an undergarment will assist with keeping the direct heat off the skin.
- i) Recommended: leather gloves, helmet with neck strap, safety glasses, a head light for night time firefighting.

9.3. Trained personnel

Members/occupiers of land and/or their staff performing fire-fighting must be trained (at the owner's cost) to an acceptable standard or have previous practical experience in veld firefighting.

The GRFPA is not required to develop their own capacity for training but together with the FPO and the Fire Department can provide advice on:

- a) required standards, valid in terms of the National Qualifications Framework,
- b) accredited institutions and trainers

9.4. Responsible person:

All members must ensure that, in their absence, there is a responsible person present on, or near the property, that will assist in extinguishing fires and take reasonable steps to alert the neighbouring landowners and the GRFPA cluster managers.

10 Members duties in respect of fire fighting

10.1. Legislation: NVFFA Chapter 5. 18. (1) applies to all owners

“Any owner who has reason to believe that a fire on his or her land or the land of an adjoining owner may endanger life, property or the environment, must immediately take all reasonable steps to notify the fire protection officer or, failing him or her, any member of the executive committee of the fire protection association..... and owners of adjoining land and “do everything in his or her power to stop the spread of the fire”.

10.2. A member and/or landowner who becomes aware of a fire must -

- a) report the fires to the GRFPA cluster manager/sector manager or if more help is needed a member of the GRFPA executive or the FPO and the RLM Fire Station Control Room.
- b) notify the owners of adjoining land:
- c) The landowner on which property the fire started must fight the fire. Members must offer assistance wherever practically possible.
- d) Members must be aware of the weather conditions and other circumstances regarding the spread of the fire and to take adequate precautions and actions during a fire situation.
- e) A responsible person should be in attendance for the whole time a fire is lit and for a suitable mopping up period.



10.3. Fire Access

NVFFA Chapter 5. 18. (2) states: “Any person who has reason to believe that a fire on any land may endanger life, property or the environment, may, together with any other person under his or her control, enter that land or land to which the fire can spread in order to prevent that fire from spreading or to extinguish it”.

- a) Members must ensure that access routes for firefighting are reasonably maintained
- b) Members must understand that in the absence of any access, fences will be damaged to gain access to the fire. Repairs to the fences will be for the account of the landowner on whose property the fire is burning.

11 Members duties after fires

11.1. Standard Mopping up rules

- a) The scene of the fire may not be left unattended.
- b) The perimeter must be patrolled and any smouldering material within 5m of the perimeter of the fire extinguished.
- c) The fire line should be patrolled to ensure that flare ups do not occur
- d) All firefighting equipment must be checked and serviced after each fire.
- e) Where necessary, in the case of injury or major damage to infrastructure or for insurance purposes, members can request the FPO to conduct a fire investigation.

11.2. Reporting after fire incidents

- a) Members must report all fires on their properties to the GRFPA on the prescribed form **within 5 days after a fire** on their property
- b) Forms can be completed online at <https://www.grfpa.org/> or requested from grfpa.fire@gmail.com
- c) Each Cluster Manager must, on a monthly basis before the 26th of each month, supply fire statistics to the GRFPA to ensure adequate record.

12 Mutual aid agreement

- a) Where necessary members should draw up formal agreements with neighbours with regards to mutual assistance and procedures.
- b) Each member must, in an emergency, offer assistance to their neighbours to reduce the possibility of fire spread and to reduce the damage to properties.

13 Communications.

The GRFPA does not have an ops room or dedicated two -way radio system.
Cell phones and private radio operators(where available) are the main method of communication
The cell phone numbers of key persons in the GRFPA are updated regularly on the webpage

Members must:

- a) Ensure that they and the responsible person (see 9.4 above) have, readily available, all emergency numbers, the numbers of their GRFPA Cluster manager and neighbours.
- b) update their cell numbers with the GRFPA secretary
- c) give permission for their cell numbers to be given to the GRFPA cluster managers
- d) ensure that some form of communication is achieved with their staff on the fire scene.



14 Invasive Alien Plant Clearing

- a) Members must strive to comply with the Conservation of Agricultural Resources Act, 43 of 1983, in terms of alien vegetation clearing. (The “Alien and Invasive Species Lists, 2016” is available on the GRFPA website)
- b) The removal of invasive alien plants is of importance to the GRFPA in so far as
 - the reduction of combustible fuel is concerned and
 - to increase the biodiversity of natural indigenous vegetation.
 - to maintain river systems and encourage the return of non-burnable natural river edge vegetation.
- c) Members are encouraged to avail themselves of the herbicide and biological control assistance available from the Dept of Environmental Affairs, Working for Water programme. (application forms on the GRFPA website)

15 Enforcement

The following will be the enforcement officers regarding provisions under the NVFFA, by-laws affecting fires, and the rules of the GRFPA as applied within the area of the GRFPA:

- The Fire Protection Officer (with appropriate delegation of authority in terms of the Fire Brigade Services Act with respect to by-laws)
- The Chief Fire Officer and person to whom powers have been delegated, i.e. the Deputy Fire Officer and Traffic Officers
- Members of the SAPS.

16 By-laws for non-members

Municipal by-laws in terms of the Fire Brigade Services Act apply to the areas within declared townships and require home owners to meet prescribed building standards with regard to fire protection and to keep their erf clear of flammable material within 10 m of any structure.

ANNEXURE B – The National Fire Danger Rating System

The National Fire Danger Rating system and the recommended precautions and actions for the various ratings

INDICATIVE COLOUR	BLUE	GREEN	YELLOW	ORANGE	RED
DANGER RATING	Insignificant	Low	Moderate	High	High - Extreme
FIRE PREVENTION AND PREPAREDNESS MEASURES	No precaution is needed	Fires including prescribed burns may be lit, used or maintained in the open air on the condition that persons making fires take reasonable precautions against the fires' spreading.	No fires may be allowed in the open air except those that are authorised by the Fire Protection Officer where a Fire Protection Association exists, or elsewhere, the Chief Fire Officer of the local fire service, or fires in designated fireplaces.	No fires may be allowed under any circumstances in the open air.	No fires may be allowed under any circumstances in the open air and Fire Protection Associations and municipal Disaster Management Centres must invoke contingency fire emergency and disaster management plans including extraordinary readiness and response plans. All operations likely to ignite fires halted. Householders placed on alert.
APPLICATION OF THE ACT			Above precautionary measure to be prescribed and made applicable nationally on days rated moderate.	Section 10(1)(b) applies: no person may light, use or maintain a fire in the open air.	Section 10(1)(b) applies: no person may light, use or maintain a fire in the open air.
RELATIONSHIP WITH DISASTER MANAGEMENT				The threat of disastrous wildfires exists at municipal level under these conditions. Municipal Disaster Management Centres must invoke contingency plans and inform National and Provincial Disaster Management Centres. (Section 49 of the Disaster Management Bill).	The threat of disastrous wildfires at provincial level exists under these conditions. Municipal Disaster Management Centres must invoke contingency plans and inform National and Provincial Disaster Management Centres. (Section 49 of the Disaster Management Bill).
FIRE BEHAVIOUR	Fires are not likely to ignite. If they do, they are likely to go out without suppression action. There is little flaming combustion. Flame lengths in grassland and	Fires likely to ignite readily but spread slowly. Flame lengths in grassland and plantation forest litter lower than 1.0 m and rates of forward spread less than 0.3	Fires ignite readily and spread rapidly, burning in the surface layers below trees. Flame lengths in grasslands and plantation forests between 1 and 2m, and rates	Fires ignited readily and spread very rapidly, with local crowning and short-range spotting. Flame lengths between 2 and 5 m, and rates of forward spread between 1.5	Conflagrations are likely in plantation forests, stands of alien invasive trees and shrubs, sugar cane plantations, and fynbos. Long range fire spotting is likely in these fuel types. Rates of forward spread of head fires



The National Fire Danger Rating system and the recommended precautions and actions for the various ratings

INDICATIVE COLOUR	BLUE	GREEN	YELLOW	ORANGE	RED
DANGER RATING	Insignificant	Low	Moderate	High	High - Extreme
	plantation forest litter lower than 0.5 m and rates of forward spread less than 0.15 kilometres per hour.	kilometres per hour.	of forward spread between 0.3 and 1.5 kilometres per hour.	and 2.0 kilometres per hour.	can exceed 4.0 kilometres per hour and flame lengths will be in the order of 5 – 15 m or more.
FIRE SUPPRESSION DIFFICULTY	Direct attack feasible: one or a few field crew with basic firefighting tools easily suppresses any fire that may occur.	Direct attack feasible: fires safely approached on foot. Suppression is readily achieved by direct manual attack methods.	Direct attack constrained: fires not safe to approach on foot for more than very short periods. Best forms of control should combine water tankers and back burning from fire control lines.	Direct attack not feasible: fires cannot be approached at all and back burning, combined with aerial support are the only effective means to combat fires. Equipment such as water tankers should concentrate efforts on the protection of houses.	Any form of fire control is likely to be precluded until the weather changes. Back burning dangerous and best avoided.



ANNEXURE C: Protecting your property from veldfires

THE NATURE OF THE VELDFIRE PROBLEM

If you live in South Africa then veldfires are a reality but they do not have to result in loss of life or property. Taking a few timely easy precautions could substantially reduce the veldfire risk on your property.

In our summer rainfall regions, the long dry winters with plenty of cured (dried out) grass make veldfires inevitable. All that is needed for a veldfire to occur is a source of ignition. A similar situation arises in areas receiving winter rainfall. Here the hot, dry and windy summers are conducive to the occurrence of veldfires.

High air temperatures, low relative humidity and high wind speeds associated with dry vegetation increases the difficulty of extinguishing a veldfire once it has started.

Vegetation as fuel

- **Shrubs and grasses.**
- **Bark** especially if loose, fibrous or stringy.
- **Litter** (dead leaves, twigs and bits of bark found on the ground).

The level of hazard depends on the continuity, the proportion of dead and live material, the thickness of foliage and twigs, and the flammability of live plant material.

In the dead components, the size of the fuel is important in determining how quickly it can burn, and how quickly the moisture content can respond to changes in climatic conditions.

Finer and drier fuels burn faster and the more intertwined the vegetation the easier it will carry a veldfire.

Veldfire behaviour

Veldfires all start small but their rate of spread and heat generated (intensity) depends on the weather, the terrain and the condition of the available fuel. The more intense the veldfire the more difficult it is to control.

Veldfires will in general:

- spread faster uphill than downhill
- spread with the wind rather than against it
- spread faster where the vegetation contains quantities of dead plant material
- spread faster in fine fuels
- spread faster where the vegetation canopy is intertwined.

Doubling the fuel load will double the rate of spread, resulting in the intensity of the fire increasing fourfold. Halving the fuel load will decrease the rate of spread fourfold.

Radiant heat

- This is the heat generated by a veldfire.
- This heat affects you well before the flames reach you.
- Radiant heat can kill you if you are not protected.
- Death is often caused by heat stroke when the body cannot cope.
- Radiant heat only travels in straight lines and therefore having a barrier between yourself and the heat source will effectively shield you.

WHAT CAN YOU DO TO REDUCE YOUR EXPOSURE TO VELD FIRE?**How prepared are you?*****Some questions to ask yourself***

- Do you live in a veldfire prone area?
- Have you identified and dealt with high fire risks around your property?
- How are you going to stay informed of fire conditions on high fire risk days?
- Do you have an adequate and reliable source of water?
- What assistance can you expect if there is a veldfire?
- Have you decided whether you will stay or leave in the event of a veldfire?
- If you decide to evacuate what route, will you leave by and what will you take.
- If you decide to stay, do you know how to protect yourself from radiant heat?
- Do you have appropriate clothes ready for everyone if you stay?
- Do you have a plan to survive and or fight a veldfire?

The risk of losing life and property during a veldfire is influenced by:

- The location and accessibility of your property
- The condition and placement of buildings
- The amount and type of surrounding vegetation
- The availability of water
- Your firefighting capabilities

Where your house is located on your property is important.

- Some parts of your property will be safer.
- Flat ground is safer as for every 10 degrees increase in the slope the rate of spread and intensity of the fire will double.
- Properties situated next to dense vegetation and / or on ridges are at greater risk

Why do houses burn?

- Burning embers landing on or near the house
- Radiant heat ahead of the fire
- Direct contact from flames

As far as it is possible, you need to isolate your home from flames, radiant heat and embers.

Building design and construction

One of the main sources of ignition in a house is through burning embers, often carried ahead of the fire by strong winds, finding a way into a building or setting fire to a wooden deck, a doormat or a woodpile close to a building. All buildings are at risk when situated close to fire-prone vegetation. Although brick and concrete masonry walls are inherently non-combustible, many architectural features are vulnerable, such as window openings, exposed timber gable ends, exposed timber roof members, barge boards, fascias and doors and loose roof tiles. Window glass can fail relatively easily during a fire, allowing high levels of radiant heat to penetrate the interior or allow entry of burning embers, exposing the combustible furnishings (for example curtains) to direct heat and ignition sources.

Buildings with combustible external walls, for example "log cabin" type constructions, are also at risk, as are buildings with thatch roofs or other combustible roof cladding such as bituminous-based fibre sheeting or plastic, as might be found in informal settlements.

Remember

- Houses don't have to be specially built to protect you from a fire.
- No one building feature will guarantee safety.
- You need easy access into the roof cavity to check for embers that have found their way in.
- Avoid complicated rooflines where embers can lodge.
- Gutters collect leaves and other flammable debris.
- It should be possible to stop your gutters and fill them with water.
- Reduce the risk of embers getting under wooden decks.
- Timber should not be used at ground level and, if it is, it should be treated to be fire-resistant.
- Fix vents with wire gauze and plates for cover in emergency.
- Avoid timber trellises on the exposed sides of buildings.
- Metal screens to a fireplace prevent sparks blowing down the chimney.
- Wind accompanying a veldfire can be very strong and it is important that roofing material is firmly fitted.
- Wooden and thatched roofs are the most vulnerable.
- Radiant heat and flame contact can be prevented by careful landscaping of the garden before the fire season.
- Watch for spot fires very carefully during a veldfire.
- Small fires can easily be extinguished if caught early.
- Sprinkler systems can be useful to soak the most vulnerable parts of the house.
- A well maintained garden would reduce fire intensity as will a well-watered and short-cut lawn.

Fuel reduction

- Fires need fuel and reducing fuel will reduce the threat.
- Complete your fuel reduction activities ahead of the fire season.
- Reduce the amount of fuel for at least 20m around buildings.
- Irregular boundaries formed by features such as gullies, ravines and ridges form "fingers" of vegetation that penetrate your property could provide a "conduit" for a veldfire to reach your property.
- The vegetation in these areas should be managed to reduce fuel loads or protected by firebreaks where possible.

Firebreaks

Firebreaks act as an area of reduced fuel load allowing for access of fire fighters and equipment to attack an oncoming fire. Do not rely on a firebreak to stop a veldfire. The effectiveness of a firebreak depends on its positioning and on regular maintenance.

Firebreaks can be prepared in a number of ways including:

- ploughing
- grazing
- mowing and slashing
- herbicides
- burning.

Incorporate existing features into your firebreak design, for example access roads or farm dams. Take into account the most likely direction a veldfire will approach your property form when positioning your firebreaks.

Landscaping the garden for veldfire protection

You can use your garden for fire protection the objective being to reducing radiant heat or preventing direct flame contact reaching buildings. The garden should also be easy to walk through in any direction to allow fast access to all parts.

Fire prevention landscaping includes the following:

- Planting and maintaining screening trees to reduce wind speed, filter out flying sparks and debris and slow spread of fire. Tree canopies must be separated and a minimum of 2m between canopy and ground is required.
- Building stone walls as a radiant heat shield close to buildings.
- The positioning of lawns and other low fire risk features between houses and the most likely direction of approach of a veldfire.
- Avoid dense clumps of trees, especially if they are not fire resistant.
- Remove highly flammable trees, for example those with fibrous or stringy or loose bark.
- Remove dead trees, branches and accumulated dead leaves from within the branches.
- Prune lower branches to avoid continuous fuel from ground to canopy.
- Remove trees close to house or overhanging or touching house.
- Ensure trees are a safe distance from buildings and power lines at a distance equivalent to height of at least the mature trees.
- Maintain green lawns, cultivated soils or gravelled areas beneath trees

Develop a survival plan for the inevitable and plan to be self-reliant

Do not wait until the last moment before evacuating. Veldfires move quickly and are unpredictable. If you decide to leave, do so early before there is any immediate threat from a veldfire. Lives are lost during last-minute evacuations. Being trapped on foot or in a car can be a killer. In a car you have much less protection from radiant heat than if you are in a house. In addition, when a fire is near, visibility will be poor because of smoke and travel will be hazardous. Roads can also become blocked by fallen trees, power lines or abandoned cars.

Your veldfire survival plan should cover both the situation of staying and defending your property or leaving it ahead of the fire.

Considerations if you stay and defend your property:

- What actions will you take before the veldfire arrives?
- Where will you shelter when the fire front passes?
- What actions will you take after veldfire passes?

If you plan to defend your home in the event of a veldfire you will need the correct equipment and clothing and have a comprehensive plan and the ability to implement your plan.

Considerations if you evacuate your property ahead of a veldfire:

- Where will you go?
- How will you get there?
- What will you take?
- What will you do with your pets?
- When will you return?
- What will you do when you return?

Protecting farm livestock

- Loss of farm animals can most easily be prevented by preparing and maintaining fuel-reduced areas onto which stock can be moved and held during a fire
- Plan to use fallow fields, well grazed fields or areas with bare ground
- Where possible have shade and water available for valuable especially breeding stock.
- Protect your fodder reserves.

Preventing fires on a farm

- Remove tree branches that could cause a power line short circuit.
- Restrict the use of farm machinery on days when the fire danger is high.
- Take great care using when welding, cutting and grinding equipment.
- Establish fire breaks between your land a road or railway.
- Store fuels in a separate building away from houses.
- Adopt no-smoking policies around high hazard areas such as fuel stores.
- Adopt safety standards for burning rubbish, braai fires or disposing of hot ash.
- Make sure all fires are extinguished properly before leaving them unattended.
- Have your own well-maintained firefighting equipment on the farm.
- Fix spark guards to chimneys and exhausts.
- Check electrical installations regularly.

WHAT HAPPENS DURING A VELDFIRE?

The sequence of events during a large veldfire

How will you become aware of a veldfire? Your first indication may be the smell of smoke or hearing fire-fighting vehicles or seeing smoke in the distance. If the risk of veldfire is high in your area, then high temperatures, dry conditions and strong winds mean that you should be ready. Remove doormats, wooden boxes and wooden furniture when the danger of fire is high.

Embers and smoke. A shower of embers may start 'spot fires' in gutters, the garden or set fire to other flammable materials well ahead of the fire. You can extinguish outside fires during this period. As the fire approaches smoke will reduce visibility and irritate eyes and throat, and make breathing difficult. Avoid inhalation of smoke and heated air by crouching low. Remember hot air rises. Avoid dehydration by wearing clothing made from natural fibres that is designed to provide good flow of air. Carry drinking water and drink water frequently.

Fire front. The passage of the fire front is of relatively short duration (usually less than 10 minutes) but it is also when you will be directly exposed to radiant heat or direct contact with flames. It is vitally important that you remain protected from this heat. To avoid radiant heat cover all exposed skin with a natural fibre like wool or cotton and/ or finding a refuge including in a house, in a vehicle, behind a wall or rocks, in running streams but not in elevated water tanks. Remember that radiant heat can crack windows so shelter away from them when in a house. Fill the bath, sink and other containers with water to extinguish fires started by embers blowing through broken windows.

Be alert to burning inside the house while the fire front is passing and deal with any small fire inside the house immediately. Shelter inside the house until the fire front has passed and then deal with any spot fires. If the house catches fire and you cannot extinguish it, it is likely that by then the fire front has passed and you can walk to a safer area such as a burnt lawn. Therefore, shelter near a door to the outside. It will be very hot and noisy with low visibility due to smoke. This could unnerve you but stick to your plan.

Embers from smouldering patches are very dangerous as they can blow against buildings. Any firefighting equipment left outside when the fire passes can be damaged. Plastic house connections and pipes may melt. It is also common for electricity supplies and telephone lines to be damaged during veldfires and mains water supplies can run dry or the pressure may be reduced as anyone draws from the supply simultaneously.

Final stage. The ember attack can last for as many as eight hours. You can venture outside again when you are sure that the fire front has passed. Be especially watchful for the start of small spot fires. Monitor the inside and outside of buildings and extinguish any burning embers immediately.

What you should do when veldfire approaches? Defending your house

- Make decisions early – carry out the planned response - evacuate or stay?
- Dress in protective clothing (see box).
- Move livestock to safer locations.
- Listen to the radio for news.
- Wet the garden and the house, especially on the side of the approaching fire.
- Turn on sprinklers if you have them.
- Stop gutters and fill them with water.
- Fill the bath, buckets, dust bins with water in case the water supply fails, and have mops handy.
- Seal any gaps between doors and floor using wet towels or similar items.
- Close up the house and screen off windows.
- Close shutters if you have them.
- Do not pile furniture outside as it is safer if it remains inside.
- When the fire arrives, go indoors and remain there until the fire front has passed.
- Take fire hoses and other firefighting equipment indoors with you.
- Patrol the house interior including checking the roof cavity and extinguish any small fires.
- Remain vigilant after the fire front has passed.

Useful firefighting equipment

- Hose long enough to reach all places brass fittings
- Pump – petrol or diesel
- Ladder – long enough
- Fire beaters
- Rake and shovel
- Torch plus spare batteries
- Protective woollen blanket
- Towels for wetting and using to block gaps in window and door frames
- Buckets (preferably metal) and mop
- Knapsack spray

Suitable protective clothing

- Gloves
- Sturdy boots or shoes
- Hat with wide brim
- Goggles to protect eyes from smoke
- Long sleeved
- Large handkerchief over nose and mouth
- Woollen socks
- Wet towels for neck
- Water bottles

NB. All protective clothing should be made of natural material such as cotton, wool and leather. **Store all protective clothing in one access place.**

CHECKLISTS OF STEPS TO TAKE TO PROTECT YOUR PROPERTY BEFORE AND DURING EACH FIRE SEASON

BEFORE THE FIRE SEASON

Action	Yes	No
On your perimeter		
▪ Reduce fuel loads		
▪ Pay special attention to fuel load management in down-slope areas		
▪ Construct firebreaks adjacent to the property		
Building maintenance		
▪ Clear leaves and debris from gutters;		
▪ Secure any loose roof tiles		
▪ Remove inflammable and dry vegetation from under decks, against walls and pillars		
▪ Fit windows (at least the vulnerable side of buildings) with clip-on wire gauze screens – to be used in the event of a fire;		
▪ Seal roof vents, eaves and floor vents with wire gauze screening;		
▪ Check that hoses are long enough to reach all sides of house		
▪ Consider removing branches or trees that overhang buildings		
Garden maintenance		
▪ Slash long grass and undergrowth		
▪ Remove dead and dry branches from trees		
Water supplies		
▪ Ensure that you water supply will be sufficient and reliable in the event of a veldfire		
▪ Consider the placement of garden taps		
▪ Install a sprinkler system in your garden and on your roof.		
Equipment		
▪ Consider acquiring portable petrol powered pumps in addition to any electric pumps useable. Electricity supplies can fail during a veldfire		
▪ Check that all your fire fighting equipment is serviceable.		
▪ Install hose fittings that are fire proof		
Livestock		
▪ Prepare and maintain fuel-reduced areas onto which livestock can be moved and held during a fire		

DURING THE FIRE SEASON

Action	Yes	No
Early Warning Systems		
<ul style="list-style-type: none"> ▪ Be aware of weather conditions associated with high fire danger in your region (temperature, wind speed, direction and relative humidity) 		
<ul style="list-style-type: none"> ▪ Be aware of the daily fire danger rating during the fire season 		
<ul style="list-style-type: none"> ▪ Know what radio station will carry news of veldfires 		
Communications		
<ul style="list-style-type: none"> ▪ Compile a list of phone numbers you may need during a veldfire 		
<ul style="list-style-type: none"> ▪ Make sure your property be easily located by the fire brigade 		
Buildings		
<ul style="list-style-type: none"> ▪ Remove hanging baskets with dry material from the building 		
<ul style="list-style-type: none"> ▪ Check gutters and roof comers for the accumulation of leaves 		
<ul style="list-style-type: none"> ▪ Remove inflammable materials such as woodpiles that are in close proximity to buildings 		
<ul style="list-style-type: none"> ▪ Storing fuels and paints in a single place away from houses 		
Garden		
<ul style="list-style-type: none"> ▪ Keep lawns short and green 		
<ul style="list-style-type: none"> ▪ Cut grass and other vegetation under screening trees 		
<ul style="list-style-type: none"> ▪ Remove dead leaves and dry vegetation and litter from the garden 		
Water Supplies		
<ul style="list-style-type: none"> ▪ Check water levels in reservoirs and water tanks on a daily basis when fire danger is high 		
<ul style="list-style-type: none"> ▪ Attach hoses to taps when the fire danger is high 		
Equipment		
<ul style="list-style-type: none"> ▪ Store fire beaters, rakes, spades, buckets, hoses, mops and other firefighting equipment in a single easily accessible place 		
<ul style="list-style-type: none"> ▪ Check pumps on a daily basis when fire danger is high 		
Survival Plan		
<ul style="list-style-type: none"> ▪ Rehearse family emergency plan evacuation plan 		
<ul style="list-style-type: none"> ▪ Include your pets in your evacuation plan 		
<ul style="list-style-type: none"> ▪ Ensure that all your family members and staff know about stop, drop and roll if their clothing catches fire 		
<ul style="list-style-type: none"> ▪ Establish a safe meeting place fir your family outside your house 		
<ul style="list-style-type: none"> ▪ Store protective clothing for the entire family in one easily accessible place 		
<ul style="list-style-type: none"> ▪ Ensure that sufficient drinking water is available 		

