Basic Fire Management Plan – Farm 101/489,

Zwarte Jongensfontein

Compiled for CapeEAPrac

Zwarte Jongensfontein

Farm 101/489, Jongensfontein, Hessequa Municipal Region

Current Environmental Practitioner : CapeEAPrac

E-mail : mariska@cape-eaprac.co.za

Tel: 044 874 0365

SCFPA – C Wade

Mulderstraat 6B, Riversdal, 6670

CONTENTS

1. INTRODUCTION

CapeEAPrac, represented by Mr Tjaart van der Walt, owner of farm 101/489, Zwarte Jongensfontein, approached the Southern Cape Fire Protection Association (SCFPA), represented by C Wade, to compile a basic Fire Management Plan (FMP) as per requirement.

The property is registered as Mayborn Investments 20 (Pty) Ltd, and is a paid member of the SCFPA – member no: 1765

Information and usual conditions as per standard ROD`s (Record of Decision), EMP`s (Environmental Management Plan), Biodiversity report, NVFFA (National Veld and Forest Fire Act), Municipal Fire brigade regulations and by-laws were used as guidelines.

The FMU`s (Fire Management Unit) Veld Fire Management Strategy (VFMS), and the Smoke Detection : Immediate Action Procedures (SD-IAP) documents for the Jongensfontein FMU , of which Farm 101/489, Zwarte Jongensfontein falls in the boundary of, could be used as general guide lines towards fire management as well.

2. DESCRIPTION : FIRE MANAGEMENT PLAN (FMP)

The FMP for Zwarte Jongensfontein, Farm 101/489, Jongensfontein, refer to the method/s of the management of all factors contributing to the fire risk. The property, once development is completed, will have six tourism accommodation pods, located on a small section of the total area of the property, falling within the wild land urban interface.

The remaining portion of the property has open spaces (natural veld / small to large clusters alien vegetation) within the property boundaries. Due to the lay out of the cadastral boundaries, the rest of the property (besides the development footprint), is surrounded by vegetation (agricultural/indigenous/alien)

3. GOALS

- The FMP and the implementation thereof has to be, as far possible, conservation orientated with regards to the natural vegetation (fynbos and thicket as per vegetation mapped), control of alien vegetation and the human impact resulting from certain behaviors/decisions.
- Ensure the safety of resident on the premises once developed.
- Maintain Biodiversity as far as possible.
- Strive to adhere/uphold all laws and ordinances required.(Municipal By-laws, NVFFA, etc.)

4. FIRE PROTECTION – Fire Breaks

Fire protection can be described as all actions taken to protect human life, infrastructure and open spaces (vegetation) against uncontrolled / unwanted fires, and thus ultimately protecting against fire damage.

The most common fires are due to human negligence. The mountainous areas of the Southern Cape are very prone to lightning fires, but if we refer to incidents over the past 14 years, uncontrolled wild fires on the coastal belt due to lighting strikes is uncommon, but do occur.

The following is preventative measure that should be taken to improve fire protection and to prevent damage due to fire:

- Fire breaks on cadastral boundaries should be constructed and maintained three meters wide where possible (Google Image 1). The maintenance should be scheduled twice a year, with vegetation height not exceeding 150mm. No Milkwood trees should be cut or removed. According the National Veld and Forest Fire Act (NVFFA) it is compulsory to have a fire break on the cadastral boundary of a property. The section of the property on the south side of the gravel road should not be disturbed due to the soil type and sensitivity thereof. The gravel road, if maintained from overgrown vegetation, will be the southern fire break of the property.

- As per the site development plan, the suggested five meter fire break around the accommodation pods, should be maintained at least three times a year, with vegetation height not exceeding 150mm.
- Over grown vegetation, covering and growing against any infrastructure is not allowed. The general rule of thumb and average legislation requirement is that there should be at least three meters cleared around infrastructure. Dried fire wood stacked against walls, and dried piles of plant material/garden refuse should be avoided as well. It is advisable to plant low growing vegetation in a five meter radius around infrastructure.
- The maintenance team/property management has to be trained what to do in case of a wild fire until the fire brigade arrives on site. The SCFPA can supply this first responder training at no cost. The attendees receive a certificate of attendance. Accredited firefighting training is also available from different service providers at a cost, or can be scheduled by the Garden Route District Municipality fire brigade services.
- Firefighting equipment and fire hydrants needs to be tested every three months, and the fire hydrants once a year by a third party contractor.
- The control of alien vegetation :
  All alien vegetation has to be cut and fuel loads managed, either by stack burning, block burning, chipping or removal of cut vegetation. The necessary permits need to be in place if any burning operations is to be done. It is very unlikely that a permit for controlled block burning will be issued, due to the location of the property. Stack burning would be recommended if cut material are not chipped or removed. The portion of the property to the North west of the tar road should be prioritize, as it is becoming heavy infested by Rooikrans (*A.Cyclops)*, and the fuel load is increasing, and thus the fire risk as well.

5. Fire Scaping properties (See Annexure A as guide line)

There are a few basic guidelines than can be followed to protect infrastructure from uncontrolled fires:

- Shrubs on the open (undeveloped) pods footprint should not be higher than one meter.
- Trees on the open (undeveloped) pods footprint have to be maintained by means of trimming trees, and skirting the trees up to two meters height.
- Ensure that the pods footprint are free from dried plant material at all times.
- Ensure that the pods footprint and open spaces are free from alien vegetation.
- Ensure there is no overgrown vegetation growing against any infrastructure.
- Ensure there are no stacks of dried vegetation piling up against any infrastructure.

- Ensure that gutters of all infrastructures are cleaned at least twice a year.
- Outside fire pits (Braai plekke) should be built in such a way that there is no potential for it to ignite the surrounding vegetation.
- Outside fire pits (Braai plekke) has to be supervised while being used, and extinguished after use.
- Plant vegetation that is suitable for the property, as per the plant species list in the bio-diversity report. It is advisable to plant low growing vegetation in a five meter radius from infrastructure.

6. ECOLOGICAL FIRE MANAGEMENT

Fynbos vegetation needs fire to ensure the species diversity stays ecologically healthy. Due to the location of the property (referring to risk regarding controlled burning close to residential areas), it is recommended that the alien clearing is first completed before an Ecological Fire Management plan for the property is developed.

7. FIRE RISK : INTERN AND EXTERN

Human negligence and possible lighting strikes (though not common) will be the greatest **internal fire threat** that can ignite vegetation and infrastructure, spreading from pod to pod if not extinguished. Further, if these fires are not contained it will spread to neighboring properties and, besides the possible financial loss to the property owner, can have huge financial implications due to damage and possible law suits. It is, however, very unlikely that an internal fire will get out of control up to this extent - if the precautionary measures (fire breaks maintained, open areas cleared, alien vegetation removed, dried material removed, etc.) are in place. BUT keep in mind with the extreme weather conditions of high temperatures and strong winds that are becoming more frequent in the region, the possibility of an internal fire getting out of control cannot be dismissed.

The greatest **external fire threats** will be a wild fire burning from any of the neighboring properties, igniting vegetation on Zwarte Jongensfontein. It is important therefore that the neighboring properties have well maintained fire breaks as well. As soon Zwarte Jogensfontein has the proposed fire breaks in place, the process can start to get the neighbors complying as well.

The response to any fire should be handled as per the SD – IAP document.

8. EVACUATION

Evacuation is seen as the last resort, but has to take place immediately if there is any threat toward human life. Buildings, vehicles, caravans, etc. can be replaced but not a human life!! Always adhere to the local fire brigade services if they decide an evacuation has to take place.

If the precautionary methods towards fire prevention as per the Fire Management Plan, NVFFA and the Municipal and District fire brigade services are followed, evacuation of the accommodation pods due to a wild fire threat, would be very unlikely. BUT, once again due to extreme weather conditions of high temperatures and strong winds evacuation plans should be in place if needed.

ANNEXURE A : "Fire Scape Your Garden"

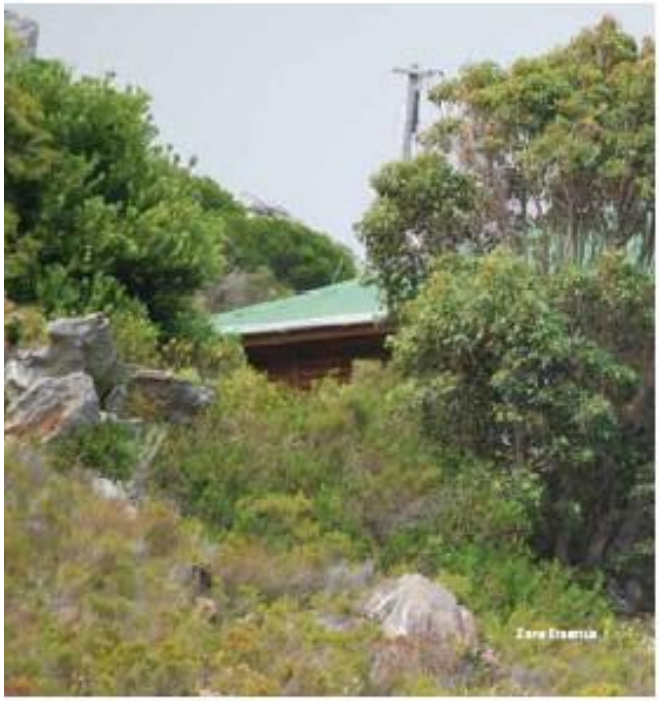
FIRESCAPING YOUR GARDEN

Firescaping specifically refers to landscaping in ways that will reduce the probability of fire catching and spreading through the firescaped area (e.g. a garden).

In this pamphlet are some points to consider in your planning.

THE BEST OF BOTH WORLDS

When people choose to build or buy a home in a high-hazard fire area, they should do so knowing that their entire property, including their home, is potentially fuel for a fire. The lifestyle associated with living close to nature is becoming a popular choice worldwide – so much so that the term Wildland/Urban Interface Zone, or WUI, has been coined. Fire is a natural part of many ecosystems, which means that it is not a case of "IF" there is a wildland fire, but "WHEN" there is a wildland fire....! However, it is possible for a home to be situated in a natural, fire-adapted environment and survive a wildfire without damage.



THE FIREWISE APPROACH

FireWise Communities is a concept originally developed in the U.S.A. (www.firewise.org), currently being adapted and implemented in South Africa (www.firewisesa.org.za). The Firewise approach emphasizes community responsibility in designing a safe community as well as effective emergency response, and individual responsibility for safer home construction and design, landscaping and maintenance.

By making changes in the home ignition zone - the area including and immediately surrounding the home - home-owners can substantially reduce the risk of their home becoming fuel for the inevitable fire. Examples of these changes are making sure there is adequate access to the home and an adequate water supply, and other strategies included in the FireWise approach.

1 - ASSESS THE VULNERABILITY OF YOUR PROPERTY

- Are there plantations, thick stands of brush, shrubs and/or of invasive alien vegetation on, or close to your property? These have high fuel loads and greatly increase the intensity of fires.
- Is your property subject to strong, drying winds, such as the berg winds? Strong winds greatly affect the rate of spread of fire.
- Is your property at the top of a slope? Fire naturally moves up a slope, drying everything out ahead of it. Therefore it burns more vigorously higher up a slope than lower down.
- Is your home cut into and set back from the slope or on the slope? Structures that are set back are at less risk than those perched on a steep slope.

2 - CREATE A SURVIVABLE SPACE

Creating "Survivable Space" means modifying your property's layout, fuels and building materials to make it less likely that your home will catch fire during a wildfire. The size of the Survivable Space is often expressed as a distance, extending outwards from the home and all attachments, such as decks and outbuildings. The distance varies, depending upon the type of natural vegetation growing near the home and the steepness of the slope. **The minimum Survivable Space should be at least 10 metres around the home**, in cases where surrounding fuel loads are light (e.g. low grasses) and the topography is flat. However, if the home sits on a 25% slope and is surrounded by woodland or dense brush, you would need to reduce hazardous fuels outwards to at least 60 metres from the structure.

- Communal Survivable Space
  If creating an adequate Survivable Space for your home means encroaching into your neighbours' space, then it makes sense to work together and create a joint Survivable Space. Each owner should take responsibility for their own area, but work according to a jointly agreed hazard reduction plan. This is very effective and can be achieved without losing aesthetics or privacy.
- A Community Ignition Zone
  A Community Ignition Zone usually includes the entire WUI Zone and may include both private and public land. The work within the Community Ignition Zone is planned and implemented to create Survivable Space for the entire community, however firescaping and maintaining the Survivable Space around individual properties remains both essential and critical.

3 - FIRESCAPING INSIDE THE MINIMUM SURVIVABLE SPACE

The area closest to the home is particularly important in terms of effective Survivable Space. Use a zoning system to firescape your garden within the essential 10 metre zone: plan your garden with a fire-resistant **buffer zone** on the periphery, a **medium-resistance zone** within that, and a **low-resistance zone** extending about 3 metres around the house.

Different plants and bulbs will need to be planted within the three different zones. These plants will also differ depending on the vegetation zone in which you live.

In General, Though, Remember to be Lean, Clean and Green:

- Within the entire area extending at least 10 metres from the home (i.e. all three zones), the vegetation should be kept lean (i.e. small amounts of flammable vegetation) and regularly maintained (i.e. plants that are kept healthy).
- Keep the area clean, don't let dead vegetation or other flammable debris accumulate. Remove dead branches and excessive leaf litter.
- Trees should be de-limbed well above the height of ground vegetation. Group shrubs and trees in small clumps or islands, with plenty of open space between clumps. Remove any branches overhanging the roof and any vegetation or flammable material that can act as ladder fuel (e.g. leaf litter accumulating in gutters, fine-leaved shrubs, climbers, etc.).
- Use bedding plants, succulents and bulbs. Avoid plants that are high in oils or resin. Separate islands of vegetation with well-kept green lawn, paving, gravel or other non-flammable materials.

4 - REDUCE FUEL IN THE ENTIRE SURVIVABLE SPACE

Beyond the essential 10 metre zone, uncleared ground fuels (such as excessive vegetation) can provide an open route for the rapid spread and increased intensity of fire.

- Remove all dead branches and lower limbs of shrubs and trees. Thin out vegetation, so that there is not a continuous fuel bed for the fire to move forwards through.
- Group shrubs and trees in small clumps or islands. Space out the clumps so that the spreads are 1.5 - 3 metres apart in flat areas, and crowns are up to 10 metres apart for big trees on a steep slope.
- Prevent fire moving from the ground into the trees by pruning lower branches and leaving a generous space between the ground vegetation and the tree. Try to anticipate the flame height when calculating the pruning height.
- Avoid or remove trees species that have high levels of resin or oils. Plant trees and shrubs that are fire-resistant or fire–adapted.

5 - CLEAR INVADING ALIENS ON AND NEAR YOUR PROPERTY

Cut down or herbicide invasive alien trees and shrubs, and remove them from the site to avoid piles of dead material lying around (because these are a fire hazard – they provide fuel for a fire!).

6 - REMEMBER: THERE IS NO SUCH THING AS A FIRE RESISTANT PLANT

All plants will eventually burn if a fire is hot enough. However, one thing that can be done is to place plants according to how long each kind is able to resist burning. Large fleshy succulents, such as Aloes, that are planted close to homes have been shown to have a fire retardant effect, absorbing radiant heat from an approaching fire.

7 - RE-VEGETATING A BURNT AREA

Fire-adapted landscapes generally recover quickly after a fire, especially if there are bulbs and re-sprouters in the Firescaped mix. Pioneer plants that will grow quickly after fire are *Agapanthus, Psoralea pinnata, Euryops, Athanasia dentata, Gazania, Felicia,* vygies *(Lampranthus, Malephora, Drosanthemum, Delosperma* and *Carpobrotus)* and *Virgilia oroboides*.

FIRESCAPING YOUR GARDEN

PRUNING YOUR GARDEN

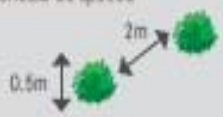
MINIMUM HORIZONTAL CLEARANCE

SHRUBS

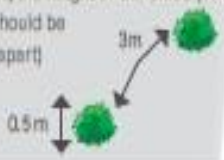
From edge of one shrub to the edge of the next

Flat to mild slope (0% to 20% slope)
Two times (2x) the height of the shrub (Two shrubs 0.5m high should be spaced 1m apart)

Mild to moderate slope (20% to 40% slope)
Four times (4x) the height of the shrub (Two shrubs 0.5m high should be spaced 2m apart)



Moderate to steep slope (greater than 40% slope)
Six times (6x) the height of the shrub (Two shrubs 0.5m high should be spaced 3m apart)



TREES

From edge of one tree canopy to the edge of the next

Flat to mild slope (0% to 20% slope)
3 metres

Mild to moderate slope (20% to 40% slope)
6 metres

Moderate to steep slope (greater than 40% slope)
9 metres

MINIMUM VERTICAL CLEARANCE

3X HEIGHT OF SHRUB = MINIMUM VERTICAL CLEARANCE

Example: a 1.5 metre shrub is growing near a tree.
3 x 1.5 = 4.5 metres of clearance needed between the top of the shrub and the lowest tree branches.

3x height of shrub to lowest branches of tree.

Note: a grouping of vegetation may be treated as a single plant if the foliage of the grouping does not exceed 3 metres in width. For example, three individual shrubs growing in a cluster with a total foliage width of 2.5 metres can be "grouped" and considered as one plant.

FIRESCAPING IN THE FYNBOS

GARDEN IN ZONES

Plant your garden with a fire-resistant buffer zone on the periphery, a medium resistant ring within that and an approximately 3m wide zone of low resistant planting around the house.

See inside for lists of suggested plant species for each zone within fynbos environments (with an addendum for suitable species for the mixed vegetation area of the Garden Route, in the Southern Cape).

ACKNOWLEDGEMENTS

Contributions from Firewise USA, Living with Wildfire. Portions reproduced from an article by Clare Bell, The Garden Centre, Kirstenbosch.

Anthony Hitchcock, Dave McDonald, Wendy Madsen and Annelize Vlok are thanked for their help.

Photographs reproduced with kind permission of Colin Paterson-Jones, Andrew Brown and SANBI.

'Firescaping your Garden' first produced in association with the Botanical Society of SA, 2001.

Edited: FireWise SA.

FOR MORE INFORMATION VISIT:

www.firewise.org
www.workingonfire.org
www.firewisesa.org.za
www.fynbosfire.org.za

FIREWISE

environmental affairs

gef

THE BUFFER ZONE

This area should be the furthest away from the house, within the essential 10 metre zone.

- Plant low-growing groundcovers with fleshy leaves that have a high resistance to fire like vygies (*Lampranthus, Malephora, Drosanthemum, Delosperma* and *Carpobrotus*), *Gazania, Arctotis, Cliffortia ferruginea* and *Aloe brevifolia*. These need to be watered at least once a week to retain their high fire-resistant quality.


Colin Paterson-Jones

Lampranthus aureus

- Suitable bulbs could include *Tulbaghia violacea, Agapanthus* and *Watsonia*. If a hedge is needed, use plants that re-sprout and do not have large quantities of dead material accumulating in the plant such as happens with proteas. The hedge (or fence) should be 30m from the house.


Colin Paterson-Jones

Agapanthus africanus

- Good hedge plants include *Searsia (Rhus) crenata, S. glauca* and *S. lucida*, all of which will re-sprout if burnt, as will *Tarchonanthus camphoratus* and *Pterocelastrus tricuspidatus*. *Osteospermum moniliferum* will burn more slowly because of its succulent-like leaves.

THE MEDIUM RESISTANCE ZONE

This should be the area between the peripheral buffer zone and the inner band (low-resistance zone) around the house.

- It is possible to plant a fynbos garden here, but remember to space **tall and short shrubs** to prevent a large dense thicket of continuous fuel developing that could support a very hot fire.


Andrew Brown
Protea cynaroides

- To prevent mud slides after a fire and to ensure a speedy recovery, it is important to plant **sprouters** here. These plants have an underground ligno-tuber or rootstock that re-sprouts if burnt to the ground and could include *Leucadendron salignum, Chondropetalum tectorum, Erica spp, Maytenus oleoides, Brachylaena discolor, Salvia spp, Pelargonium cucullatum, Protea cynaroides, Felicia echinata, Olea europaea subsp. africana* (Wild olive), *Kiggelaria africana* (Wild peach), and *Searsia lucida*.

- Some plants also have **corky bark** that will protect them if a fire is mild. These will start budding soon after a fire. They include *Leucospermum conocarpodendron, Protea nitida* (Waboom), *Mimetes cucullatus* and *Aloe plicatilis*.


Colin Paterson-Jones
Mimetes cucullatus


Colin Paterson-Jones
Watsonia aureus

- **Forest trees** have a natural resistance to fire and do not burn easily, including *Rapanaea melanophloeos* (Cape Beach), *Brabejum stellatifolium, Cunonia capensis* (Rooiels), *Ilex mitis, Maurocenia frangularia, Halleria lucida* (Tree Fuchsia) and *Canthium mundianum*.

- **Bulbs** also will re-sprout quickly after a fire and prevent mudslides by ensuring that the soil is held together. These would include *Agapanthus, Watsonia, Haemanthus coccineus, Cyrtanthus ventricosus* and *Kniphofia*.

- If you intersperse some **re-seeding plant species** amongst the mix of fynbos plants, they will ensure that the 'moon landscape' left after a fire will soon come to life. These include the many different species of *Protea, Erica, Ursinia, Leucadendron, Phylica, Helichrysum, Metalasia, Roella, Selago, Agathosma* as well as *Pelargonium cordifolium* and *Felicia aethiopica*.

THE LOW RESISTANCE ZONE AROUND THE HOUSE

This is the area closest to the house.

- This area must be kept free of large shrubs. It should contain low-growing plants and groundcovers, interspersed with gravel or lawn.

- **Groundcovers** for sunny areas include *Cliffortia ferruginea, Otholobium decumbens, Dymondia margaretae, Gazania spp., Helichrysum argyrophyllum, Hermannia saccifera, Cotula linearifloba, Agathosma ovata* (Kluitjies kraal) and vygies. For shady areas, grow *Plectranthus verticillatus, P. neochilus* (which can also grow in the sun), and *P. ciliatus* (Drege).


Colin Paterson-Jones
Carpobrotus acinaciformis


Colin Paterson-Jones
Drosanthemum speciosum

- **Small shrubs** can be planted alone with groundcovers round them. These could include *Agathosma serpyllacea, Phylica ericoides, Felicia spp., Carissa macrocarpa, Cotyledon orbiculata, Scabiosa spp.* and *Athanasia dentata*.

- No climbers or trellises should be attached to the walls of the house in a high-risk fire area as these act as 'ladders' for the fire.


Carissa bispinosa
Linora Pasquini

IF YOU LIVE IN THE GARDEN ROUTE AREA

Indigenous species that can be planted to create a fire-proof thicket/forest hedge include:

- **Shrubs:** *Aloe arborescens* (Krantz Aloe), *Azima tetracantha* (Needle Bush), *Carissa bispinosa* (Num-Num), *Osteospermum moniliferum* (Bietou), *Buddleja salviifolia* (Sagewood), *Cassine tetragona* (Climbing Saffron), *Diospyros dichrophylla* (Common Star-apple), *Euclea racemosa* (Sea Guarri), *Gymnosporia buxifolia* (Common Spike-thorn), *Grewia occidentalis* (Cross-berry), *Searsia (Rhus) crenata* (Dune Crowberry), *Searsia (Rhus) lucida* (Glossy Currant).
(Plant these closely together to create a thick hedge).


Colin Paterson-Jones

Aloe plicatilis


Alice Notton, SANBI

Sideroxylon inerme

- **Trees:** *Ekebergia capensis* (Cape Ash), *Kiggelaria Africana* (Wild Peach), *Buddleja saligna* (False Olive), *Diospyros whyteana* (Bladder-nut), *Nuxia floribunda* (Forest Elder), *Pterocelastrus tricuspidatus* (Candlewood), *Sideroxylon inerme* (White Milkwood Tree), *Tarchonanthus camphoratus* (Wild Camphor Bush), *Pittosporum viridiflorum* (Cheesewood).

- **For the low-resistance zone around the house, suitable indigenous species include:**
  - In sunny and dry, well-drained areas plant *Portulacaria afra* (Spekboom), *Aloe arborescens* (Krantz Aloe), *Osyris compressa* (Cape Sumach), *Osteospermum moniliferum* (Bietou), *Roepera (Zygophyllum)* spp. (Twinleaf) and other indigenous plants with thick or fleshy leaves.


Lorena Pasquini

Portulacaria afra

  - **Groundcovers** for sunny and sandy areas include *Tetragonia decumbens, Gazania spp.* (Botterblom), *Dymondia spp., Falkia repens* (oortjies).

  - **Grass species** include *Cynodon dactylon* (Kaapse Kweekgras) and *Stenotaphrum secundatum* (Buffalo Grass).

ANNEXURE B : FIRE MANAGEMENT – RURAL URBAN FRINGE

FIRE MANAGEMENT – RURAL / URBAN FRINGE

Where towns meet grasslands, dense bush & forests

"Want of foresight, unwillingness to act when action would be simple and effective, lack of clear thinking, confusion of counsel until the emergency comes, until self-preservation strikes its jarring gong - these are the features which constitute the endless repetition of history"
- Winston Churchill

If you live in a built-up area and on the edge of a town or city – sometimes referred to as the urban-rural fringe – and whether it's neighbouring open grassland, parks, grass camps, dense bush, forests or natures reserves - you could be impacted by unwanted fire during the winter fire season.

Where towns meet the bush & forests

- You do not have to live in the country to be at risk of bushfire.
- Suburban homes can burn down in bushfire, too.
- Grassfires can start anywhere and spread quickly into neighbouring residential communities.
- Risk is more extreme if you live surrounded by or near forest.

What can you expect?

- Scrub, forest and grass catching fire can happen quickly and threaten lives and properties within minutes.
- A fire from a grassland, bush or forest area can spread quickly putting timber fences, gardens, garden structures and outbuildings at risk
- There can be a high risk of ember attack if a house or structure is near dense bushland and forest environments.
- Embers falling close to or on your house could result in unwanted structural fires.

What to expect and what to do when a fire is burning?

- Lots of smoke: Smoke makes it hard to see and can cause breathing difficulties.
- Radiant heat: Radiant heat is the heat created by a fire - it's important to cover up any exposed skin because radiant heat can cause serious injury or death.
- Act early, even if you haven't received a warning. If the fire is life threatening and or threatening your home, rather evacuate the area – safety comes first.
- Embers carried by the wind that may create small fires: In strong winds, embers (burning twigs, leaves and debris) can travel kilometres in front of a fire, causing new fires to start. Ember attack is the most common way houses catch fire during bushfires. So even if you don't live right next to

What to do & How to prepare your property (and be prepared) before the winter fire season:

- You need to prepare your property for fire before winter starts.
- Reduce the risk of fire damage to your property
- Mowing your lawn and clearing grass, scrub and other vegetation from around your home and the fence.
- Clear gutters, roofs and down pipes.
- Store anything flammable, such as firewood, rubbish and gas bottles away from your house and fences.
- Ensure adequate water supply for fire suppression - Have one or two taps points with good water pressure and hose lengths long enough to reach over the fence line by approximately 10 metres.
- As a guideline keep the fence line clean of all combustible material and ensure a 2 to 3 metre bare earth fire line is created on the outside of the fence line and 1 metre on the inside of the fence line.
- Talk to the forestry company if you share a joint boundary and plan fire breaks accordingly
- Enter into fire break agreements to ensure there is clarity between neighbours in respect of fire prevention planning
- It is important to note your responsibilities as rural / urban fringe neighbours in a fire prone area and that the National Veld & Forest

bush, your property could be affected by fire caused by embers. ▪ It's important to have a plan for what you'll do in the event of a fire. ▪ Ensure your family, staff and neighbours are aware of your fire plan. ▪ If you are going away on holiday ensure your neighbours ae aware of all alternative contact numbers in the event of a fire. ▪ Monitor weather conditions: It's up to you to stay informed. Always keep an eye on the conditions outside by looking around and smelling the air for smoke on hot, dry, windy, days. ▪ If you see smoke or flames, call the local Fire Brigade Service and contact the fire protection association. LOCAL FIRE PROTECTION ASSOCIATION CONTACT: 028 713 1987 / 079 4855 320 . FIRE BRIGADE SERVICE CONTACT:……028 713 2222……	Fire Act requires all landowners where there is a risk for spread of fire from or over a property to prepare fire breaks. ▪ Join the local Fire Protection Association **(FPA)** so as to be kept informed on high Fire Danger Rating days.
ALWAYS PARTNER WITH YOUR NEIGHBOURS : FOCUSSING ON FIRE PREVENTION	

ANNEXURE C : GREEN HOME CHECK LIST

Green Home Assessment

This Checklist serves to inform a home owner of the investments that can be made to ensure their home is resource efficient and to provide further beneficial suggestions.

	SUSTAINABILITY INTERVENTION: WATER
1	**Does the property have a rain-water tank?** Rainwater tanks collect rainwater run-off. The use of rain water relieves the stress that would ordinarily have been on the municipal water supply.
2	**Does the property have a grey-water system?** Grey-water is water that has been used elsewhere in the home (such as basins, sinks, washing machines) and is still of sufficient quality to be used again for flushing toilets or watering the garden.
3	**Are the rain-water tank and / or grey-water system plumbed to the garden or toilets?** Potable water should be conserved wherever possible.
4	**Are the taps and showerhead of a low-flow type?** Low-flow taps and shower heads are fitted with aerator nozzles that reduce the flow of water by bringing in air bubbles and turbulence. The requirements for low-flow are that taps use 6 litres or less per minute and showers use 10 litres or less per minute. Water saving of up to 50% is expected. This also reduces your water heating requirements.
5	**Do all the toilets in the house have multi-flush (interruptible) or dual flush systems?** The multi-flush toilet system is preferred as it only releases water for as long as you hold down the handle. Alternatively a dual flush system which allows you to choose between a full and half flush is a good option.
6	**Is your garden water-wise?** A water-wise garden requires less watering, generally with plants which are naturally drought resistant and require little watering once established or plants that easily adapt to the local climate.
7	**Are the hard outside surfaces permeable?** Permeable surfaces allow rainwater to be absorbed into the aquifer rather than being wasted as storm water.
8	**If your property has a pool, does it have a pool cover?** Pool covers can reduce evaporation by up to 90% thereby conserving water needed to top up and reduces filtration/pump time by up to 50% by keeping dirt and other debris out of the pool.

SUSTAINABILITY INTERVENTION: ENERGY	
9	**Is lighting energy efficient?** Light-emitting diode (LED) bulbs use 90% less electricity and last up to 25 times longer than incandescent bulbs.
10	**Do you have a solar PV system installed?** Solar Photo Voltaic (PV) panels generate electricity from the sun. The system can be grid-tied to store PV generated electricity for later use.
11	**Do you have a solar water heater or heat pump?** Solar water heaters use the sun to heat water. A heat pump extracts warmth from the surrounding air. A solar water heater can reduce your electricity costs by more than 25%.
12	**Is the kitchen fitted with a gas hob?** Compared to cooking with electricity, cooking with gas is faster, more efficient (helps to save energy by reducing wasteful preheating of electric stoves) and is more environmentally friendly.
13	**Are your hot water pipes and geyser insulated?** Insulating hot water pipes prevent heat loss.
14	**Do you have a geyser blanket?** A geyser blanket is an additional layer of insulation that wraps around the geyser. Most products available consist of a fibre-glass insulation layer with a reflective foil sheeting cover on one side. Pipe insulation and a geyser blanket can reduce the cost of electricity needed to keep water hot by R500 or more a year.
15	**Does the property have insulated ceilings?** Insulated ceilings reduce heat loss in winter and heat gain in summer. An insulated ceiling can save up to 16% of the electricity you need annually to heat or cool your home.
16	**Can all rooms rely on natural daylight?** Natural lighting eliminates the need for lights to be on during the day. This is energy-efficient and provides a healthier living environment.
17	**Are there windows that open in each room?** Windows that open and close properly make houses more energy efficient and maintain good indoor air quality. A room with windows that cannot open is likely to require air conditioning, which requires more energy.
18	**Are the windows double glazed?** Window treatments such as double glazing reduce the flow of incoming and outgoing heat. Less energy is used to heat up or cool down a space, resulting in lower electricity costs.
19	**Are the main living areas north facing?** North-facing living areas maximise the advantages of natural sunlight – the house is warmer in winter and protected from heat in summer.