

Eastern Cape

Umbrella Fire Protection Association



QUICK REFERENCE GUIDE:

**(A quick reference guide to suggested
Best Operating Practices, Terms,
Acronyms, etc...)**

(Revision 4 – September 2018)



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<u>J</u>	<u>K</u>	<u>L</u>	<u>M</u>	<u>N</u>	<u>O</u>	<u>P</u>	<u>Q</u>	<u>R</u>
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1. BEST OPERATING PRACTICES (BOP's)

The various sections below are a grouping of suggested **Best Operating Practices (BOP's)** which have been drawn-up by **ECUFPA**, in conjunction with other FPAs. The purpose of these **BOP's** is to assist FPAs with proper, safe and effective management.

For more **BOP's** and FPA Management information, please refer to the **GEF Fynbos Fire** guide, called: **A Guide to Integrated Fire Management**. This guide can be found on the **ECUFPA** website at the following link:

http://www.ecufpa.co.za/downloads/GEF_FPA_Toolkit/A%20Guide%20to%20IFM%20Handbook/A%20Guide%20to%20IFM_Complete_Display.pdf

Please also bear in mind, that although the sections below are listed as **BOP's**, these are not the only **BOP's** to be found in this guide – there are also other suggested **BOP's** and **SOP's** that can be found in the “Definitions and Classifications” Section, which, although it contains classifications and definitions primarily, it also contains overlapping references to suggested **BOP's** and **SOP's**.

1.1. Aircraft Activation and Despatch Procedures

The following points must be borne in mind, before requesting aircraft assistance at a fire:

- High wind speeds (greater than 45KPH) can result in aircraft not been able to operate, as conditions etc. are too dangerous.
- Sufficient ground crews need to be in place to adequately mop-up the fire, after a drop has been completed. Aircraft normally only cool the fire down sufficiently, so as to allow ground crews to mop-up the fire.
- Terrain, overhead lines (power, telephone, etc.) need to be considered for the safety aspect of aircraft.
- Aircraft are expensive to operate and someone needs to cover the expense – ensure that adequate approval and budgets are in place, prior to the fire season and prior to requesting aircraft. REMEMBER – the caller is responsible for the account.

Despatch

If you require aircraft assistance, please contact the **Eastern Cape Umbrella Fire Protection Association (ECUFPA)** on:

Office Tel. No.: 043 683 2659

Cell. (Thinus Botha): 082 922 863



1.2. Fire Line Safety

10 Standard Firefighting Orders:

1. **F**ight fire aggressively, but provide for safety first.
2. **I**nitiate all actions based on current and expected fire behaviour.
3. **R**ecognize current weather conditions and obtain forecast.
4. **E**nsure instructions are given clearly and understood.
5. **O**btain current information on fire status.
6. **R**emain in communication with crew members, your supervisor, and adjoining teams.
7. **D**etermine safety zones and escape routes (and make it known).
8. **E**stablish lookouts in potentially hazardous situations.
9. **R**emain in control at all times.
10. **S**tay alert, keep calm, think clearly and act decisively.

LACES

LACES was developed to reduce the number of “rules” when fighting a fire:

- **L**ookouts
- **A**wareness & **A**ncor Points
- **C**ommunications
- **E**scape Routes
- **S**afety Zones

18 Watch Out Situations

1. Fire not scouted and sized up.
2. In country not seen in daylight.
3. Safety zones and escape routes not identified.
4. Unfamiliar with weather and local factors influencing fire behaviour.



(ECUFPA – Best Operating Practices (BOP's) continued...)

5. Uninformed on strategy, tactics, and hazards.
6. Instructions and assignments not clear.
7. No communication link with crew members or supervisor.
8. Constructing line without safe anchor point.
9. Building fireline downhill with fire below.
10. Attempting frontal assault on fire.
11. Unburned fuel between you and fire.
12. Cannot see main fire; not in contact with someone who can.
13. On a hillside where rolling material can ignite fuel below.
14. Weather becoming hotter and drier.
15. Wind increases and/or changes direction.
16. Getting frequent spot fires across line.
17. Terrain and fuels make escape to safety zones difficult.
18. Taking a nap near fireline.



(ECUFPA – Best Operating Practices (BOP's) continued...)

1.3. Fire Reporting to DAFF

There are currently only three “occasions” where an FPA is required to report fires to the **Department of Agriculture, Forestry and Fisheries (DAFF)**. These forms can also be submitted to ECUFPA, who will submit them on the FPA's behalf.

These “occasions” will be listed below, together with a brief “snapshot” of the form, as well as with a link to be able to download the required form.

1.3.1. Major Fire

Whenever there is a major fire that meets any of the following conditions (or a combination thereof...), namely:

- Fires that have burnt an area of a 1 000 hectares or more, in grassland
- Fires that have burnt over an area of three or more farms
- Fires that have resulted in Major Economic Damage and Loss – R 100 000 or more,

the following form will need to be completed for each and every major fire:

ECUFPA STATISTICAL FIRE REPORT FORM

Fire Name		Time Fire Started	
Date Fire Started		Date and Time Fire Contained	
INFORMATION SUPPLIED BY:			
Full Name		E-mail address	
Contact Tel Number		Cell number	

ORIGIN OF FIRE:

Local municipality	FPA	Registered farm / Property name	Registered farm /Property nr

GPS CO-ORDINATES - position of origin of fire: OPTIONAL

Latitude	°	'	"	SOUTH
Longitude	°	'	"	EAST

CAUSE OF FIRE:

Wildfire: ☐

Controlled Burn: ☐

****If wildfire; please complete the following: Please mark with an X**

Cause of Uncontrolled Fire:

MECHANICAL	TRAIN	CHAIN SAW	POWER LINE	POWER TOOL	WELDING	BLASTING	HEAVY EQUIPMENT	FIRE ARMS	OTHER
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This form can be downloaded from the **ECUFPA** website, at the following links:

<http://www.ecufpa.co.za/downloads/ECUFPA%20FIRE%20REPORT%20FORM.doc> – MS Word 2007 format **OR**



(ECUFPA – Best Operating Practices (BOP's) continued...)

The following screenshot shows a sample of the suggested register to be used, as this register contains all the necessary information needed:

FPA Fire Register																			
FPA Name:												0.0	Count						
Year:																			
* - For clarification on options / headings, please hover mouse over heading.																			
		Totals:		Present: Y = Yes N = No								0.0					0		
Fire ID	Date	Place of Burn	FPO	FPA Manager	WoF	Chopper	Spotter	Farmers	Mun Fire Dept	it before arrival	Forestry	Area Burnt (Hectares)	* Vegetation Type Burnt	Start Time of Fire	* Area of Origin of Fire (Land Type)	Wind Direction	No. Injuries Dealt		
E.G.	10/01/2018	Langlaagte	Y	N	N	N	N	Y	N	N	N	10.5	Natural veld	10:30	Farm	NW			
1																			
2																			
3																			
4																			
5																			
6																			
7																			

This sample FPA Fire Register can be downloaded from the **ECUFPA** website:

<http://www.ecufpa.co.za/downloads/Fire%20Register.xlsx> – MS Excel 2007 format.



1.4. Integrated Fire Management Unit Plans (FMU Plans)

What is a Fire Management Plan?

In terms of Section 5(1)(a), of the **National Veld & Forest Fire Act (NVFFA)** (Act 101 of 1998), an **FPA** must “develop and apply a veldfire management strategy for its area”. This is where Integrated Fire Management Plans (**IFM Plans**) are crucial to ensure compliance with the **NVFFA**. The plan can also assist an **FPA** with Section 12(7) of the **NVFFA**.

An **IFM Plan** contains strategic and operational information (like: response to unplanned ignitions, hazardous fuels and vegetation management, burned area emergency stabilization & rehabilitation, prevention, etc.) to support informed decision-making and to assist FPA Management, Landowners and stakeholders. These plans should include concise information on the fire risk and the resources available in an area.

IFM Plans are generally written for the various Fire Management Units (**FMU**) of an FPA, as each Fire Management Unit will normally have different fire danger risks, vegetation, etc. In addition to this, an **IFM Plan** for each **FMU**, makes the plan more realistic and operationally usable. An **FMU** may comprise of numerous cells, with similar characteristics in the same general area.

A copy of this plan is to be accepted and signed-off by each **FPA** member within the **FMU**, as well as a copy made available to each **FPA** member within the **FMU**.

It must also be remembered, that this document can also form part of any legal actions and/or landowner insurance compliance. As such, it is advised that a copy of the plan should also be submitted to the landowner's insurance company, by the landowner.

Components of a Fire Management Plan

- **General Outline \ Introduction**
 - **Location**
 - ✓ A general map of the area should be added, so as to provide a visual overview of the **FMU** that the **IFM Plan** relates to and its location within the **FPA**.
 - **Landowners & Landowner Map**
 - ✓ A list of the various landowners within the **FMU**, together with their contact details and their membership status to the **FPA**.
 - ✓ A map showing the farm portions and property boundaries of each landowner allows for a visual overview of each landowners property within the **FMU**.
 - **Brief overview of the **FMU** and pertinent past fire history**



(ECUFPA – Best Operating Practices (BOP's) continued...)

- **Vegetation types & Fuel Loading**
 - ✓ This should list the predominant vegetation type within the **FMU**, as well as any special “types”, such as: Plantations, Crops, protected areas, wattle jungles, indigenous areas, etc.
- **Fire Risks & Considerations**
 - ✓ Both “man-made” and natural fire risks need to be listed and described, together with the fire danger they pose.
- **Pre-fire Season Preparation**
 - **Fire Breaks**
 - ✓ This section must specify how to mitigate the fire risks identified in the previous section.
 - ✓ This should list any current natural and/or existent fire breaks, such as rivers, roads, indigenous areas, etc.
 - ✓ A plan should also be listed and a map produced showing the location of strategic fire breaks that need to be made before the start of the fire season. A detailed description of the kind of fire break also needs to be listed – i.e. 6m wide burnt fire break, 8m wide “skoffelbaan”, burning of road rest stops, etc.
 - **FPA Policies & Procedures**
 - ✓ The **FPA**s policies should be included, with regards to the days that burning is permitted, the procedure for obtaining burning permits, etc.
- **Fire Suppression Operations**

In the event of unplanned veldfires, then the guidelines that must be followed to suppress and contain these fires must be clearly outlined.

These guidelines should cover the following aspects:

 - **Fire Attack Protocols & Reporting Procedures**
 - ✓ This should list what protocol needs to be followed at the various stages of a fire, who assumes command of the fire at the different stages, as well as who to contact – e.g.: (PLEASE NOTE: NOT ALL STAGES ARE COVERED BELOW...)
 - Stage 1 / Start of Incident – Landowner (The landowner will assume command as Initial Attack Incident Commander and will notify the **FMU**/Cell Leader and **FPA** Management.)
 - Stage 2 – Cell Leader Command (If the fire has spread over numerous landowners, within the same cell, the Cell Leader will assume command and update the **FMU** Leader and **FPA** Management.)
 - **Incident Command System (ICS) Structures**
 - ✓ Examples of the various **ICS** and Command Structures at the various stages of a fire should be shown.



(ECUFPA – Best Operating Practices (BOP's) continued...)

- **Back Burning & Burn-out Policy**
- **Resources**
 - ✓ List all available resources, their contact details and locations – both within the **FMU**, as well as any main additional resources outside, such as Municipal Fire Services, etc.
 - ✓ Additional Ground and Aerial assistance and the protocol and procedure for obtaining these.
- **Communication Methods & Protocols**
- **Fire Safety**
 - ✓ This will include aspects such as Fire Line Safety, Personal Protective Equipment, Standard Fire Fighting Orders, Watch-out situations, etc.
 - ✓ Veldfire risk priorities – i.e. Threat to life, Loss of Shelter & Livelihoods, Economic Loss, Environmental Loss, etc.
- **Logistical Arrangements**



1.5. Sample of FPA Rules

The document below is a generic sample of suggested FPA rules. This document can be taken and adapted to suite your particular FPA's requirements.

An editable version of this document can be downloaded from the ECUFPA website, by using the following link:

<http://www.ecufpa.co.za/downloads/Sample%20-%20Rules%20for%20FPA.docx>

Rules of the _____ FPA

These rules and regulations are to be adhered to by the members of the _____ FPA in terms of section 5(1)(c) of the *National Veld and Forest Fire Act 101 of 1998 (NVFFA)*.

1. Terminology

Refer to the ECUFPA "*Quick Reference Guide*" that could be found on their website at: <http://www.ecufpa.co.za/downloads/QUICK%20REFERENCE%20GUIDE.pdf>

2. Compliance with Fire Danger Rating System

Members must be conversant with the daily fire danger rating system and comply with the instructions and rules pertaining to the danger ratings. Members should adhere to the guidelines in the published Fire Readiness table (generic table in ECUFPA "*Quick Reference Guide*").

3. Fire Risk Assessment

Members will be required to carry out an annual fire risk assessment on their property.

4. Protection of Structures

It is the responsibility of every member to ensure that buildings on their property are protected and made safe against the dangers of fire. The principles of *Defensible Space* should be adhered to as per the ECUFPA "*Quick Reference Guide*".

5. Hot Works Operations

The following steps and precautions are to be taken if Hot Works, e.g. welding or grinding, is executed in an open area where a veldfire may start or burn.

5.1 Precautions should be put in place prior to commencement of the *hot works* to prevent a veldfire from starting.

5.2 *Hot works* should be ceased if the Fire Danger Rating exceeds 60 – i.e. Orange or Red.

5.3 Adequate equipment (including water – e.g. bakkie sakkie, etc.) and staff to combat and extinguish a veldfire, must be on site.



(ECUFPA – Best Operating Practices (BOP's) continued...)

5.4 If deemed necessary, a firebreak should be constructed around the area before commencement of the *Hot Works*.

5.5 The area must be thoroughly inspected on completion of the *Hot Works* to ensure there is no chance of a veldfire igniting.

6. Cooking / Warming Fires and Designated Fireplaces

6.1 Fires used for preparing meals, beverages or for warmth during cold conditions in the veld by farm or other workers must be in a designated fireplace.

6.2 Fires may not be left unattended and must be properly extinguished with water after use.

6.3 Fires may not be made:

- a) If the weather conditions are unsuitable (fire danger rating is orange or red).
- b) In areas that have not been sufficiently cleared of combustible material.
- c) In no-fire zones as indicated by the landowner.
- d) If the fire is to be left unattended.

6.4 Social fires used outside of residences must be managed carefully in designated safe areas.

7. Firebreaks

See _____ FPA's Firebreak Policies and guidelines.

7.1 Legislation

- According to the NVFFA, section 12(1), *“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 Firebreak exemption

- According to section 15 of the Act,
 - 15 (1) The Minister may exempt any owner or group of owners from the duty to prepare and maintain a firebreak or firebreaks for good reason.*
 - 15 (2) The exemption may be subject to conditions.*
 - 15 (3) The Minister must consult the fire protection association for the area, if any, before granting any exemption.*

Explanatory Notes (not part of the rules).

The above option is not recommended for most FPA's due to the following reasons:

- The intention of the legislature with section 15 of the act was to give landowners in a low risk area the option to apply for exemption.
- A specific form (Form FE1) must be completed and submitted to DAFF for the minister to consider the application.
- The challenge is the fact that landowners indemnify each other from any claims.
- This implies that the landowner's insurance is in fact nullified, as the owner made it impossible for the insurer to recover the claim. It is



(ECUFPA – Best Operating Practices (BOP's) continued...)

therefore most likely that any insurance claims, where exemption has been granted, would not be successful.

- Section 12(7) of the NVFFA states:
"Owners of adjoining land may agree to position a common firebreak away from the boundary."

This section can be utilised independently between two landowners. In this case they would move the belt away from the common boundary to a more suitable position. It is recommended that a written agreement is drawn up for this purpose (a standard template of such an agreement is available from ECUFPA).

Explanatory Notes (not part of the rules).

If section 12(7) is read in context (the intention of the legislature in creating FPAs must be kept in mind) with the NVFFA and together with section 5(1)(a) *"A fire protection association must at least develop and apply a veldfire management strategy for its area"*, it could be interpreted and implemented as follows:

- This gives the FPA the opportunity to plan and to put strategic firebreaks in place.
- This would typically be stipulated in a Fire Management Plan as discussed in section 13 of these rules.
- This plan would address both strategic firebreaks and the integrated fire management for the area. The area is therefore managed as a unit with the aim to prevent the spread of major fires.
- Individual landowners may still have specific responsibilities and prevention measures on their properties.
- All the landowners in the area must agree with the plan and sign acceptance thereof.
- This plan now becomes a legal obligation.
- It is suggested that each landowner should present a copy of the plan to their insurer.

7.3 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.

7.4 Firebreak requirements

According to section 13 of the NVFFA,

"an owner who is 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) It does not cause soil erosion; and*
- (c) It is reasonably free of inflammable material capable of carrying a veldfire across it."*



(ECUFPA – Best Operating Practices (BOP's) continued...)

NB: Always take into account that some natural or human made veld conditions for example, recently burned veld, roads, indigenous forest, a dam, or a river, old farmlands and floodplains can be regarded as a natural firebreak.

7.5 Minimum Firebreak requirements

Refer to the _____ FPA's minimum requirement policy in this regard.

8. Prescribed Burning

See _____ FPA's Burning Policies and guidelines.

8.1 Members intending to burn must obtain burning permit from the FPA or relevant Municipal authority.

8.2 Members must observe all conditions of their burning permit.

8.3 A responsible person should be in attendance for the period that the fire is lit and for the mopping up period.

9. Fire Prohibition period

Members must comply with relevant burning prohibition notices and accompanied rules as issued by the _____ FPA or relevant authority.

10. Minimum Fire-Fighting Requirements

10.1 All members must comply with Chapter 5 of the NVFFA by having equipment, protective clothing and trained personnel as is reasonable for the extent of the member's property. Refer to the _____ FPA's minimum requirements in this regard.

10.2 All members must ensure that in their absence there is a responsible person present or near the property who will assist in extinguishing the fire and take reasonable steps to alert the FPO and neighbouring landowners.

11. Training

Members / occupiers of land or their staff performing fire-fighting must partake in a basic fire-fighting course. Refer to the FPA's minimum requirements in this regard.

12. Reporting Fires

Members must report all fires to the FPA and to the relevant cell leader / Fire Management Unit Leader.

13. FPA Policies

Members should comply with the following policies of _____ FPA:

- Minimum requirements of fire prevention under powerlines
- Minimum requirements for contractors
- Alien invasive clearing guidelines
- Fire suppression guideline



(ECUFPA – Best Operating Practices (BOP's) continued...)

14. Fire Management Plans

- The _____ FPA may divide the area into manageable units such as cells and fire management units (FMUs). Fire management plans for these areas will be developed as the FPA grows and develops. It is dependent on a strong membership base for the particular area.
- These plans may allow landowners to pool resources in order to comply with the above requirements. Refer to the ECUFPA “*Quick Reference Guide*” for details on compiling such a plan.
- Members within the relevant Cell or FMU must comply with its Fire Management Plan.

These rules were submitted to the Minister as per section 5(5) of the NVFFA on _____.

Signed:

FPA Chairman

Fire Protection Officer (FPO)

Date

Date



2. DEFINITIONS AND CLASSIFICATIONS

2.1. Aviation Resources

2.1.1. Spotter Aircraft

Description

Spotter aircraft are normally small, single-engine planes, like the Cessna 182. These planes normally circle above all other aircraft and resources, above the fire. These aircraft do not drop any sort of fire retardant.

Use:

- Command and Control – can be used as a “command centre” to see the fire situation from above and relay information to the Incident Commander and/or command ground crew. Spotter planes also control and command all other aircraft on the fire.
- Safety – ensures that all other aircraft are operating safely within the fire area.
- Reconnaissance and fire size-up – can be used to see the fire spread and relay necessary information back to the Incident Commander on the ground.
- Guide and assist other aircraft, such as Bombers and Choppers, when these come on to the fire line, to do a fire retardant drop.



2.1.2. Helicopter Aircraft

Description

The aircraft normally used in this role are, Huey's (Bell 205 UH-1H) or Squirrels (Airbus Helicopters H125 – previously the Eurocopter AS350 B3e) and are capable of carrying approximately 900 litres of water from a Bambi Bucket. Choppers are used to provide close-in tactical support to ground crews. It is essential that ground crews are in place, so that proper mop-up can be done after a water drop has been completed.

Use:

- Troop fire-fighters into difficult-to-reach areas, such as mountains – i.e. Helitack Crews.
- Can be used to suppress spot fires and for medical evacuations.
- Can also be used for fire reconnaissance and observation and fire-line mapping.

Type:

	<u>Type 1</u>	<u>Type 2</u>	<u>Type 3</u>	<u>Type 4</u>
<u>Seats (Incl. Pilot)</u>	16	10	5	3
<u>Card Weight Capacity</u> <i>(lbs)</i> <i>(Kg)</i>	5 000 (2 268)	2 500 (1 134)	1 200 (544)	600 (272)
<u>Gallons</u> <i>(Litres)</i>	700 (2 650)	300 (1 136)	100 (379)	75 (284)
<u>Examples</u>	• Bell 214	• Bell 204 • Bell 205 (Huey)¹ • Bell 212 • Airbus Helicopters H125 (Squirrel / AS350 B3e)^{1 & 2}	• Bell 206 • Bell 407¹	• Hiller 12E3T

Notes:

¹ Typical Choppers used in South Africa.

² The Squirrel is capable of lifting almost similar weight loads to the Huey, but only has 5 seats and hence, in terms of weight lifting, can be considered a Type 2 Chopper.



2.1.3. Bomber Aircraft

Description

Bombers have one purpose: to deliver fire retardant or suppressant (water) to the fireline. They are capable of doing this very quickly over a wide area and are very effective on small, initial attack operations and when there is quick follow-up by ground crews.

Bombers are capable of controlling their drop coverage and can split their load into multiple drops. This is done by means of a computer operated door, which allows for different drop patterns, depending on the fire fuel type.

Bombers are normally single-engine turbine aircraft, such as the AirTractor AT802, which is capable of carrying 3 000 Litres of water.

Use:

- Main purpose is to deliver fire retardant or suppressant.

Type:

	<u>Type 1</u>	<u>Type 2</u>	<u>Type 3</u>	<u>Type 4</u>
Gallons (Litres)	3 000 (11 356)	1 800 (6 814)	800 (3 028)	200 (757)
Examples	• Lockheed C-130 (Hercules) • Lockheed P-3 Orion	• Lockheed P-2 Neptune (P2V)	• Grummen S-2T • AirTractor AT-802F¹	• Smaller Single Engine Air Tankers (SEAT) • Dromader¹ • AirTractor AT-502B • Turbo Thrush¹

Notes:

¹ Typical Bombers used in South Africa.

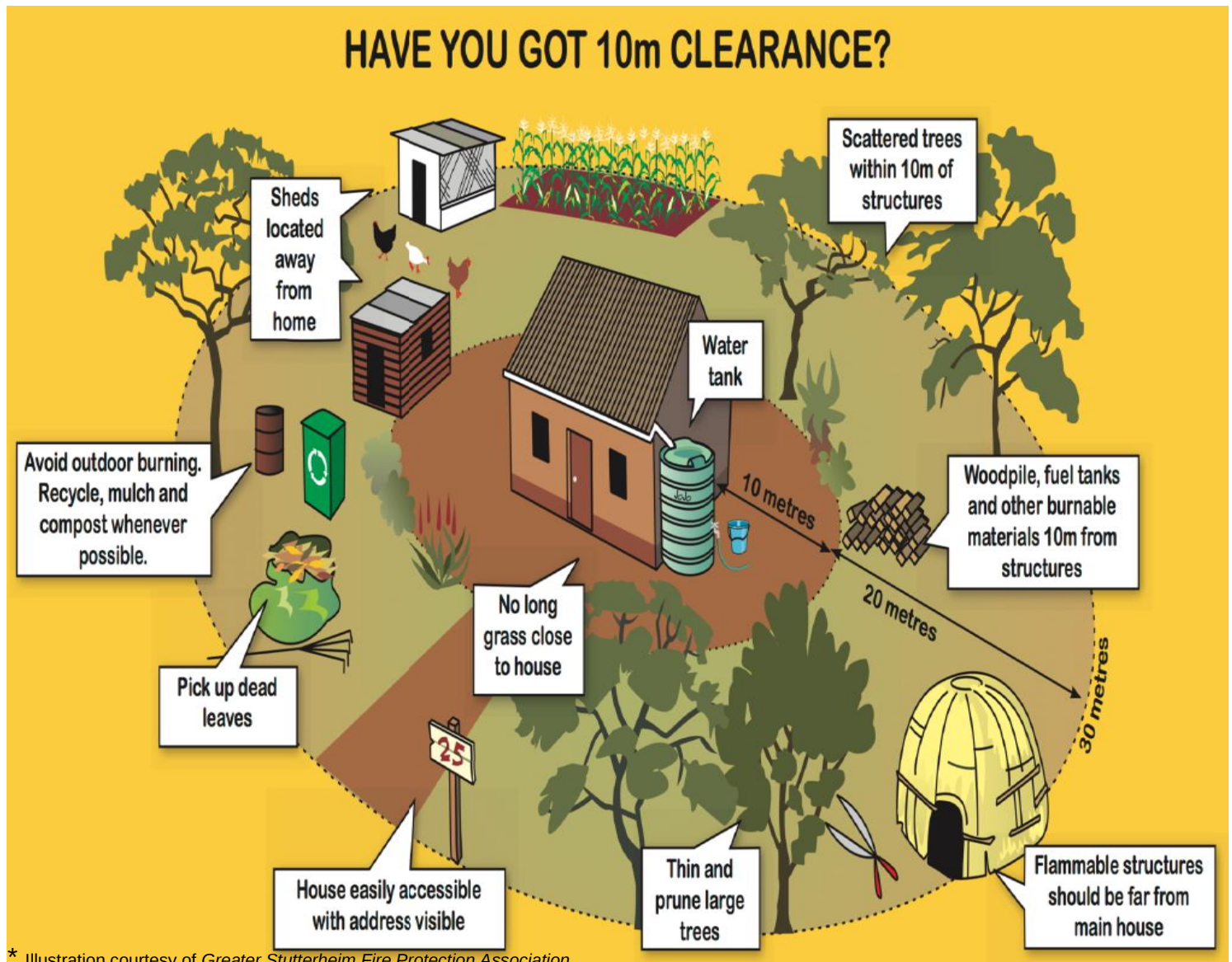
2.2. Defensible Space around your home

Creating defensible space is essential to improve your home's chance of surviving a wildfire. It is the buffer you create between a building on your property and the grass, trees, shrubs, or any wildland area that may surround it. This space is needed to slow or stop the spread of wildfire and it protects your home from catching fire—either from direct flame contact or radiant heat.

Defensible space is also important for the protection of the firefighters defending your home.

Typically, the buffer area will be a width of 10m or more, wherein the combustible material has been removed or modified.

The following image gives a brief visual overview of typical defensible space:



* Illustration courtesy of Greater Stutterheim Fire Protection Association.



(ECUFPA – Definitions & Classifications continued...)

By carefully landscaping \ firescaping your property and creating various kinds of breaks, you can influence and decrease fire behaviour. Some additional landscaping \ firescaping points to bear in mind when developing defensible space, is the following:

- Clear vegetation from under any large fuel tanks, such as propane, gas, fuel (i.e. Diesel\Petrol), etc.
- Create fuel breaks with driveways, walkways/paths and patios.
- Keep lawns and native grasses mowed to a height of 100mm.
- Remove ladder fuels (vegetation under trees) so a surface fire cannot reach the crowns. Prune trees up to 1.8m to 3m from the ground; for shorter trees do not exceed 1/3 of the overall tree height.
- Space trees to have a minimum of 5.5m between crowns with the distance increasing with the percentage of slope.
- Tree placement should be planned to ensure the mature canopy is no closer than 3m to the edge of the structure.
- Tree and shrubs should be limited to small clusters of a few each, so as to break up the continuity of the vegetation across the landscape.
- Dispose of heavy accumulations of ground litter/debris.
- Remove dead plant and tree material.
- Remove small conifers growing between mature trees.
- Remove vegetation adjacent to storage sheds or other outbuildings within this area.



2.3. Fire Danger Rating & Readiness

What is Fire Danger Rating?

By understanding the likelihood of a fire occurring and the consequential dangers thereof is key to effective fire management. The system aims to increase the ability of the general public and FPAs to manage wildfires by being aware of the probability of a wildfire occurring in a certain area at any point in time.

Chapter 3 of the **National Veld and Forest Fire Act (Act 101 of 1998, NVFFA)** provides for the adoption and deployment of a National Fire Danger Rating system. The national system that is currently adopted, is the Lowveld Fire Danger Rating System.

How is the Fire Danger Rating Determined?

The Fire Danger Rating (**FDR**), under the Lowveld Fire Danger Rating system, is determined by using a combination of the temperature, wind speed, rainfall and humidity.

This rating can be calculated manually or by using technology (such as a mobile phone app, PC based app, etc.).

FDR's are normally determined twice during a day – once at 10h00 in the morning and the second time at 14h00 in the afternoon. However, **FDR's** may also be determined more frequently, for example, while trying to suppress wild fires or for days where the **FDR** may be high.

To calculate the **FDR** via a computer, the PC application can be obtained from the **ECUFPA** website by downloading it from the following link:

<http://www.ecufpa.co.za/downloads/FDICalc.exe>

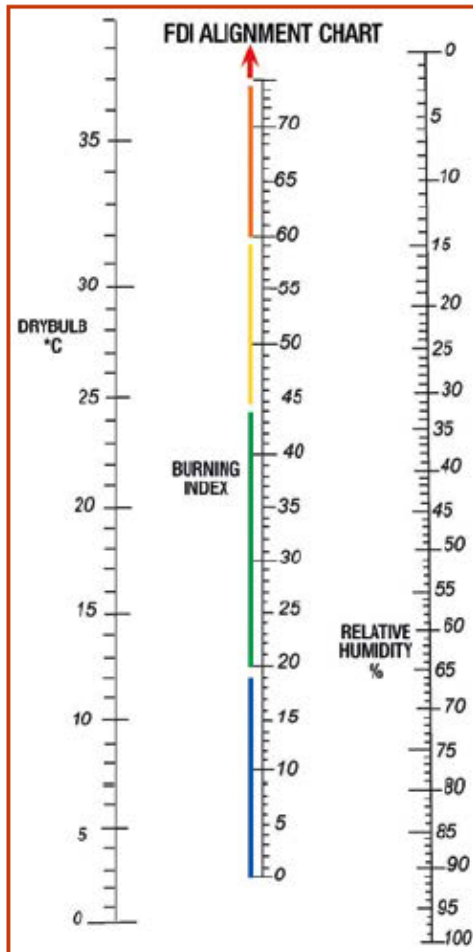
This PC application is just a normal executable file that can be run on any Windows based computer.

To be able to calculate the **FDR** manually, you will require the following information:

- Outside Temperature (in °C)
- Daily rainfall (in mm)
- Relative Humidity level outside (%)
- Wind speed (in km\h)

The chart on the following page is used to manually determine the **FDR**:

(ECUFPA – Definitions & Classifications continued...)



FDI RAINFALL CORRECTION FACTOR												
RAINFALL mm	NUMBER OF DAYS SINCE LAST RAINFALL											
	1	2	3	4	5	6	7-8	9-10	11-12	13-15	16-20	
0.1-2.6	0.7	0.9										
2.7-5.2	0.6	0.8	0.9									
5.3-7.6	0.5	0.7	0.9	0.9								
7.7-10.2	0.4	0.6	0.8	0.9	0.9							
10.3-12.8	0.4	0.6	0.7	0.8	0.9	0.9						
12.9-15.3	0.3	0.5	0.7	0.8	0.8	0.9	1.0					
15.4-20.5	0.2	0.5	0.6	0.7	0.8	0.8	0.9					
20.6-25.5	0.2	0.4	0.5	0.7	0.7	0.8	0.9	1.0				
25.6-38.4	0.1	0.3	0.4	0.6	0.6	0.7	0.8	0.9	1.9			
38.5-51.1	0.1	0.2	0.4	0.5	0.5	0.6	0.7	0.8	0.9			
51.2-63.8	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9		
63.9-76.5	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.9	
76.6+	0.1	0.1	0.1	0.2	0.4	0.5	0.6	0.6	0.7	0.8	0.9	

WIND FACTOR Add the correction factor to the BI to calculate the FDI							
Wind Speed	Correction Factor	Wind Speed	Correction Factor	Wind Speed	Correction Factor	Wind Speed	Correction Factor
0	0	12	10	24	15	36	26
1	0	13	10	25	16	37	29
2	4	14	10	26	19	38	30
3	5	15	10	27	20	39	30
4	5	16	11	28	20	40	30
5	6	17	14	29	20	41	31
6	9	18	15	30	20	42	34
7	10	19	15	31	20	43	35
8	10	20	15	32	21	44	35
9	10	21	15	33	24	45	36
10	10	22	15	34	25	46	40
11	10	23	15	35	25	47	40

Using the *FDI Alignment Chart*, place a ruler between the temperature and the humidity readings.

▼
This will give you the **burning index**.

▼
Add a wind correction factor using the *Wind Factor wind correction table*.

▼
This gives you the **Fire Danger Index (FDI)** if there is no rain.

▼
If there is rain then you need to correct this with the *FDI Rainfall correction table*. This adjusts the index based on the number of days since the last rainfall - the longer the number of days, the higher the danger.

What is the Fire Danger Rating Table?

The Fire Danger Rating Table is a colour coded table that classifies the fire danger into five categories and provides an overview of the prevention and preparedness measures needed.

The FDR table for the Eastern Cape Winter Fire Season (Grassland Area) can be found on the following pages: (Poster can be downloaded by clicking [HERE](#))

Eastern Cape Winter Fire Season

Veld Fire Readiness



Standard Operating Procedures below are for the winter fire season of the Eastern Cape (grassland area) and can be used as a guideline and BOP for all FPAs and landowners.
For weather forecasts / FDRs consult ECUFPA webpage at www.ecufpa.co.za
General grassland fire season 1 May - 31 October

	BLUE 0 – 20 SAFE	GREEN 21 – 45 MODERATE	YELLOW 45 – 60 DANGEROUS	ORANGE 61-74 VERY DANGEROUS	RED 76 – 100 EXTREMELY DANGEROUS
Fire Prevention & Preparedness Measure	No Precaution needed	Prescribed burns are permitted on condition that reasonable precaution is taken to prevent the spread of the fire. Permit conditions for the area must be adhered to.	Same as for "Green", but additional precaution to be taken due to higher fire danger.	NO fires allowed in the open air, except in designated fireplaces and for veld management, through high intensity burns, when due permission has been granted.	NO fires are allowed under any circumstances in the open air. All operations likely to ignite fires must be halted. Landowners & stakeholders must invoke contingency fire emergency plans, including extraordinary readiness & response plans.
Disaster Management Responsibility & Readiness				The threat of disastrous wildfires exists at provincial level under these conditions. Municipal Disaster Management Centres must invoke contingency plans. Provincial & National Disaster Management Centres must be informed of potential disastrous fires. (Section 49 of the Disaster Management Act of 2002)	The threat of disastrous wildfires exists at provincial level under these conditions. Municipal Disaster Management Centres must invoke contingency plans. Provincial & National Disaster Management Centres must be informed of potential disastrous fires. (Section 49 of the Disaster Management Act of 2002)
Fire Behaviour	Fires are likely to burn slowly & with low intensity, but must still be controlled & monitored.	Fires likely to ignite but spread slowly. Flame length in grassland and plantation forest litter lower than 1 meter. Rate of forward spread less than 0.3 km/h.	Fires ignite readily and spread rapidly. Flame length between 1 and 2 meters. Rate of forward spread between 0.3 and 1.5 km/h.	Fires ignite readily and spread very rapidly, with local crowning and short-range spotting. Flame lengths between 2 and 5 meters. Rate of forward spread between 1.5 and 2.0 km/h.	Extreme fire behaviour. Long range fire spotting is likely. Flame lengths in excess of 5 meters. Rate of forward spread can exceed 4.0 km/h.
Fire Suppression	One crew with basic firefighting tools should easily be able to suppress any fire that may occur.	Direct Attack is feasible, and suppression should be readily achieved by direct manual attack methods.	Direct attack with hand crews only is constrained. Recommended methods of control should be a combination of tankers and adequate fire fighters. Aerial support is recommended. Burnouts may be used to combat fires if all mitigating steps are taken.	Indirect attack is recommended. Hand crews should take additional caution. Water tankers should concentrate efforts on containing the flanks and the head of the fire. Aerial support is strongly advised. Special precautions may be required to protect lives and property. Strategic burning may be used to combat fires if all mitigating steps are taken.	Any form of fire control is likely to be extremely difficult until the weather changes. Back burning is dangerous and best avoided. Attacking the fire from the back and along the flanks is possible, using a combination of all available resources.

PERSONNEL READINESS						
FPA						
ICS team standby	Management Unit					All
Working on Fire – Fire fighters (Where applicable)	FPA				Available	All
FORESTRY					50%	
Forester Standby	Management Unit	1			2	All
Forestry Contractors	Management Unit	1			2	All
Prototeams	Unit					Stand Down
Silviculture Teams	Unit					Work in low risk areas
Harvesting Teams	Unit					Work – bakkie unit on site
Readiness Stand down	Management Unit					Only with permission of General Manager
LANDOWNERS						
Fire Wardens / Cell Leaders	FMU					1 with bakkie unit
FPA Members	FPA					Work – bakkie unit loaded
Landowners	Farm					Alert – on standby
General labour	Farm					Available
Meeting attendance	All					Notify applicable persons
Security	All					Normal Patrols
						Patrol High risk areas
EQUIPMENT & PPE READINESS						
Aircraft Readiness	ECUFPA					10 min Activation
Bakkie Units	All					On vehicle full – immediate reaction
Strike Crafts	All					Strategically placed - full
Fire Tenders	All					Strategically placed - full
Buildozer	Forestry & FPA					Strategically placed - full
Knap Sacks	All					Strategically placed - full
Personal Protective Clothing	All					Dressed
Municipal fire tenders	All					Strategically placed - full
Bulk Water Supply Units	All					On Standby
High Volume Pumps	All					On Vehicle
WoF Fire Tenders, Busses	WoF					Strategically Placed
Equipment Trailers	All					Strategically Placed
FACILITY READINESS						
Airstrip	ECUFPA					Activate
IC Ops Room	FPA					Available
Radios	All					On & Tested – additional battery
GENERAL ACTIVITY READINESS						
FDR Readings	All					Every hour
Burning of Fire Breaks and Block Burning Operations	All					Not Permitted
Slash Burning Operations	All					Dependant on season and FPA rules.
Pay weekends	All					Proto team available
Timber Harvesting						STOP all harvesting
Grading / Slashing of roads						Not Allowed
Fire wood collection						Not Allowed
External cooking & Warning fires						Not Permitted
Refuse Tips – burning						Not Permitted
Charcoal Kilns						Seal Kilns & spark arrestors



(ECUFPA – Definitions & Classifications continued...)

2.4. Fire Incident Types

2.4.1. *Fire Incident Type – Small*

Description:

This type of fire is a small fire that normally involves one or two landowners at most.

Suppression Methods:

This kind of fire can usually be extinguished very successfully with one or two skid units and some labourers, but is dependent on early detection and quick reaction.

Important Aspects:

- Be safety conscious at all times!
- Attack fire aggressively.
- Keep an eye on current and forecasted wind speed and direction – i.e. a change in wind direction can cause a fire's head to become very large. A change in wind speed can increase the rate of fire spread and intensity of fire.
- Keep an eye on current and forecasted humidity levels – i.e. lower humidity = drier fuels.

Expanding Incident:

- If the fire incident is expanding and weather \ environmental conditions are worsening, obtain additional help immediately.
- Refer to next section.



(ECFPA – Definitions & Classifications continued...)

2.4.2. Fire Incident Type – Medium Fire

Description:

This type of fire normally involves three or more landowners, but is normally still limited to one or two *Fire Management Units* within a single FPA.

Suppression Methods:

This kind of fire will require the need of numerous skid units, one or more water tenders \ tankers and ground crews.

An Initial Attack Command team will have to be in place to manage the fire and to devise a plan of attack.

A spotter aircraft can be brought in to assist with coordination of ground crews and to give aerial assessment of fire to help with a plan of attack.

Important Aspects:

- Be safety conscious at all times!
- Attack fire aggressively.
- Keep an eye on current and forecasted wind speed and direction – i.e. a change in wind direction can cause a fire's head to become very large. A change in wind speed can increase the rate of fire spread and intensity of fire.
- Keep an eye on current and forecasted humidity levels – i.e. lower humidity = drier fuels.
- Request assistance from Local Municipal Fire Services.

Expanding Incident:

- If the fire incident is expanding and weather \ environmental conditions are worsening, obtain additional help immediately.
- Refer to next section.



2.4.3. Fire Incident Type – Large Fire

Description:

This type of fire normally involves three or more *Fire Management Units* within an FPA (or neighbouring FPA), but is still limited to one Local Municipal area.

Suppression Methods:

This kind of fire will require the need of numerous skid units, one or more water tenders \ tankers and ground crews.

An Initial Attack Command team (with the strong possibility of an Incident Command Team) will have to be in place to manage the fire and to devise a plan of attack.

A Chopper or Bomber aircraft will have to be brought in as soon as possible to assist with fire suppression, as well as a spotter aircraft to assist with coordination and to aid in fire management.

Important Aspects:

- Be safety conscious at all times!
- Attack fire aggressively.
- Keep an eye on current and forecasted wind speed and direction – i.e. a change in wind direction can cause a fire's head to become very large. A change in wind speed can increase the rate of fire spread and intensity of fire.
- Keep an eye on current and forecasted humidity levels – i.e. lower humidity = drier fuels.
- Assistance from Local Municipal Fire Services is required.
- Ensure that Local Disaster Management is informed.
- It is important that ground teams follow-up fire lines that have been suppressed by aircraft, to properly mop-up these lines and to ensure proper fire suppression.

Expanding Incident:

- If the fire incident is expanding and weather \ environmental conditions are worsening, obtain additional help immediately.
- Refer to next section.



(ECUFPA – Definitions & Classifications continued...)

2.4.4. Fire Incident Type – Disastrous Fire

Description:

This kind of fire involves numerous FPAs and can extend across Local Municipalities.

Suppression Methods:

This kind of fire will require the need of all available resources.

An Incident Command Team will have to be in place to manage the fire and to devise a plan of attack.

All available aircraft will have to be brought in as soon as possible to assist with fire suppression, as well as a spotter aircraft to assist with coordination and to aid in fire management.

Important Aspects:

- Be safety conscious at all times!
- Attack fire aggressively.
- Keep an eye on current and forecasted wind speed and direction – i.e. a change in wind direction can cause a fire's head to become very large. A change in wind speed can increase the rate of fire spread and intensity of fire.
- Keep an eye on current and forecasted humidity levels – i.e. lower humidity = drier fuels.
- Assistance from Local Municipal Fire Services, as well as District Municipal Fire Services is required.
- Ensure that Local and District Disaster Management is informed.
- It is important that ground teams follow-up fire lines that have been suppressed by aircraft, to properly mop-up these lines and to ensure proper fire suppression.



2.5. Fire Organisation, Structure and Communication

During fires, all of us get extremely busy and quite often important information is not shared. This results in “chaos” at a fire and wasteful use of resources and time, as tasks are duplicated, people do not know where to go or what to do.

To try and bring order to the “chaos” of the fire, we need to look at the following aspects:

- **Fire Size-Up**
It is important to know how the fire is currently burning. This helps one to prioritise resources, fire flanks and make informed decisions. It also helps one in determining what sort of resources are going to be required.
- **Fire ICS Structure**
It is important to determine what the ICS Structure is going to be at fire, as this places responsibilities on certain people, as they know what tasks they need to do and what is expected of them. It ensures that there is some sort of order and also ensures people’s safety!!
- **Fire Organisation & Communication**
The only way to effectively and efficiently fight a fire, is to make sure that there is some sort of “organisation” around how details of the fire and resources are going to be disseminated. For example, the fire may be of such a size and nature, that numerous radio channels are required for different aspects of a fire – there needs to be a way to disseminate this information.

The following sections aim to give one good examples and checklists of how to achieve proper organisation at a fire.

2.5.1. Fire Size-Up Checklist

Fire size-up:

*3 Questions to ask - **Past, Present & Future** (e.g. What has already burnt, what is burning now & What is going to burn?)*

Fuel Type:	What is burning? (Fuel type and age if possible)
Weather:	Wind direction and estimated wind speed?
Fire Behaviour:	Fire burning: e.g. mildly / moderate / extreme / spotting?
Topography:	Flat land / mountainous?
Slope:	Mountain – Northern Aspect / Southern Aspect?
Incident Size:	Small / large / major (Hectares)



(ECUFPA – Definitions & Classifications continued...)

Special Concerns: Life and limb under threat – immediate / within 1 hour / Assets with commercial value under threat (e.g. Plantation)

Resources: Resources present and required

Location: Landowner / Farm name and GPS co-ordinates of fire if possible

Additional Information to confirm:

- Confirm command structure of fire
- Objectives of IC
- Obtain medium and longer-term weather forecasts
- Establish radio frequencies for different functions
- Inform command staff of best access routes

Spotter pilot to report the following to Dispatch and / or Operations Section Chief:

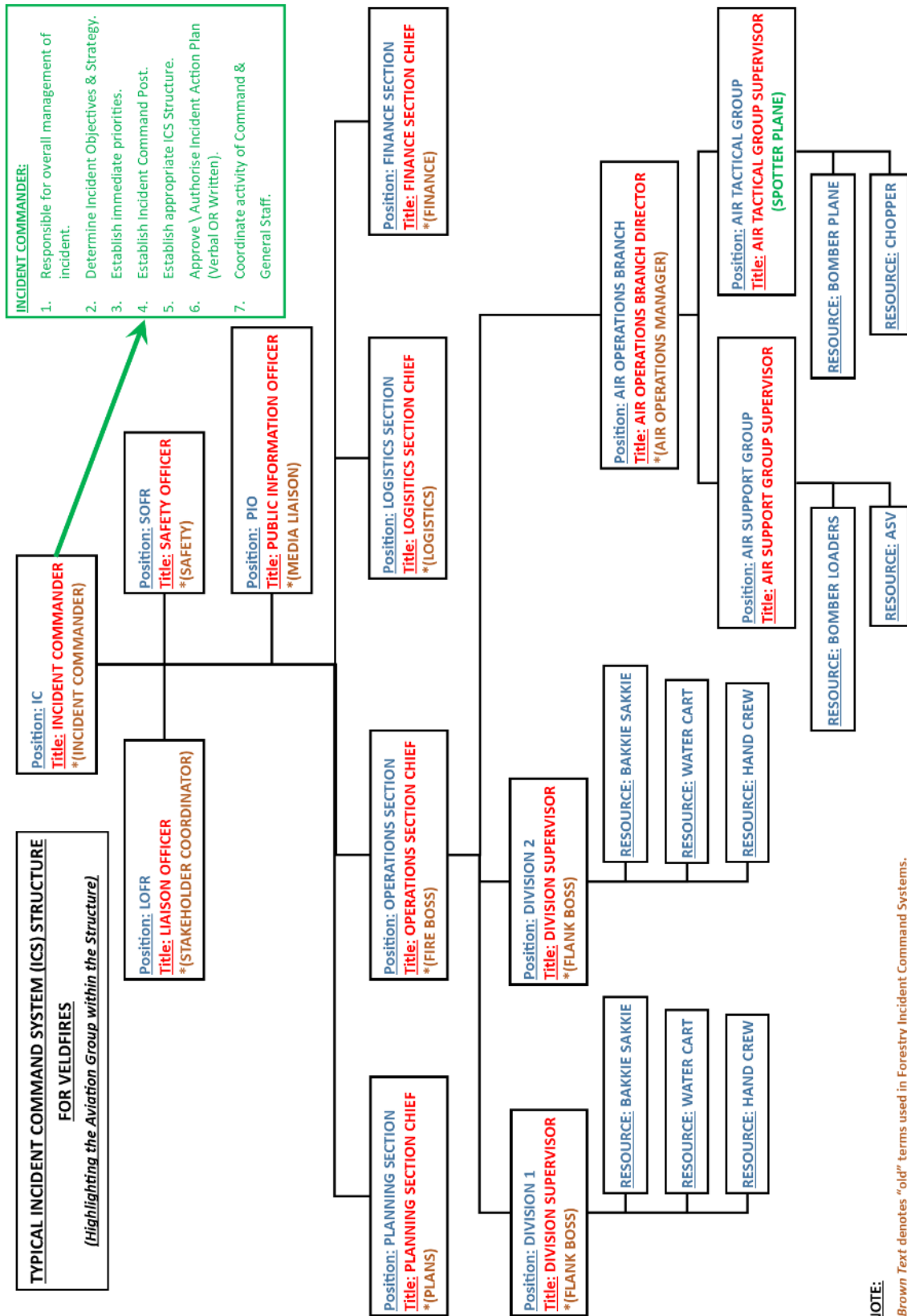
- Arrival Time overhead fire of all aerial resources
- First and last drops of Helicopters and Bomber aircraft
- Direction fire is taking, which flank is the priority
- Fire Size-Up as per checklist

2.5.2 ORGANOGRAM – Typical ICS Structure for Veldfires

This organogram shows a typical [ICS](#) structure that would be used at a veldfire. It highlights how the [Operations Section](#) structure can be built, as well as how the aviation section will be brought into the overall ICS structure, if it is activated.

PLEASE TAKE NOTE AND REMEMBER – this is just an example of a typical generic ICS structure that could be used at a veldfire incident, but the structure used, will depend on the size and complexity of the veldfire incident.

(To see the organogram, please refer to the next page...)



NOTE:

*Brown Text denotes "old" terms used in Forestry Incident Command Systems.



2.5.3. Fire Organisation

In an attempt to streamline the communication channels it is suggested that a WhatsApp group be created per major fire. These would either be fires where aviation becomes involved, fires that are going into extended attack, multiple role-players at a fire or specifically requested by the Incident Commander.

The basic principles of the group creation are:

- Identify the need to create group
- Group created named after fire
- Add all relevant people
- Post introductory post on the WhatsApp Group – e.g.:
This group has been created for this particular fire incident & will only be active for this incident.
The purpose of this group is to disseminate the following info: Fire Command Structure, Fire Size-up, Resources, etc.
PLEASE DO NOT PUT UNNECESSARY INFORMATION ON THE GROUP (e.g. only use “thumbs-up” if requested to confirm something).
- Monitor radios, conversations and messages and start adding critical information
- List broad command structure at fire ([IC](#), [Ops](#), etc.) (For an example, refer to the [Typical ICS Structure for Veldfires](#) Organogram)
- Post incident objectives
- Confirm radio channel allocation, if needed
- Role-players will at this stage be adding information as it becomes available
- Post fire size-up (refer to [Fire Size-Up Checklist](#)) and update on incident
- Critical information provided may be used to be broadcasted via the different radio networks
- Additional information needed MUST be obtained directly from an individual and then posted to the group



2.6. Incident Command System

ICS was developed in the 1970s following a series of catastrophic fires in California's urban interface. Property damage ran into the millions, and many people died or were injured. The personnel assigned to determine the causes of these outcomes studied the case histories and discovered that response problems could rarely be attributed to lack of resources or failure of tactics. Surprisingly, studies found that response problems were far more likely to result from inadequate management than from any other single reason.

The Incident Command System:

- Is a standardized management tool for meeting the demands of small or large emergency or nonemergency situations.
- Represents "best practices" and has become the standard for emergency management across the country.
- May be used for planned events, natural disasters, and acts of terrorism.
- Is a key feature of the National Incident Management System (NIMS).

As stated in NIMS, "ICS is a widely applicable management system designed to enable effective, efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure. ... ICS is used to organize on-scene operations for a broad spectrum of emergencies from small to complex incidents, both natural and manmade.

ICS is used by all levels of government, as well as by many nongovernmental organizations and the private sector. ICS is also applicable across disciplines. It is normally structured to facilitate activities in five major functional areas: Command, Operations, Planning, Logistics, and Finance and Administration.

2.6.1. ICS Features

The 14 essential ICS features are listed below:

- **Common Terminology:** Using common terminology helps to define organizational functions, incident facilities, resource descriptions, and position titles.
- **Modular Organization:** The Incident Command organizational structure develops in a top-down, modular fashion that is based on the size and complexity of the incident, as well as the specifics of the hazard environment created by the incident.
- **Management by Objectives:** Includes establishing overarching objectives; developing and issuing assignments, plans, procedures, and protocols; establishing specific, measurable objectives for various incident management functional activities; and directing efforts to attain the established objectives.



(ECUFPA – Definitions & Classifications continued...)

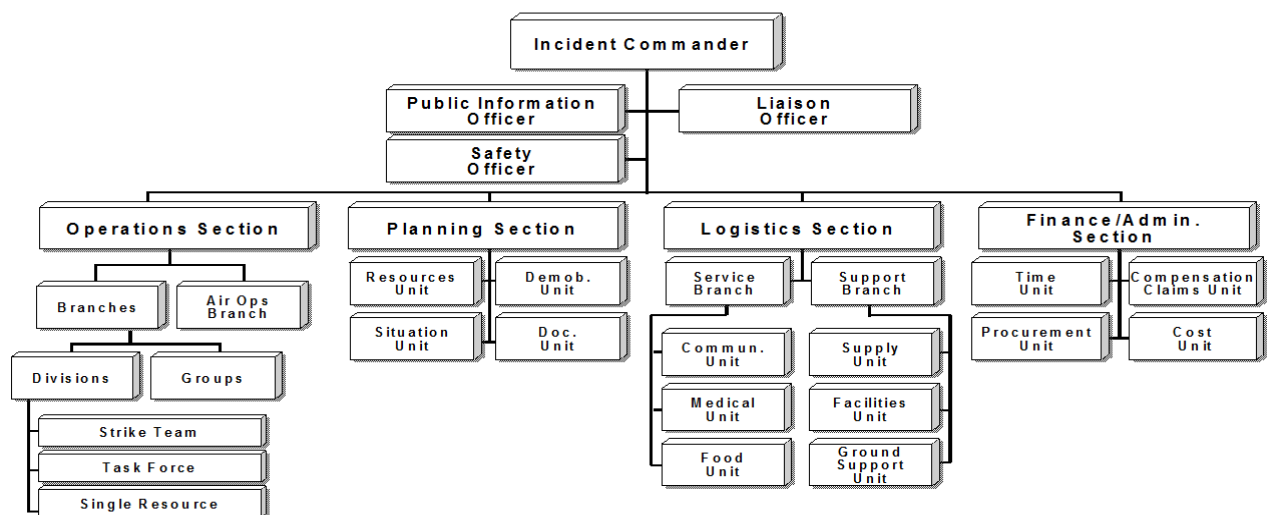
- **Reliance on an Incident Action Plan:** Incident Action Plans (IAPs) provide a coherent means of communicating the overall incident objectives in the contexts of both operational and support activities.
- **Chain of Command and Unity of Command:** Chain of command refers to the orderly line of authority within the ranks of the incident management organization. Unity of command means that every individual has a designated supervisor to whom he or she reports at the scene of the incident. These principles clarify reporting relationships and eliminate the confusion caused by multiple, conflicting directives. Incident managers at all levels must be able to control the actions of all personnel under their supervision.
- **Unified Command:** In incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.
- **Manageable Span of Control:** Span of control is key to effective and efficient incident management. Within ICS, the span of control of any individual with incident management supervisory responsibility should range from three to seven subordinates.
- **Predesignated Incident Locations and Facilities:** Various types of operational locations and support facilities are established in the vicinity of an incident to accomplish a variety of purposes. Typical predesignated facilities include Incident Command Posts, Incident Bases, Camps, Staging Areas, Mass Casualty Triage Areas and others as required.
- **Resource Management:** Resource management includes processes for categorizing, ordering, dispatching, tracking, and recovering resources. It also includes processes for reimbursement for resources, as appropriate. Resources are defined as personnel, teams, equipment, supplies, and facilities available or potentially available for assignment or allocation in support of incident management and emergency response activities.
- **Information and Intelligence Management:** The incident management organization must establish a process for gathering, sharing, and managing incident-related information and intelligence.
- **Integrated Communications:** Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures.
- **Transfer of Command:** The command function must be clearly established from the beginning of an incident. When command is transferred, the process must include a briefing that captures all essential information for continuing safe and effective operations.
- **Accountability:** Effective accountability at all jurisdictional levels and within individual functional areas during incident operations is essential. To that end, the following principles must be adhered to:



(ECUFPA – Definitions & Classifications continued...)

- **Check-In:** All responders, regardless of agency affiliation, must report in to receive an assignment in accordance with the procedures established by the Incident Commander.
- **Incident Action Plan:** Response operations must be directed and coordinated as outlined in the IAP.
- **Unity of Command:** Each individual involved in incident operations will be assigned to only one supervisor.
- **Span of Control:** Supervisors must be able to adequately supervise and control their subordinates, as well as communicate with and manage all resources under their supervision.
- **Resource Tracking:** Supervisors must record and report resource status changes as they occur.
- **Deployment:** Personnel and equipment should respond only when requested or when dispatched by an appropriate authority.

2.6.2. ICS Organisation



- **Command Staff:** The Command Staff consists of the Public Information Officer, Safety Officer, and
- **Liaison Officer.** They report directly to the Incident Commander.
- **General Staff:** The organization level having functional responsibility for primary segments of incident management (Operations, Planning, Logistics, Finance/Administration). The Section level is organizationally between Branch and Incident Commander.
- **Branch:** That organizational level having functional, geographical, or jurisdictional responsibility for major parts of the incident operations. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section. Branches are identified by the use of Roman Numerals, by function, or by jurisdictional name.



(ECUFPA – Definitions & Classifications continued...)

- **Division:** That organizational level having responsibility for operations within a defined geographic area. The Division level is organizationally between the Strike Team and the Branch.
- **Group:** Groups are established to divide the incident into functional areas of operation. Groups are located between Branches (when activated) and Resources in the Operations Section.
- **Unit:** That organization element having functional responsibility for a specific incident planning, logistics, or finance/administration activity.
- **Task Force:** A group of resources with common communications and a leader that may be pre- established and sent to an incident, or formed at an incident.
- **Strike Team:** Specified combinations of the same kind and type of resources, with common communications and a leader.
- **Single Resource:** An individual piece of equipment and its personnel complement, or an established crew or team of individuals with an identified work supervisor that can be used on an incident.

2.6.3. Overall Organisational Functions

ICS was designed by identifying the primary activities or functions necessary to effectively respond to incidents. Analyses of incident reports and review of military organizations were all used in ICS development.

These analyses identified the primary needs of incidents.

As incidents became more complex, difficult, and expensive, the need for an organizational manager became more evident. Thus in ICS, and especially in larger incidents, the Incident Commander manages the organization and not the incident.

In addition to the Command function, other desired functions and activities were:

- To delegate authority and to provide a separate organizational level within the ICS structure with sole responsibility for the tactical direction and control of resources.
- To provide logistical support to the incident organization.
- To provide planning services for both current and future activities.
- To provide cost assessment, time recording, and procurement control necessary to support the incident and the managing of claims.
- To promptly and effectively interact with the media, and provide informational services for the incident, involved agencies, and the public.
- To provide a safe operating environment within all parts of the incident organization.
- To ensure that assisting and cooperating agencies' needs are met, and to see that they are used in an effective manner.

Incident Commander

The Incident Commander is technically not a part of either the General or Command staff. The Incident Commander is responsible for overall incident management, including:



- Ensuring clear authority and knowledge of agency policy.
- Ensuring incident safety.
- Establishing an Incident Command Post.
- Obtaining a briefing from the prior Incident Commander and/or assessing the situation.
- Establishing immediate priorities.
- Determining incident objectives and the strategy(ies) to be followed.
- Establishing the level of organization needed, and continuously monitoring the operation and effectiveness of that organization.
- Managing planning meetings as required.
- Approving and implementing the Incident Action Plan.
- Coordinating the activities of the Command and General Staffs.
- Approving requests for additional resources or for the release of resources.
- Approving the use of students, volunteers, and auxiliary personnel.
- Authorizing the release of information to the news media.
- Ordering demobilization of the incident when appropriate.
- Ensuring incident after-action reports are complete.

Command Staff

The Command Staff is assigned to carry out staff functions needed to support the Incident Commander. These functions include interagency liaison, incident safety, and public information.

Command Staff positions are established to assign responsibility for key activities not specifically identified in the General Staff functional elements. These positions may include the Public Information Officer, Safety Officer, and Liaison Officer, in addition to various others, as required and assigned by the Incident Commander.

The table below summarizes the responsibilities of the Command Staff:

Command Staff	Responsibilities
Public Information Officer	The Public Information Officer is responsible for interfacing with the public and media and/or with other agencies with incident-related information requirements. The Public Information Officer develops accurate and complete information on the incident's cause, size, and current situation; resources committed; and other matters of general interest for both internal and external consumption. The Public Information Officer may also perform a key public information-monitoring role. Only one incident Public Information Officer should be designated. Assistants may be assigned from other agencies or departments involved. The Incident Commander must approve the release of all incident-related information.
Safety Officer	The Safety Officer monitors incident operations and advises the Incident Commander on all matters relating to operational safety, including the health and safety of emergency responder personnel. The ultimate



	responsibility for the safe conduct of incident management operations rests with the Incident Commander or Unified Command and supervisors at all levels of incident management. The Safety Officer is, in turn, responsible to the Incident Commander for the set of systems and procedures necessary to ensure ongoing assessment of hazardous environments, coordination of multiagency safety efforts, and implementation of measures to promote emergency responder safety, as well as the general safety of incident operations. The Safety Officer has emergency authority to stop and/or prevent unsafe acts during incident operations. In a Unified Command structure, a single Safety Officer should be designated, in spite of the fact that multiple jurisdictions and/or functional agencies may be involved. The Safety Officer must also ensure the coordination of safety management functions and issues across jurisdictions, across functional agencies, and with private-sector and nongovernmental organizations.
Liaison Officer	The Liaison Officer is the point of contact for representatives of other governmental agencies, nongovernmental organizations, and/or private entities. In either a single or Unified Command structure, representatives from assisting or cooperating agencies and organizations coordinate through the Liaison Officer. Agency and/or organizational representatives assigned to an incident must have the authority to speak for their parent agencies and/or organizations on all matters, following appropriate consultations with their agency leadership. Assistants and personnel from other agencies or organizations (public or private) involved in incident management activities may be assigned to the Liaison Officer to facilitate coordination.
Assistants	In the context of large or complex incidents, Command Staff members may need one or more assistants to help manage their workloads. Each Command Staff member is responsible for organizing his or her assistants for maximum efficiency.
Additional Command Staff	Additional Command Staff positions may also be necessary depending on the nature and location(s) of the incident, and/or specific requirements established by the Incident Commander. For example, a Legal Counsel may be assigned directly to the Command Staff to advise the Incident Commander on legal matters, such as emergency proclamations, legality of evacuation orders, and legal rights and restrictions pertaining to media access. Similarly, a Medical Advisor may be designated and assigned directly to the Command Staff to provide advice and recommendations to the Incident Commander in the context of incidents involving medical and mental health services, mass casualty, acute care, vector control, epidemiology, and/or mass prophylaxis considerations, particularly in the response to a bioterrorism event.



(ECUFPA – Definitions & Classifications continued...)

General Staff

The General Staff represents and is responsible for the functional aspects of the Incident Command structure. The General Staff typically consists of the Operations, Planning, Logistics, and Finance/Administration Sections.

General guidelines related to General Staff positions include the following:

- Only one person will be assigned to each General Staff position.
- General Staff positions may be filled by qualified persons from any agency or jurisdiction.
- Members of the General Staff report directly to the Incident Commander. If a General Staff position is not activated, the Incident Commander will have responsibility for that functional activity.
- Deputy positions may be established for each of the General Staff positions. Deputies are individuals fully qualified to fill the primary position. Deputies can be designated from other jurisdictions or agencies, as appropriate. This is a good way to bring about greater interagency coordination.
- General Staff members may exchange information with any person within the organisation.
- Direction takes place through the chain of command. This is an important concept in ICS.
- General Staff positions should not be combined. For example, to establish a “Planning and Logistics Section,” it is better to initially create the two separate functions, and if necessary for a short time place one person in charge of both. That way, the transfer of responsibility can be made easier.

The following table summarizes the responsibilities of the General Staff:

General Staff	Responsibilities
Operations Section Chief	The Operations Section Chief is responsible for managing all tactical operations at an incident. The Incident Action Plan provides the necessary guidance. The need to expand the Operations Section is generally dictated by the number of tactical resources involved and is influenced by span of control considerations. Major responsibilities of the Operations Section Chief are to: • Manage tactical operations. • Assist in the development of the operations portion of the Incident Action Plan. This usually requires filling out the ICS 215 Form prior to the Planning Meeting. • Supervise the execution of the operations portion of the Incident Action Plan. • Maintain close contact with subordinate positions. • Ensure safe tactical operations. • Request additional resources to support tactical operations.



	• Approve release of resources from active assignments (not release from the incident). • Make or approve expedient changes to the operations portion of the Incident Action Plan. • Maintain close communication with the Incident Commander.
Planning Section Chief	The Planning Section Chief is responsible for providing planning services for the incident. Under the direction of the Planning Section Chief, the Planning Section collects situation and resources status information, evaluates it, and processes the information for use in developing action plans. Dissemination of information can be in the form of the Incident Action Plan, in formal briefings, or through map and status board displays. Major responsibilities of the Planning Section Chief are to: • Collect and manage all incident-relevant operational data. • Provide input to the Incident Commander and Operations Section Chief for use in preparing the Incident Action Plan. • Supervise preparation of the Incident Action Plan. • Conduct and facilitate planning meetings. • Reassign personnel already on site to ICS organizational positions as needed and appropriate. • Establish information requirements and reporting schedules for Planning Section units. • Determine the need for specialized resources to support the incident. • Assemble and disassemble task forces and strike teams not assigned to Operations. • Establish specialized data collection systems as necessary (e.g., weather). • Assemble information on alternative strategies and contingency plans. • Provide periodic predictions on incident potential. • Report any significant changes in incident status. • Compile and display incident status information. • Oversee preparation of the Demobilization Plan. • Incorporate Traffic, Medical, Communications Plans, and other supporting material into the Incident Action Plan.



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Logistics Section Chief	The Logistics Section Chief provides all incident support needs with the exception of logistics support to air operations. The Logistics Section is responsible for providing: • Facilities. • Transportation. • Communications. • Supplies. • Equipment maintenance and fueling. • Food services (for responders). • Medical services (for responders). • All off-incident resources. Major responsibilities of the Logistics Section Chief are to: • Manage all incident logistics. • Provide logistical input to the Incident Commander in preparing the Incident Action Plan. • Brief Logistics Branch Directors and Unit Leaders as needed. • Identify anticipated and known incident service and support requirements. • Request additional resources, as needed. • Develop, as required, the Communications, Medical, and Traffic Plans. • Oversee demobilization of the Logistics Section.
Finance/ Administration Section Chief	The Finance/Administration Section Chief is responsible for managing all financial aspects of an incident. Not all incidents will require a Finance/Administration Section. Only when the involved agencies have a specific need for finance services will the Section be activated. Major responsibilities of the Finance/Administration Section Chief are to: • Manage all financial aspects of an incident. • Provide financial and cost analysis information as requested. • Ensure compensation and claims functions are being addressed relative to the incident. • Gather pertinent information from briefings with responsible agencies. • Develop an operating plan for the Finance/Administration Section; fill • Section supply and support needs. • Determine need to set up and operate an incident commissary. • Meet with assisting and cooperating agency representatives as needed. • Maintain daily contact with agency(ies) administrative headquarters on finance matters.



	• Ensure that all personnel and equipment time records are accurately completed and transmitted to home agencies, according to policy. • Provide financial input for demobilization planning. • Ensure that all obligation documents initiated at the incident are properly prepared and completed. • Brief agency administrative personnel on all incident-related financial issues needing attention or follow-up.
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Agency Representatives

An Agency Representative is an individual assigned to an incident from an assisting or cooperating agency (for the definition of what an “agency” is, please refer to – [Agency \(ICS\)](#)). The Agency Representative is usually a person assigned by National or Provincial Government, District or Local Municipality OR a private organisation and must be given authority to make decisions on matters affecting that agency's participation at the incident.

Agency Representatives report to the Liaison Officer or to the Incident Commander in the absence of a Liaison Officer.

Major responsibilities of the Agency Representative are to:

- Ensure that all of their agency resources have completed check-in at the incident.
- Obtain briefing from the Liaison Officer or Incident Commander.
- Inform their agency personnel on the incident that the Agency Representative position has been filled.
- Attend planning meetings as required.
- Provide input to the planning process on the use of agency resources unless resource technical specialists are assigned from the agency.
- Cooperate fully with the Incident Commander and the Command and General Staffs on the agency's involvement at the incident.
- Oversee the well-being and safety of agency personnel assigned to the incident.
- Advise the Liaison Officer of any special agency needs, requirements, or agency restrictions.
- Report to agency dispatch or headquarters on a prearranged schedule.
- Ensure that all agency personnel and equipment are properly accounted for and released prior to departure.
- Ensure that all required agency forms, reports, and documents are complete prior to departure.
- Have a debriefing session with the Liaison Officer or Incident Commander prior to departure.



Technical Specialists

Certain incidents or events may require the use of Technical Specialists who have specialized knowledge and expertise. Technical Specialists may function within the Planning Section, or be assigned wherever their services are required.

While each incident dictates the need for Technical Specialists, some examples of the more commonly used specialists are:

- Meteorologists.
- Environmental Impact Specialists.
- Flood Control Specialists.
- Water Use Specialists.
- Fuels and Flammable Specialists.
- Hazardous Substance Specialists.
- Fire Behaviour Specialists.
- Structural Engineers.
- Training Specialists.

2.6.4. Unified Command

The Unified Command organization consists of the Incident Commanders from the various jurisdictions or agencies operating together to form a single command structure.

Overview

Unified Command is an important element in multijurisdictional or multiagency incident management. It provides guidelines to enable agencies with different legal, geographic, and functional responsibilities to coordinate, plan, and interact effectively.

As a team effort, Unified Command allows all agencies with jurisdictional authority or functional responsibility for the incident to jointly provide management direction through a common set of incident objectives and strategies and a single Incident Action Plan. Each participating agency maintains its authority, responsibility, and accountability.

All agencies with jurisdictional authority or functional responsibility for any or all aspects of an incident and those able to provide specific resource support participate in the Unified Command structure and contribute to the process of selecting objectives; determining overall incident strategies; ensuring that joint planning for tactical activities is accomplished in accordance with approved incident objectives; ensuring the integration of tactical operations; and approving, committing, and making optimum use of all assigned resources.

The exact composition of the Unified Command structure will depend on the location(s) of the incident (i.e., which geographical jurisdictions or organizations are involved) and the type of incident (i.e., which functional agencies of the involved jurisdiction(s) or organizations(s) are required). The designation of a single Incident Commander for some



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multijurisdictional incidents, if planned for in advance, may be considered in order to promote greater unity of effort and efficiency.

Authority

Authority and responsibility for an Incident Commander to manage an incident or event comes in the form of a delegation of authority from the agency executive or administrator of the jurisdiction of occurrence or inherent in existing agency policies and procedures. When an incident/event spans multiple jurisdictions this responsibility belongs to the various jurisdictional and agency executives or administrators who set policy and are accountable to their jurisdictions or agencies. They must appropriately delegate to the Unified Commanders the authority to manage the incident. Given this authority, the Unified Commanders will then collectively develop one comprehensive set of incident objectives, and use them to develop strategies.

Advantages of Using Unified Command

The advantages of using Unified Command include:

- A single set of objectives is developed for the entire incident.
- A collective approach is used to develop strategies to achieve incident objectives.
- Information flow and coordination is improved between all jurisdictions and agencies involved in the incident.
- All agencies with responsibility for the incident have an understanding of joint priorities and restrictions.
- No agency's legal authorities will be compromised or neglected.
- The combined efforts of all agencies are optimized as they perform their respective assignments under a single Incident Action Plan.



3. Glossary of Terms

<u>A</u>	
Abiotic	Non-living things (e.g. rocks, soil and water).
Accidental fire	An unplanned fire started by mistake within the reserve boundary (e.g. campfire that escapes, or a hiker trying to burn their toilet paper).
Advanced Fire Information System	Satellite fire-detection system that records incidences of fire as well as burn scar information. www.afis.co.za . The app can be downloaded for smart phones and tablets.
Aerial ember	An ember carried aloft by wind ahead of a fire and able to cause spotting to occur.
Agency (ICS)	A division of Government with a specific function offering a particular kind of assistance. In the Incident Command System, agencies are defined either as jurisdictional (i.e. having some sort of statutory responsibility for the incident) or as an assisting or cooperating agency (providing resources or other assistance). Governmental organisations are most often in charge of an incident, although in certain circumstances private sector organisations may be included. Additionally, nongovernmental organisations may also be included to provide support. (Also see <i>ICS – Agency Representatives</i>)
Agency Administrators \ Representatives (ICS)	See <i>ICS – Agency Representatives</i> .
Air mass	A meteorological term referring to an extensive body of air within which the conditions of temperature and moisture, in a horizontal plane, are essentially uniform.
Alpha diversity	The diversity at a point, usually in space, but also in time (e.g. the number of species in a quadrant) [<i>also see Beta diversity and Gamma diversity</i>].
Anchor point	An advantageous position or location, usually a barrier to fire spread, from which to start constructing fire control lines or for anchoring counter of backfires. They are used to minimise the chance of being outflanked by the fire while constructing the control line.
Arson fire	An uncontrolled fire wilfully ignited by someone without consent of the owner or his/her agent with the intention that it burn, or spread to vegetation or property. According to South African criminal law, arson consists in unlawfully setting an immovable structure on fire with intent to cause injury. The word arson should not be used unless structures are



	involved. Rather use the term “malicious damage to property” to cover veldfires.		
Assets	Anything valued by people, which includes houses, crops, forests, and, in many cases, the environment.		
Atmospheric stability	The degree to which the atmosphere resists turbulence and vertical motion.		
Autumn burn	Burns conducted before the first frosts.		
Available fuel	The portion of the total fuel that would actually burn under various environmental conditions.		
<u>B</u>			
Back Burn	A fire put in along an existing fire break or river or other suitable location (be it against the wind or with the wind) with the intention of widening an existing fire break (river or other feature) to stop a wild fire from jumping over the existing fire break or river or other feature (e.g. a trace line, ridge, road, cliff, stream and or path).		
Backing fire (Base of Fire)	A fire burning down slope or against the wind (also see head fire).		
Bakkie Sakkie	A mobile fire-fighting unit that is transported on the back of a bakkie. This unit has a water tank containing 250 – 700 litres of water, engine driven water pump and a hose reel (normally with a minimum length of 30m of hose).		
Bambi Bucket	Bucket slung from underneath a helicopter and used to carry and drop water (and fire retardant) on a fire.		
Basal cover	Area of ground covered by the living basal portions of plants.		
Beta diversity	The rate at which species composition changes across environmental gradients (e.g. altitude)[also see Alpha diversity and Gamma diversity].		
Beaufort scale	A numeric scale used to estimate the force of the wind when no instruments are available:		
	Wind speed (km/h)	Designation	Description
	< 2	calm	smoke rises vertically, trees do not move
	2-5	light air	smoke drift indicates wind direction
	6-11	light breeze	weather vane moves, leaves rustle
	12-19	gentle breeze	leaves and twigs in constant motion
	20-29	moderate breeze	dust and loose paper are raised, small branches move
	30-38	fresh breeze	small trees sway
	39-50	strong breeze	large branches move, wind whistles wires
51-61	moderate gale	whole trees move, walking is affected	



	62-74	fresh gale	twigs break off trees, walking is difficult
	75-86	strong gale	slight structural damage occurs, branches break
	87-100	whole gale	trees uprooted, considerable structural damage
	101-118	storm	widespread damage
	119+	hurricane	severe and extensive damage
Berg wind	The flow of air from a high-pressure system to low-pressure system. The air warms as it descends at 1.5°C per 300m (1000ft). It also speeds up and dries out. In the Eastern Cape, the berg winds blow from the northwest. These are the most dangerous fire-weather winds as they are very strong and dry. They normally precede a frontal system.		
Biodiversity	All genes, species and ecological communities and the ecological and evolutionary processes that sustain them.		
Biomass	Total amount of living material (animal and plant) present in a particular area at any given time (kg/ha).		
Bioregion	A geographic region that contains whole or several nested ecosystems and is characterised by its landforms, vegetation cover, human culture and history.		
Biotic	Living things (e.g. animals and plants).		
Blow-up	A sudden increase in fire line intensity or rate of spread of a fire, sufficient to preclude direct control or to upset existing suppression plans. Often accompanied by violent convection and may have other characteristics of a firestorm.		
Branch (ICS)	See ICS – Branch .		
Brush	A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low-growing trees, usually of a type undesirable for livestock or timber management.		
Brush fire	A fire burning in vegetation that is predominantly shrubs, brush and scrub growth.		
Burning ban	A declared ban on open-air burning within a specified area, usually due to sustained high fire danger.		
Burning conditions	The state of the combined factors of the environment that affect fire behaviour in a specified fuel type.		
Burning program	A program of prescribed burns scheduled for a designated area over a nominated time, normally looking ahead over one fire season (for the coming spring to the following autumn), but can also look ahead five years or more.		
Burning rotation	The period between re-burning of a prescribed area for management purposes.		
Burning - block	A block is composed of a number of compartments (see burning compartment) with the same alphabetical block letter followed by the various numerical compartment letters e.g. A1, A2, A3....etc, all belonging to Block A that can be burnt		



	together for practical reasons on a rotational basis according to the management objectives for the block.
Burning - compartment	A number of compartments make up a Burning Block (see above). A compartment is a practical unit based on natural features that allows for the controlled burning of an area in line with the management objectives for the area.
Burn out	Setting fire inside a control line to consume fuel between the edge of the fire and the control line. Used when attack is direct, or parallel, and the control line touches points of the fire. Burning out is intentionally setting fire to fuels inside the control line to strengthen the line.
Burn Permit	A permit that is required before undertaking any planned open burning/fire namely, the burning of a bonfire, vegetation debris or other fire in an outdoor location where fuel burned is not contained in an incinerator or outdoor fireplace. Burn permits are normally obtained from the FPA, District Municipality or the Local Authority – check this in your area.
Burn scar	The area burnt by a fire.
C	
Command Staff (ICS)	See ICS – Command Staff .
Compartment Attribute Table (CAT)	The CAT incorporates the basic information for each fire compartment required to implement the fire principles to protect the biological, cultural, infrastructural and research attributes (sensitive features).
Canopy	Cover of leaves and branches formed by the tops or crowns of plants
Canopy cover	Proportion of the ground area covered by the canopy of the sward (%).
Catastrophic fire	A fire that causes unrecoverable damage to property, loss of life or limb. In plantations, the area is more than 100 hectares.
Clean burn	Refers to a burn which completely reduces an area to a uniform state. The vegetation cover may be removed completely generally as a result of a hot fire. The result of a clean burn is opposite to that of a patchy burn.
Climate	The atmospheric conditions of a place over an extended period of time.
Closure	Legal restriction, but not necessarily the elimination, of specified activities such as smoking, camping or entry that might cause fires in a given area.
Cold front	A cold front is the delineation between cold polar air moving towards the equator and undercutting warm tropical air moving towards the pole. The temperature differences across a cold front can be extreme and are associated with strong winds. The warm tropical air is forced to rise and become unstable with the development of large cumuliform clouds.



	Severe weather such as thunderstorms, squall lines and severe turbulence may accompany these cold fronts.
Combustible	Any flammable material that, in the form in which it is used and under the conditions anticipated, will ignite and burn.
Combustion	Rapid oxidation of fuels producing heat, and often light.
Community	1. An assemblage of animals and/or plants growing together and interacting among themselves in a specific location. 2. A human settlement.
Comparative Risk Assessment	A set of procedures, i.e. a protocol, for the simultaneous assessment and ranking of diverse risks. The term distinguishes this protocol from the procedures employed for univalent risk assessment, where risks arising from the exposure of, usually humans, to, for example, a toxic compound, are assessed through a dose-response relationship, i.e. an “objective characterisation of the distribution of possible outcomes”.
Condition of vegetation	The stage of growth or degree of flammability of vegetation that forms part of a fuel complex.
Conflagration	A raging, destructive fire. Often used to describe a fire burning under extreme fire weather. The term is also used when an uncontrolled veldfire burns into an urban interface zone, destroying many structures.
Consequence	An adverse effect to health, property, the environment or other things of value.
Continuous fuels	Combustible material with no natural or man-made break to stop the fire spread through it.
Controlled burning	Often incorrectly used to refer to a “ prescribed burn ”. See Controlled fire .
Controlled fire	A fire that is subject to a line of control around a fire, any spot fire from it and any interior island to be saved, effectively preventing any unplanned spread.
Control Room	24-hour call centre receiving and dispatching all emergency calls, which, in this context, has a focus on wildfires.
Convection	As applied in: <u>Meteorology</u> – atmospheric motions that are predominantly vertical, resulting in vertical transport and mixing of atmospheric properties; distinguished from advection; or <u>Thermodynamics</u> – convection, along with conduction and radiation, is a principal means of energy transfer.
Convection column	The rising column of smoke, ash, burning embers, and other particle matter generated by a fire.
Convective activity	General term for manifestations of convection in the atmosphere, alluding particularly to the development of



	convective clouds and resulting weather phenomena such as showers, thunderstorms, squalls, hail and tornadoes.
Cool burn	A reference to the less intense fires and lower flame heights that are generated when burning under less intense weather conditions where humidity and moisture levels are at higher levels as opposed to dryer environmental conditions that burn more intensely and sometimes sparse vegetation biomass results in cooler burns.
Crown fire	A fire that burns in and advances through the top leaves of the canopy of the trees or vegetation.
<u>D</u>	
Dead fuel	Combustible material made of dead matter and with moisture content that is entirely governed by the atmosphere and weather conditions - either wetting or drying it out. Also called 'dead and down' fuels.
Debris burning fire	A fire spreading from any fire originally ignited to clear land or burn rubbish, garbage, crop stubble or meadows (excluding incendiary fires).
Defensible Space	This is a buffer that is created, for the purpose of protecting your home, between any buildings on your property and the grass, trees, shrubs and any wildland area that may surround it. The buffer is typically a width of 10m or more, wherein the combustible material has been removed or modified. (See – Defensible Space around your home).
Direct attack	A method of fire attack where wet or dry firefighting techniques are used, in suppression action, right on the edge of the fire, which then becomes the fire line. It generally involves firefighters moving directly onto the fire line to extinguish the flames. This generally happens when the flames are lower than 1.2m.
Disaster risk	The chance that there will be a harmful impact of some kind, due to the interaction between natural or other hazards and conditions of vulnerability.
Division (ICS)	See ICS – Division .
Drip torch fire lighter	A cylindrical steel or aluminium or plastic container with a 5 litre capacity. The burning fluid is delivered through a pipe onto a wick. The drip torch is generally used to create fire lines.
Dry hydrant	An arrangement of pipe, permanently connected to a water source other than a piped, pressurised, water supply system, that provides a ready means of water supply for firefighting purposes and that utilises the suction capability of fire department pumpers.
Duff	The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles and leaves and immediately above the mineral soil.

E	
Ease of ignition	The relative speed with which a fire can be started. Picture a traditional braai fire. You start with some newspaper and grass or leaves, then you add some twigs, then some branches and when it's burning properly you add your logs. Grass ignites very easily but burns out fast. The heat from the grass is enough to ignite the twigs and so increases the ease of ignition.
Ecological burning	A form of prescribed burning. It involves the treatment of vegetation by burning it in predetermined season, frequency and intensity to achieve specified ecological objectives.
Ecosystem	A functional unit of plants and animals living and interacting with their environment and each other in a given area.
Ecosystem services	The benefits that people and communities obtain from ecosystems.
Ecotone	Transitional area of vegetation between two communities which has characteristics of both kinds of neighbouring vegetation as well as characteristics of its own.
Endemic	Animals and plants that are naturally found only in a particular and usually restricted geographic area or region.
Escape route	The route away from dangerous areas on a fire line, which should be pre-planned.
Evacuation	The temporary relocation of persons, their possessions and domestic animals from locations threatened by wildfire to safe areas.
Evacuation zone	A safe area demarcated for the evacuation of communities during extreme wildfires. The zone should protect people from extreme exposure to radiation, flames, aerial embers and smoke.
Exposure	Property that may be endangered by a fire burning in another structure or by a wildfire; or the direction in which a slope faces, usually with respect to cardinal directions; or the general surroundings of a site with special reference to its openness to winds.
Extended attack	When a fire outstrips the initial attack resources and further resources need to be deployed. The transition from initial to extended attack does not necessarily have a time trigger, e.g. after the first eight-hour resource shift. The trigger is when the initial attack resources have to call in back-up teams because they cannot contain the fire. In extreme fire behaviour conditions, this can even happen before the initial attack resources have got to the fire, e.g. if the fire started at the bottom of a north facing plantation slope with a 40km/h NW wind.



Extreme fire behaviour	A level of wildfire behaviour characteristics that ordinarily precludes methods of direct suppression action. One or more of the following is usually involved: • high rates of spread • prolific crowning and/or spotting • presence of fire whirls • a strong convective column Predictability is difficult because such fires often exercise some degree of influence on their environment and behaves erratically, sometimes dangerously.
F	
Flexibility	In terms of burning, flexibility refers to not following a strict burning regime and the need to adapt the burning programme, as required, in terms of the frequency, timing and type of fire in a particular area.
Finance Section Chief (ICS)	See ICS – Finance Section Chief .
Fine fuels	Fast-drying dead fuels, generally characterised by a comparatively high surface area-to-volume ratio, which are less than 4mm in diameter. These fuels (grass, leaves, needles, fynbos etc.) ignite readily and are burn rapidly when dry.
Fire	In this context, either a wildfire or a prescribed burn.
Fire activity	A general term for the incidence, kind and behaviour of wildfire; see also fire regime .
Fire behaviour	The manner in which a fire reacts to the variable influences of fuel, weather and topography.
Fire boss	Early term used to identify the Incident Commander, in command of a veldfire operation. This could also refer to the Operations Section Chief in the incident management team.
Fire beater	Constructed of conveyor belt 400 mm wide x 400 mm long and 7-12 mm thick, affixed to a wooden handle and used to suppress fire by beating the flames.
Firebreak	An area of sufficient width and length from which inflammable material capable of carrying a veldfire has been reduced/removed, to the extent that the area has a reasonable chance of preventing a veld fire from crossing it. Section 13 of the NVFFA stipulates the requirements for firebreaks.
Fire brigade	Municipalities may have a fire brigade service that is trained and equipped to attend to emergency incidents ranging from hazardous chemical spills to road accidents, but predominantly both structural and veldfires.
Fire climate	The composite pattern or integration over time of the fire weather elements that affect fire occurrence and fire behaviour in a given area.



Fire danger	The sum of constant danger and variable danger factors affecting the inception, spread and resistance to control, and subsequent fire damage; often expressed as an index.
Fire Danger Rating \ Fire Danger Index	A fire management system that is used to measure the degree of wildfire danger in an area, its rate of spread and difficulty of suppression. This index\rating is a numerical value that is calculated by combining the temperature, humidity, rainfall and wind speed. (See – Fire Danger Rating & Readiness).
Fire danger region	A region determined according to Section 9(3) of the NVFFA for the purposes of fire danger rating.
Fire ecology	The study of the relationships between fire, the physical environment and living organisms.
Fire ecology type	A class of vegetation types that is relatively uniform in terms of the fire regimes within the constituent vegetation types.
Fire environment	The surrounding conditions, influences, and modifying forces of topography, fuel and weather that determine fire behaviour.
Fire frequency	How often fires occur expressed as the number of years elapsing between burns (i.e. time between fires or fire interval) [e.g. annual burn = burns every year, biennial burn = burns every second year, triennial burn = burns every third year]. NB: Not to be confused with the “time-since-last-burn”.
Fire front	The part of a fire within which continuous flaming combustion occurs. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smouldering combustion.
Fire hazard	A fuel complex defined by volume, type, condition, arrangement and location, which determines the degree of ease of ignition and of resistance to control.
Fire hydrant	A valve-type connection on a piped water supply system, having one or more outlets that is/are used to supply hose and fire department pumpers with water.
Fire incidence	The statistical occurrence of fire in a specified geographical area.
Fire intensity	Amount of heat energy released per unit time, per unit length of fire front (kJ/s/m or kW/m), i.e. how hot the fire is. NB: All fires are hot, but less intense burns are often referred to as “cool” and more intense burns as “hot”.
Fire line	Fire line is the term used to define the actively burning wall of fire or flames on the edge of an advancing veldfire.
Fire management	All activities associated with the management of fire-prone land, including the use of fire to meet land-management goals and objectives.
Fire Management Plan	A fire management plan contains concise information on the fire risk and resources in an area, along with strategic and operational information to support informed decision-making.

	(See - Integrated Fire Management Unit Plans (FMU Plans)).
Fire Management Unit	A localised geographical area in which integrated fire management efforts between different landowners can be most effectively coordinated. This area will normally have similar vegetation types and fire risk. (See - Integrated Fire Management Unit Plans (FMU Plans)).
Fire Management Unit leader	Leadership chosen by members of that FMU. They represent members in their areas regarding FPA matters.
Fire preparedness	All activities undertaken in anticipation of and in advance of wildfire occurrence to decrease its extent and severity and to ensure more effective fire suppression.
Fire prevention	Activities, including education, engineering, enforcement, and administration that are directed at reducing the number of wildfires (particularly those of human origin), the costs of suppression and fire-caused damage to resources and property.
Fire-proofing	Removing or treating fuel with fire retardant to reduce the danger of fires igniting or spreading (e.g. fire-proofing roadsides, campsites or structural timber). Protection is relative, not absolute.
Fire protection	The actions taken to limit the adverse environmental, social, political, and economic effects of fire.
Fire regime	Periods and patterns of naturally occurring fires in a particular area or vegetation type, described in terms of frequency, biological severity, and area extent. For example, frequent, low-intensity surface fires occur in the grasslands on a 1–2 year rotation, while, in the fynbos of the Western Cape, high-intensity fires should occur on a rotation ranging from 10–30 years, depending on the fynbos type.
Fire Reports	Are a legal requirement as per the requirement of the relevant Fire Protection Association in South Africa for annual submission to government in terms of Act 101 of 1998 and does not refer to institutional requirements. <i>For further information see – Fire Reporting to DAFF.</i>
Fire retardant	Any substance, except water, that by chemical or physical action reduces flammability of fuels or slows their rate of combustion.
Fire risk	Fire risk is determined by assessing, firstly, the likelihood of a wildfire occurring at any given place and, secondly, the consequences should this happen.
Fire risk scenario	A particular fire-hazard scenario, relevant to one or more fire ecotypes, defined to represent the plausible, normative fire risk, and defined in terms of cause, season, fuel conditions, weather, fire behaviour and potential consequence.
Fire season	The time of year at which fires occur, usually described according to the season (i.e. winter, spring, summer, autumn),



	although sometimes according to the appearance of frost (i.e. pre-frost or post-frost).
Fire service	A fire brigade of a local authority or a fire fighting unit, designated as such by the Minister.
Fire severity	The degree to which a fire is destructive of life, property, or the environment. This is usually a function of the duration (residence time) of a fire and its intensity.
Fire Size-Up	This can be defined as a small, brief and concise summary of how a veld fire is burning, how the fire is behaving and what factors are affecting this behaviour. (See Fire Size-Up Checklist and Fire Organisation, Structure and Communication .)
Fire storm	Violent convection caused by a large, continuous area of intense wildfire, often characterised by destructively-violent surface in draughts, a towering convection column, long-distance spotting, and sometimes, by tornado-like whirlwinds.
Fire suppressant	Any agent used to extinguish the flaming and glowing phases of combustion, by direct application to the burning fuel.
Fire tender	A specialised vehicle capable of bringing water, foam or dry chemicals to fire trucks in the field that are engaged on the fire line.
Fire trap	The height below which woody plant canopies are exposed to damage by fire. Repeated fires often keep emerging woody plants within this zone by regularly removing new nodes/branches as they develop, so stunting the growth of the plant.
Fire triangle	Instructional aid in which the sides of a triangle are used to represent the three factors necessary for combustion and flame production - oxygen, heat, and fuel. Removal of any of the three factors causes flame production to cease, i.e. the fire to be extinguished.
Fire type	This refers to a head versus back burn, fire intensity (i.e. “hot” versus “cool” fire), or the source of ignition (i.e. planned, natural [e.g. lightning strike or rock fall], or arson).
Fire weather	Weather conditions that influence fire ignition, behaviour and suppression.
Fire whirl	Spinning vortex column of ascending hot air and gases rising from a fire and carrying aloft smoke, debris and flame. Fire whirls range in size from less than half a metre to over 140m in diameter. Large fire whirls have the intensity of a small tornado.
Firewise construction	The use of materials and systems in the design and construction of a building or structure to safeguard against the spread of fire within a building or structure, and the spread of fire to or from buildings or structures to the Wildland-Urban Interface area.



Firewise landscaping	Vegetative management that removes flammable fuels from around a structure to reduce exposure to radiant heat. The flammable fuels may be replaced with green lawn, gardens, certain individually spaced green ornamental shrubs, individually spaced and pruned trees, decorative stone or other non-flammable or flame-resistant materials.
Flame	A mass of gas undergoing rapid combustion, generally accompanied by evolution of sensible heat and incandescence.
Flame length	The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.
Flammability	The relative ease with which fuels ignite and burn, regardless of the quantity of the fuels.
Flammable	Capable of being ignited and of burning with a flame.
Foam	The aerated solution created by forcing air into or entraining air in water containing a foam concentrate, by means of suitably-designed equipment, or by cascading it through the air at a high velocity. Foam reduces combustion by cooling, moistening and excluding oxygen.
Forest	An area, incorporating all living and non-living components, that is dominated by trees, having usually a single stem and a mature or potentially mature stand height exceeding 2m, and with existing or potential crown cover of overstorey strata about equal to or greater than 20%. This definition includes South Africa's diverse native forests, woodlands and plantations, regardless of age (see National Forests Act).
Forest fire	A fire burning mainly in forest and/or woodland.
Forward rate of spread	The speed with which a head fire moves in a horizontal direction across the landscape. (See Rate of Spread).
Fuel	Combustible material including vegetation and structures. Fuel can include everything from trees, underbrush and dry grassy fields to homes. Related terms include: available fuel, coarse fuel, dead fuel, ground fuel, elevated dead fuel, fine fuel, ladder fuels, surface fuels and total fine fuel.
Fuel age	The period of time that has lapsed since the fuel was last burnt.
Fuel break	An area, strategically located for the fighting of anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for firefighting.
Fuel condition	Relative flammability of fuel as determined by fuel type and environmental conditions.



Fuel load	Mass of fuel per unit area that is available for combustion during a fire (kg/m ²) [i.e. how much fuel there is to burn].
Fuel moisture	Ratio of moisture to fuel expressed as a percentage on a dry matter basis (%) [i.e. how wet the fuel is].
Fuel moisture content	The water content of a fuel expressed as a percent of the oven dry weight of the fuel particle (% ODW).
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.
<u>G</u>	
Gamma diversity	The rate at which composition changes across geographical gradients (also sometimes referred to as Delta diversity)[also see Alpha diversity and Beta Diversity].
General Staff (ICS)	See ICS – General Staff .
Greenbelt	A fuel break designated for use other than fire protection.
Ground fire	A fire that burns below the surface of the ground in deep layers of organic material.
Ground fuels	All combustible materials located on the ground that typically supports combustion such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat, or sawdust.
Group (ICS)	See ICS – Group .
<u>H</u>	
Habitat	The type of environment in which a plant or animal normally lives.
Hazard	(1) A source of potential harm or a situation with potential to cause loss. (2) The degree of flammability of the fuels once a fire starts. This includes the fuel (type, arrangement, volume, and condition), topography and weather.
Hazard reduction	Any treatment of living and dead fuels that reduces the threat of ignition and spread of fire.
Hazardous areas	Those uncontrolled wildfire areas where the combination of vegetation, topography, weather and the threat of fire to life and property create difficult and dangerous problems.
Head fire	A fire burning upslope or with the wind (also see Back fire).
Heat of combustion	Total amount of heat energy contained per unit mass of fuel (kJ/kg).
Heavy fuels	Combustible material with a diameter between your wrist and your thigh. This material needs sustained heat to ignite, e.g. big logs. Also called 100-hour fuels because, under ideal conditions, they get saturated or dry within 100 hours. There is another heavy fuel type categorised as a 1 000-hour fuel. These are any fuels bigger than your thigh, e.g. large downed trees.



Helitack Crew	Fire suppression using helicopters and trained airborne teams to achieve control of wildfires.
Heterogeneity	Variation of things which is represented by spatial and/or temporal patchiness in the environment.
Homogeneity	When things are similar. This is represented by spatial and/or temporal uniformity in the environment.
Horizontal fuel	Combustible material that is lying down horizontally.
Hot burn	A reference to the generally more intense fires and greater flame heights that are generated through burning conditions that have lower humidity and moisture content and sometimes greater vegetation biomass.
Hot Works	Hot work is defined as cutting and welding operations for construction/demolition activities that involve the use of portable gas or arc welding equipment, or involve soldering, grinding, or any other similar activities producing a spark, flame, or heat. (See Hot Works (Section 5) under the Sample of FPA Rules.)
Human-caused fire	Any fire caused directly or indirectly by a person.
Humus	Layer of decomposed organic matter on the forest floor, beneath the fermentation layer and directly above the soil. It is that part of the duff in which decomposition has rendered vegetation unrecognisable and mixing of soil and organic matter is underway.
Hydrant	A discharge pipe with three valves and fittings at which water can be drawn from a water main or other source, for the purpose of fighting fires.
Hydrology	Study of water related matters.
I	
Ignition	The beginning of flame production or smouldering combustion; where rapid oxidation occurs and self-sustained combustion occurs.
Ignition probability	Chance that a firebrand will cause an ignition when it lands on receptive fuels.
Ignition source	A source of energy sufficient to initiate combustion.
Ignition time	The time between the application of an ignition source to a fuel and when the fuel reaches self-sustained combustion.
Incident Action Plan (ICS)	See ICS – Incident Action Plan.
Incident Commander (ICS)	See ICS – Incident Commander.
Incident Command System (ICS)	See ICS – Incident Command System.
Indirect attack	A method of suppression in which a control line is located some considerable distance away from the fire's active edge. Generally done in the case of a fast-spreading or high-intensity fire and utilising natural or constructed firebreaks,



	fuel breaks and favourable breaks in the topography. The intervening fuel is usually burnt out, but occasionally, depending on conditions, the main fire is allowed to burn to the control line.
Initial attack	The actions taken by the first resources on arrival at a wildfire to protect lives and property and to prevent further spread of the fire. Usually done by small, fast acting and localised teams with limited resources, and takes place immediately after size-up. The motto is 'hit hard and hit fast'.
Integrated Fire Management	The holistic and systematic approach to the management of wildfires, which seeks to combine all stakeholders and the various management efforts into a single, albeit diversified, strategy.
Integrated Fire Management Unit Plans	See – Integrated Fire Management Unit Plans (FMU Plans) .
Intermediate Disturbance Hypothesis	A theory stating that species richness should be greatest at intermediate levels along a disturbance gradient. According to the theory, strong competitors should dominate at low disturbance levels, while only the most tolerant species should survive at high disturbance levels.
Invasive fire	A fire entering a management unit from surrounding areas.
<u>J</u>	
<u>K</u>	
King Report on Corporate Governance	A groundbreaking code of corporate governance in South Africa issued by the King Committee on Corporate Governance. Three reports were issued in 1994 (King I), 2002 (King II) and 2009 (King III). Compliance with the King Reports is a requirement for companies listed on the Johannesburg Stock Exchange.
Kloof	Ravine, or deep narrow valley.
Knapsack pump	A portable 15 to 20 litre back pack sprayer system with a dual action hand operated pump with a concentrated nozzle used to fight or control fires.
<u>L</u>	
Ladder fuels	Fuels that provide vertical continuity allowing fire to climb from surface fuels into the crowns of trees or shrubs with relative ease. They can also lead fires from garden vegetation to structural roofs.
Liaison Officer (ICS)	See ICS – Liaison Officer .
Light fuels	Combustible material with a diameter of less than a thumb. It ignites very easily but does not burn for a long time, e.g. grass.



	Also called 1-hour fuels because, under ideal conditions, they get saturated or dry within one hour.
Live fuels	Living matter burns. A living plant under drought and heat stress can have less moisture content than a dead plant that has fully turgid cells. Live fuel moisture content is governed more by the health of the plant than by the atmosphere, but they are linked.
Logistics Section Chief (ICS)	See ICS – Logistics Section Chief .
<u>M</u>	
Medium fuels	Combustible material with a diameter of between thumb and wrist thick. It ignites with sustained heat and burns for longer than grass, e.g. twigs and branches. Also called 10-hour fuels because, under ideal conditions, they get saturated or dry within 10 hours.
Mega-fires	A wildfire or concurrent series of wildfires that is in the upper percentile of the fire regime.
Member	A natural or legal person that has registered with an FPA and has paid up membership fees.
Mitigation	Any risk management measure or action that moderates the severity of a fire hazard or reduces risk, including fuel-reduction burning, other prevention measures, and preparedness, etc.
Moribund sward	Refers to the accumulation of dead plant material to the point at which it reduces the vigour of plant growth.
Mosaic	A patchwork of areas of different burn status (e.g. areas of different “time-since-last-burn”, areas burnt in different seasons). NB: This can be created by manipulating the fire regime and/or the way in which a regime is implemented (e.g. by alternating the burning of two compartments on a biennial regime so that only one of the two compartments is burnt in any one year).
Mountain catchment area	A mountainous region assigned specific protection in terms of the Mountain Catchment Areas Act (Act 63, of 1970), with the intention of ensuring a sustained yield of high-quality water throughout the year.
<u>N</u>	
Natural barrier	Any area where lack of flammable materials or physical constraints limit the spread of a fire.
Natural fires	Refer to fires that are naturally ignited, such as those started by lightning.
Necromass	Total amount of dead biotic material (dead animals and plants) present in a particular area at any given time (kg/ha).
Non-combustible	A material that, in the form in which it is used and under the



	conditions anticipated, will not aid combustion or add appreciable heat to an ambient fire.
Non-natural deaths	All deaths that were not due to, or may not have been due to, natural causes and that in terms of the Inquests Act are subject to medico-legal investigation.
North-facing Slope	In the southern hemisphere the north-facing slopes receive extended direct sunlight. As a result, the slope is inherently dryer and the vegetation is generally made up of light fuels more inclined to flash fire.
<u>O</u>	
Open burning	Burning of wastes in the open or in an open dump.
Operations Section Chief (ICS)	See ICS – Operations Section Chief .
Out of control fire	A fire that has reached the intensity where no attempt is or can be made to stop the head of the fire with a direct attack. Only the flanks can be attacked.
Overstorey	The portion of the trees in a forest that form the upper or uppermost layer.
<u>P</u>	
Parallel attack	When the fire line is too hot for the firefighters to safely attack the flames directly, generally occurring when the flames are higher than 1.8m. Firefighters then, generally, move back to a safe distance, ±10m off the flank, and prepare a containment line from which to fight the fire. Parallel attack typically includes burning out the fuel between the containment line and the fire.
Patch size	The area burnt.
Patchy vs. clean burns	Patchy burns create an uneven matrix of areas burnt to different degrees or not at all, while clean burns completely reduce an area to a uniform state.
Peak fire season	The period of the fire season during which fires are expected to ignite most readily, to burn with greater than average intensity, and to create damages at an unacceptable level.
Phytomass	Total amount of living plant material present in a particular area at any given time (kg/ha).
Planning Section Chief (ICS)	See ICS – Planning Section Chief .
Plantation	A stand of trees or bushes planted and cultivated in rows, at even spaces.
Point ignition	When/where fires are started at a single point or series of points.
Preparedness	All activities undertaken in advance of the occurrence of an incident to decrease the impact, extent and severity of the incident, to ensure more effective response activities, to recognise changes in fire danger, and to act promptly when action is appropriate.



Prescribed burn	A fire utilised for prescribed burning.
Prescribed burning	The controlled application of fire, under specified environmental conditions, to a predetermined area and at the time, intensity, and rate of spread required to achieve planned resource management objectives. Generally, it requires the specific authorisation of the fire management authority.
Prevention	All activities concerned with minimising the occurrence of incidents, particularly those of human origin.
Probability	A measure of the chance of occurrence expressed as a number between 0 and 1, for a specified time period, and linked to asset of conditions.
Processes (ecological, ecosystem and evolutionary)	The abiotic and biotic interactions that work indirectly or in combination to generate and maintain biodiversity (<i>e.g.</i> the weathering of rocks forms soil which sustains plants).
Productivity	The rate at which biomass is accumulated per unit area (kg/ha/time).
Public Information Officer (ICS)	See ICS – Public Information Officer .
<u>Q</u>	
<u>R</u>	
Rake Hoe	Hoe, with a Dual Purpose head, manufactured of steel 27 cm wide x 23 cm high. The tool must be attached to a wooden or steel handle of approximately 2 m. This tool is used for clearing control lines during a fire.
Rate of spread	The speed with which a fire moves in a horizontal direction across the landscape, at a specified part of the fire perimeter. (<i>See also</i> Forward rate of spread .)
Reaction time	The time taken between the report of a fire or incident and the departure of the crew.
Recovery	The coordinated process of supporting emergency-affected communities in reconstruction of the physical infrastructure, and restoration of emotional, social, economic, and physical wellbeing.
Recruitment	The germination and establishment of propagules (<i>e.g.</i> plant seedlings).
Re-seeder	Plants that are killed by a fire and rely on recruitment, from a seed bank stored in cones on the plant or in the soil, for recovery.
Residual risk	The risk that remains in unmanaged form, even when effective, disaster risk-reduction measures are in place, and for which emergency response and recovery capacities must be maintained.
Resilience	The capacity of an ecosystem to recover after disturbance.



Re-sprouter	Plants that are generally not killed by fire and recover vegetative by re-growing from buds.
Response	Actions taken in anticipation of, during and immediately after an incident, to ensure that its effects are minimised, and that people affected are given immediate relief and support.
Relative humidity	The ratio between the amount of water vapour a unit of air contains at a given temperature and the amount of water vapour the unit of air can contain at the same temperature and pressure (<i>i.e.</i> the amount of water the air contains compared to the total amount it could contain).
Retardant	A substance or chemical agent that reduces the flammability of combustible material.
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>i.e.</i> 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.
Risk evaluation	Process of comparing the level of risk against risk criteria.
Risk factor	An underlying, natural or human cause of a given level of risk.
Risk identification	The process of determining what, where, when, why and how something could happen.
Risk management	The culture, processes and structures that are directed towards realising potential opportunities, while managing adverse effects. Application of available resources in such a way that overall risk is minimised.
Risk management framework	Set of elements of an organisation's management system concerned with managing risk.
Risk management process	The systematic application of management policies, procedures and practices to the tasks of communicating, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk.
Risk mitigation	An alternate expression for risk reduction.
Risk reduction	Actions taken to lessen the likelihood, negative consequences, or both, associated with a risk.
Runaway fire	A fire that is intentionally started and planned, usually from a tracer line, firebreaks or scheduled burn that burns beyond its intended extent.
Rural	Any area where residences and other developments are scattered and intermingled with forest, range or farm land and native vegetation, or cultivated crops.

<u>S</u>	
Safety Officer (ICS)	See ICS – Safety Officer .
Single Resource (ICS)	See ICS – Single Resource .
Skid unit	See Bakkie Sakkie
Slope	The variation of terrain from the horizontal, expressed either as a gradient 1 in 20, i.e. a 1m rise in 20 metres, or as a percentage, or as an angle where horizontal represents 00 and vertical 900.
Smoke	(1) The visible products of combustion rising above a fire. (2) Term used when reporting a fire or probable fire in its initial stages.
South-facing slope	In the southern hemisphere the south-facing slope is inherently wetter, as it does not get directly exposed to the sun, and the vegetation is dominated by multi-story, closed canopy natural forests and denser vegetation types.
Spatial	Refers to how items (e.g. species) are located and distributed over an area (e.g. clumped, even or random distribution).
Species abundance	The number of individuals of a species (P_i) in relation to the total number of individuals of all organisms (P_t) in a given area (P_i/P_t).
Species composition	The species found in a particular area.
Species diversity	A complex measure taking into account the richness, abundance, evenness and composition of species.
Species evenness	The ratio of dominant to rare species in a community, where communities are considered to be entirely evenly distributed, when all species are equally abundant. NB: This does not refer to the spatial or temporal distribution of species (see heterogeneity and homogeneity), but that the interpretation of abundance may be strongly influenced by the way in which diversity is sampled according to spatial or temporal distribution of species (e.g. clumped, even or random distribution).
Species frequency	The number of times a species is recorded across successive samples in space or time.
Species richness	The number of species present in a community.
Specific risk scenario	A written description of the specific risk, which contains all the necessary information to make a justifiable risk evaluation, described in a way that is meaningful and unambiguous.
Spot fire (spotting)	Refers to a fire that is ignited outside of the perimeter of the main fire or across a firebreak by flying sparks or embers that are transported by air currents, gravity or fire whirls.
Strike Team (ICS)	See ICS – Strike Team .



Standard Firefighting Orders (10x)	See Fire Line Safety – 10 Standard Firefighting Orders .
Structural fire	A fire originating in, or burning any part or all of, a building or shelter.
Structural fire protection	The protection of a structure from interior and exterior fire ignition sources. This fire protection service is normally provided by municipal fire departments with trained and equipped personnel. After life safety, the agency's priority is to keep the fire from leaving the structure of origin or to protect the structure from an advancing uncontrolled wildfire. (The equipment and training required to conduct structural fire protection is not normally provided to the uncontrolled veld firefighter.) Various taxing authorities fund this service.
Suppression	Efforts to actively fight a fire, contain it, or extinguish it.
Surface fire	A fire that burns in the surface fuels.
Surface fuels	All combustible material on the soil surface occurring as standing wild flowers, grass, seedlings, shrubs and fallen leaves, twigs and bark.
Survivable space	The characteristics of a home such as its materials and design, as well as the flammable materials in its immediate surroundings, that results in high ignition resistance from flames and firebrands (burning embers). Survivable space characteristics relate to the ignitability of a home, without necessarily including the higher thermal vulnerability of firefighters.
Sward	Above ground parts of a population of herbaceous plants characterised by a relatively short growth habit.
T	
Task Force (ICS)	See ICS – Task Force .
Temporal	Refers to how items (e.g. species) are located and distributed through time (e.g. clumped, even or random distribution).
Tiller	A vegetative unit of the grass plant, made up of leaves, a short stem and roots.
"Time-since-last-burn"	Time elapsed since the last fire at a point, not to be confused with fire frequency.
Tracer lines	Refers to the pre-emptive lines that will determine the width or border of a fire break or compartment burn that are first sprayed with Gramoxone in March/April, and then burned in May to assist with the containment of a fire during the burning of fire breaks and compartment burns.
Tractor PTO pump	Refers to a high pressure pump system with a high pressure nozzle that is driven by the power-take-off (PTO) of a tractor that is used in conjunction with water container pulled by the tractor exclusively for the purpose to fight or contained fires.



Tree crown	The primary and secondary branches growing out from the main stem, together with twigs and foliage.
Tree-line	The height on a mountain above which the climate is too cold for trees to grow.
<u>U</u>	
Uncontrolled fire	Any fire that threatens to destroy life, property, or natural resources, and (a) is not burning within the confines of firebreaks, or (b) is burning with such intensity that it could not be readily extinguished with ordinary, commonly available tools.
Understorey	Low-growing vegetation (herbaceous, brush or reproduction), growing under a stand of trees. Also, that portion of trees in a forest stands below the overstorey.
Unified Command (ICS)	See ICS – Unified Command .
Unintentional injury, deaths	Includes all other unintentional, non-transport injuries such as those due to burns, falls, poisoning and drowning.
Unit (ICS)	See ICS – Unit .
Urban interface	Any area where wildfire fuels threaten to ignite combustible homes and structures.
<u>V</u>	
Values at risk	The natural resources or an improvement that may be jeopardised if a fire occurs.
Variability	In terms of burning, variability refers to a non-rigid fire programme that changes over time. Fire managers must attempt to vary the seasons of burning and interval between burns as well as the type of fire.
Vegetative growth	When growth occurs asexually from any part of a plant (i.e. not from seed).
Veld	Undeveloped and uncultivated area of natural vegetation.
Veldfire	Described in the NVFFA as “a veld, forest or mountain fire”. A vegetation fire outside the urban-rural interface; a general term to describe fire in vegetation. In this context these forms of fire are collectively referred to as “wildfires”.
Venfire Pumps	See Knapsack Pump
Vertical fuel	Combustible material that has a vertical profile, including material that is standing up.
Volunteer firefighter	A legally enrolled and trained firefighter under the fire department organisation laws who devotes time and energy to community fire service, without compensation other than workers’ compensation or other similar death and injury benefits.
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.



<u>W</u>	
Watch Out situations (18x)	See Fire Line Safety – 18 Watch Out Situations .
Water supply	A source of water for fire fighting activities.
Wildland fire	A fire burning outside the urban areas, either as a prescribed burn or as a wildfire.
Wildland Urban Interface	The line, area or zone where structures and other human development adjoin or overlap with undeveloped natural areas.
Wildfire	A vegetation fire accidentally igniting or deliberately ignited, but burning out of control, including veld and forest fires.
Wind Direction	The cardinal point from where the wind originates, i.e. a northwester or north-westerly wind comes from the north west but flows in a south-easterly direction.
Wind speed descriptions	See Beaufort Scale .
<u>X</u>	
<u>Y</u>	
<u>Z</u>	



4. Acronyms

<u>A</u>	
AA (ICS)	Agency Administrator \ Representative (See ICS – Agency Representative)
AFIS	Advanced Fire Information System (See Advanced Fire Information System). (http://www.afis.co.za/)
<u>B</u>	
BBV	Brandbeskermingsvereniging – The Afrikaans term for an FPA , which has been established and registered in terms of section 3 and 4 of the NVFFA .
<u>C</u>	
CFO	Chief Fire Officer - The person appointed in terms of section 5 of the Fire Brigade Services Act (Act No. 99 of 1987), to be in charge of a fire brigade service.
COGTA	Department of Cooperative Governance and Traditional Affairs (http://www.cogta.gov.za/)
<u>D</u>	
DAFF	Department of Agriculture, Forestry and Fisheries (http://www.daff.gov.za/)
DEA	Department of Environmental Affairs (https://www.environment.gov.za/)
DM	District Municipality
DRDAR	Department of Rural Development and Agrarian Reform (http://www.drdar.gov.za/)
DRDLR	Department of Rural Development and Land Reform (http://www.ruraldevelopment.gov.za/)
<u>E</u>	
ESKOM	Electricity Supply Commission South Africa – Parastatal (http://www.eskom.co.za/)
<u>F</u>	
FDCC	Fire Dispatch and Coordination Centre
FDI \ FDR	Fire Danger Index \ Fire Danger Rating (See – Fire Danger Rating & Readiness)
FMU	Fire Management Unit (See – Integrated Fire Management Unit Plans (FMU Plans))
FPA	Fire Protection Association as established and registered in terms of section 3 and 4 of the NVFFA .
FPO	Fire Protection Officer as appointed in terms of Section 6 of the NVFFA
FROS	See Forward Rate of Spread
FSC	Forestry Stewardship Council (https://www.fsc.org/)
FSC (ICS)	Finance Section Chief (See ICS – Finance Section Chief)



<u>G</u>	
GEF	Global Environment Facility (https://www.thegef.org/)
<u>H</u>	
<u>I</u>	
IAP (ICS)	Incident Action Plan (See ICS – Incident Action Plan)
IAV	Invasive alien vegetation
IC (ICS)	Incident Commander (See ICS – Incident Commander)
ICS (ICS)	Incident Command System (See ICS – Incident Command System)
IF&IAVM	Integrated Management of Fire and Invasive Alien Vegetation
IFM	See Integrated Fire Management
ISMP	Integrated Strategic Management Plan
<u>J</u>	
<u>K</u>	
King	See King Report on Corporate Governance
<u>L</u>	
LACES	Lookouts, Awareness / Anchor Points, Communications, Escape Routes, Safety Zones (See Fire Line Safety – LACES)
LM	Local Municipality
LOFR (ICS)	Liaison Officer (See ICS – Liaison Officer)
LSC (ICS)	Logistics Section Chief (See ICS – Logistics Section Chief)
LUI	Land Use Incentives Programme
<u>M</u>	
M&E	Monitoring and evaluation
MUCP	Management Unit Clearing Plan
<u>N</u>	
NDMC	National Disaster Management Center
NFA	National Forests Act (Act 84 of 1998)
NRM	Natural Resource Management Programme
NVFFA	National Veld and Forest Fire Act (Act 101 of 1998, as amended)
<u>O</u>	
OSC (ICS)	Operations Section Chief (See ICS – Operations Section Chief)
<u>P</u>	
PDMC	Provincial Disaster Management Center
PIO (ICS)	Public Information Officer (See ICS – Public Information Officer)
PMU	Project Management Unit
PSC (ICS)	Planning Section Chief (See ICS – Planning Section Chief)
<u>Q</u>	



<u>R</u>	
ROS	See Rate of spread
<u>S</u>	
SANBI	South African National Biodiversity Institute (https://www.sanbi.org/)
SANDF	South African National Defence Force (http://www.dod.mil.za/)
SANRAL	South African National Roads Agency Limited SOC – Parastatal (http://www.sanral.co.za/)
SAPS	South African Police Service (https://www.saps.gov.za/)
SAWS	South African Weather Service (http://www.weathersa.co.za/)
SCCF	Special Climate Change Fund
SOFR (ICS)	Safety Officer (See ICS – Safety Officer)
<u>T</u>	
TRANSNET	Formerly SPOORNET – Freight Rail Division Manages train lines – Parastatal (http://www.transnet.net/)
<u>U</u>	
UC (ICS)	Unified Command (See ICS – Unified Command)
UFPA	Umbrella Fire Protection Association as registered and defined in Section 9 & 10 of the NVFFA .
UNFCCC	United Nations Framework Convention on Climate Change (http://newsroom.unfccc.int/)
<u>V</u>	
VAT	Value-added tax
<u>W</u>	
WfW	Working for Water
WoF	Working on Fire
WUI	Wildland Urban Interface
<u>X</u>	
<u>Y</u>	
<u>Z</u>	