

Bush & Veld Fires

Basics & Safety

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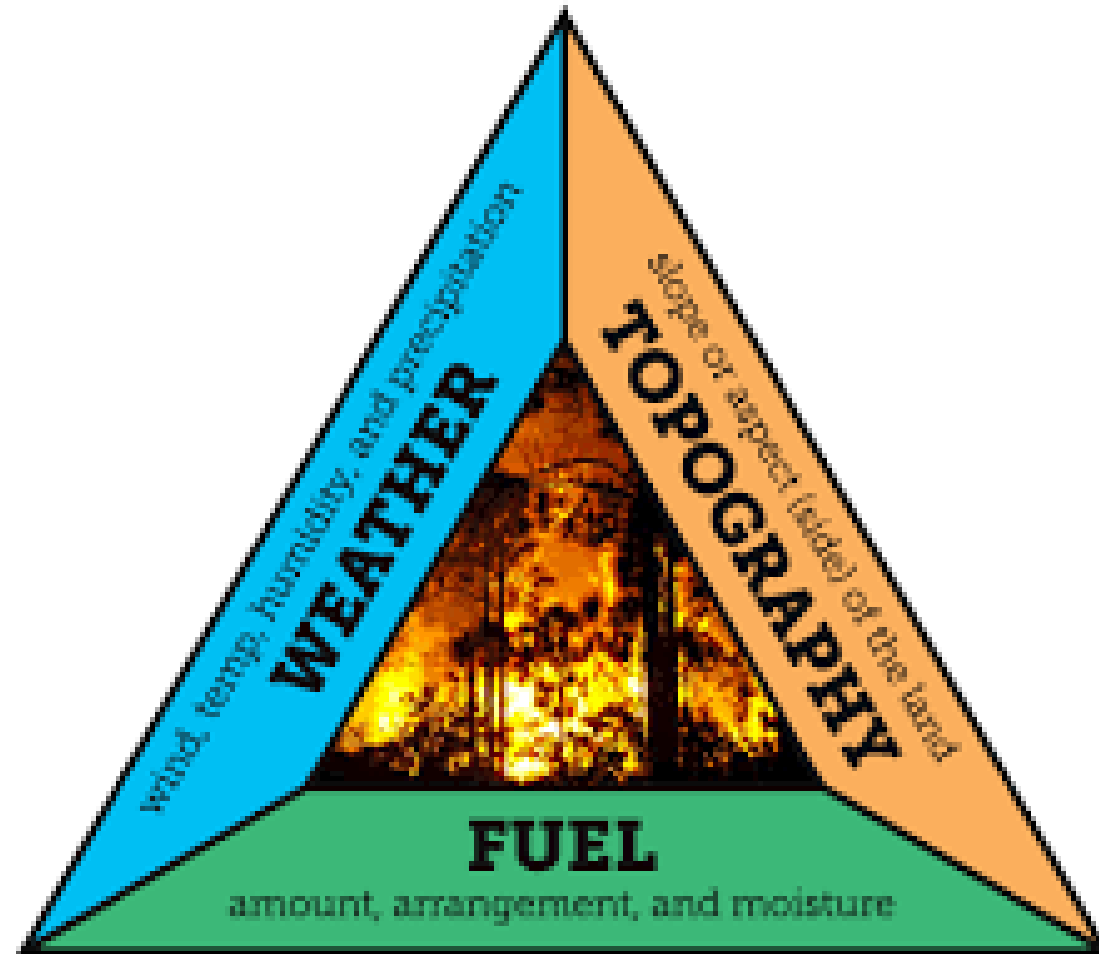
What is a Bush & Veld fire?

Wildfires (also referred to as **veld fires**) are bush **fires** both within and outside urban areas that have the potential to spread out of control. Most wildfires are started by people, compared to a small amount which are started by natural occurrences such as lightning.

Fire Triangle



Fire Behaviour Triangle



Fire Behavior Triangle

Weather

- Humidity
- The drier, hotter, the more dangerous!!
- Low humidity = High Risk



Wind

- Has ability to move a fire at great speed
- The effect is similar to fanning a fire to help it burn more rapidly
- HIGH WIND = FASTER SPREAD CAN LEAD TO SPOTTING



Topography

- Mountains, hills, slopes.
- Unlike humans, fires usually travel uphill much faster than downhill. The steeper the slope, the faster the fire travels.
- Fire Uphill FAST
- Fire Downhill SLOW
- Faster than you can run



Illustration



TOPOGRAPHY



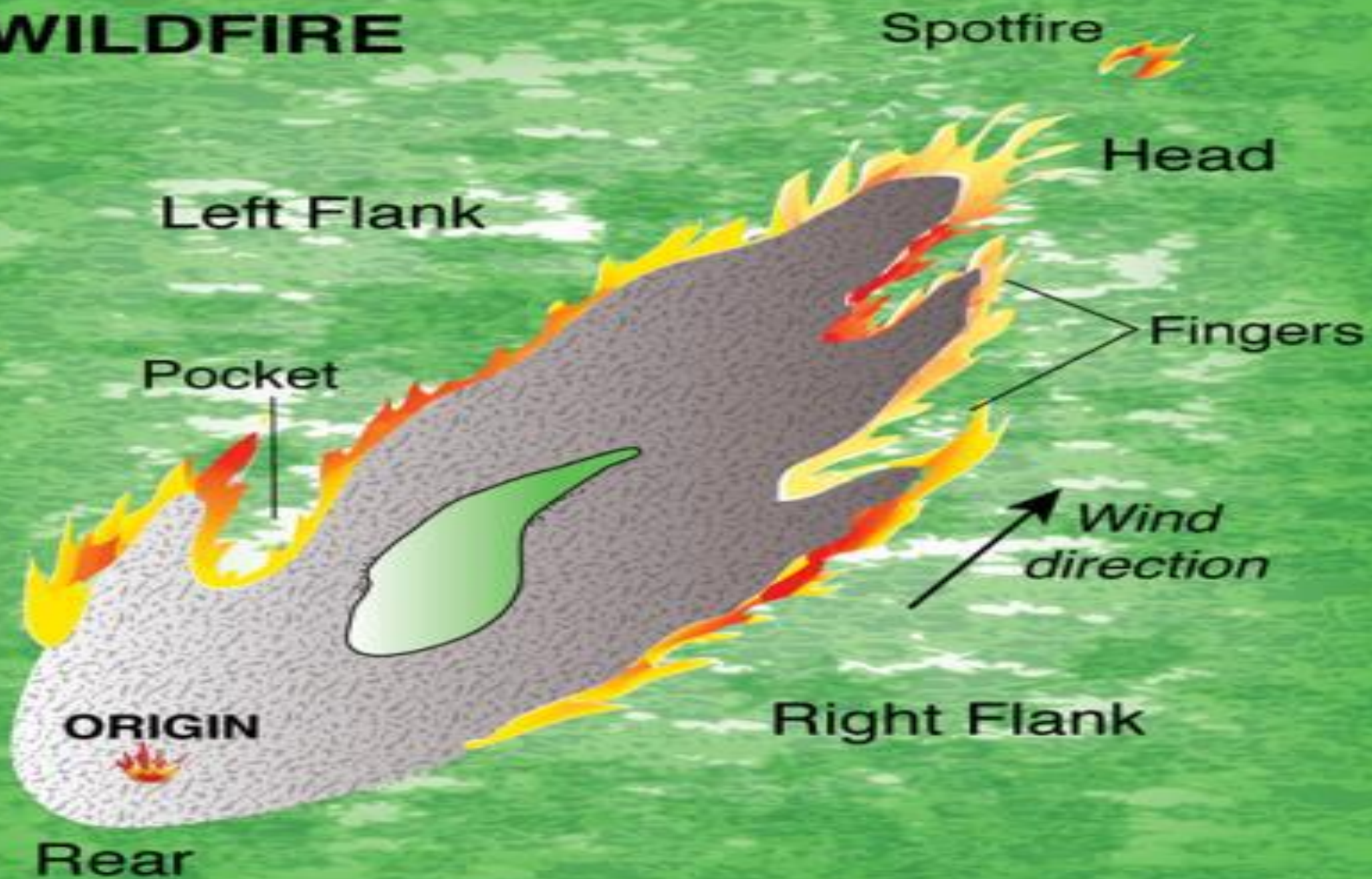
The COMET Program



Anatomy of a Wildland Fire

- **Area of origin**
Location where fires begin or ignite
- **Head of the fire**
Main or running edge of a fire
Spreads with the greatest speed
- **Fire Perimeter**
The outer flanks, the right and left flanks
- **Rear of the fire**
The area that smoulders and creeps backward against the wind.

WILDFIRE



Anatomy Continued

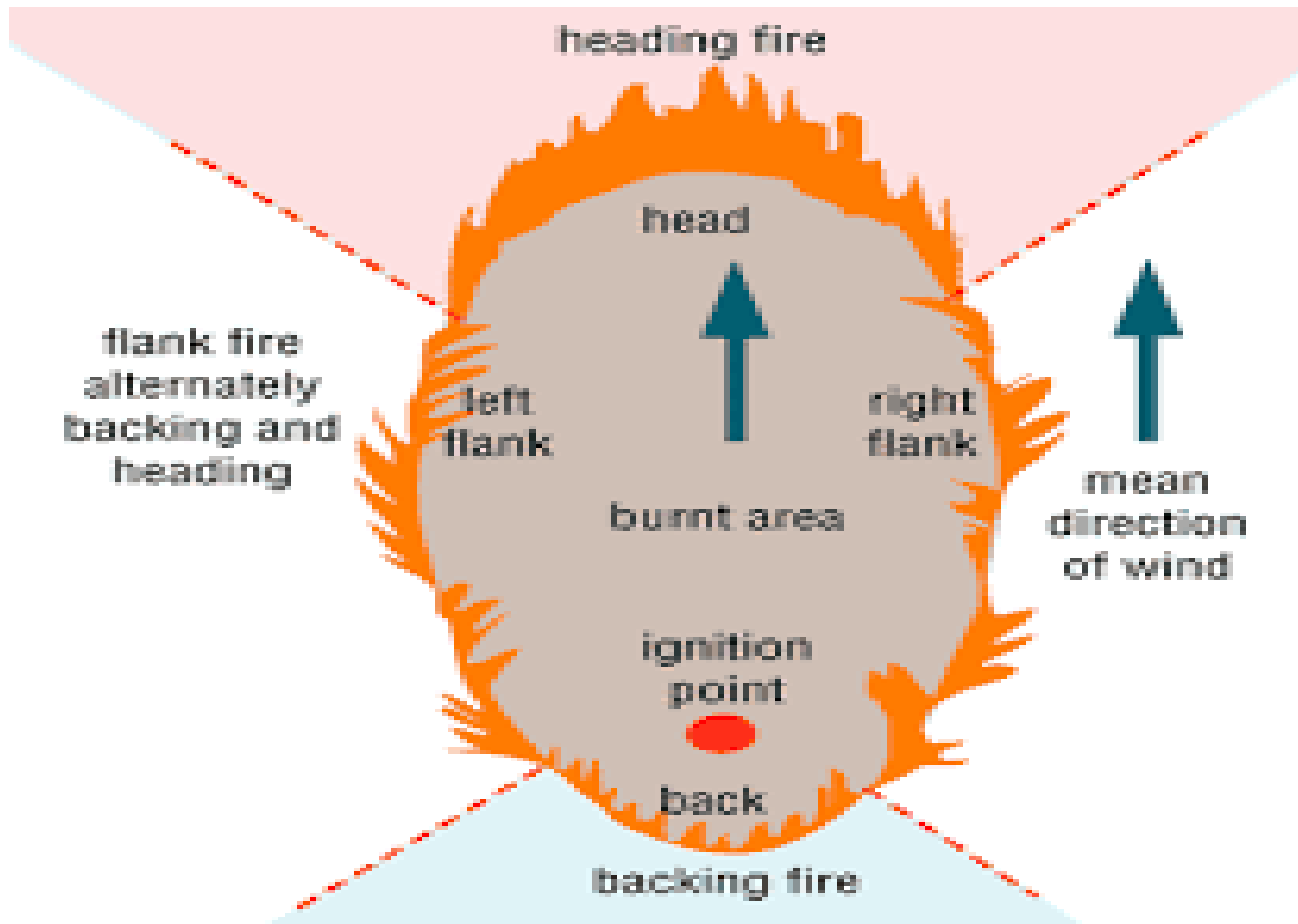
- **Base or the rear of the fire**

Opposite the head, close to area of origin

- **Finger**

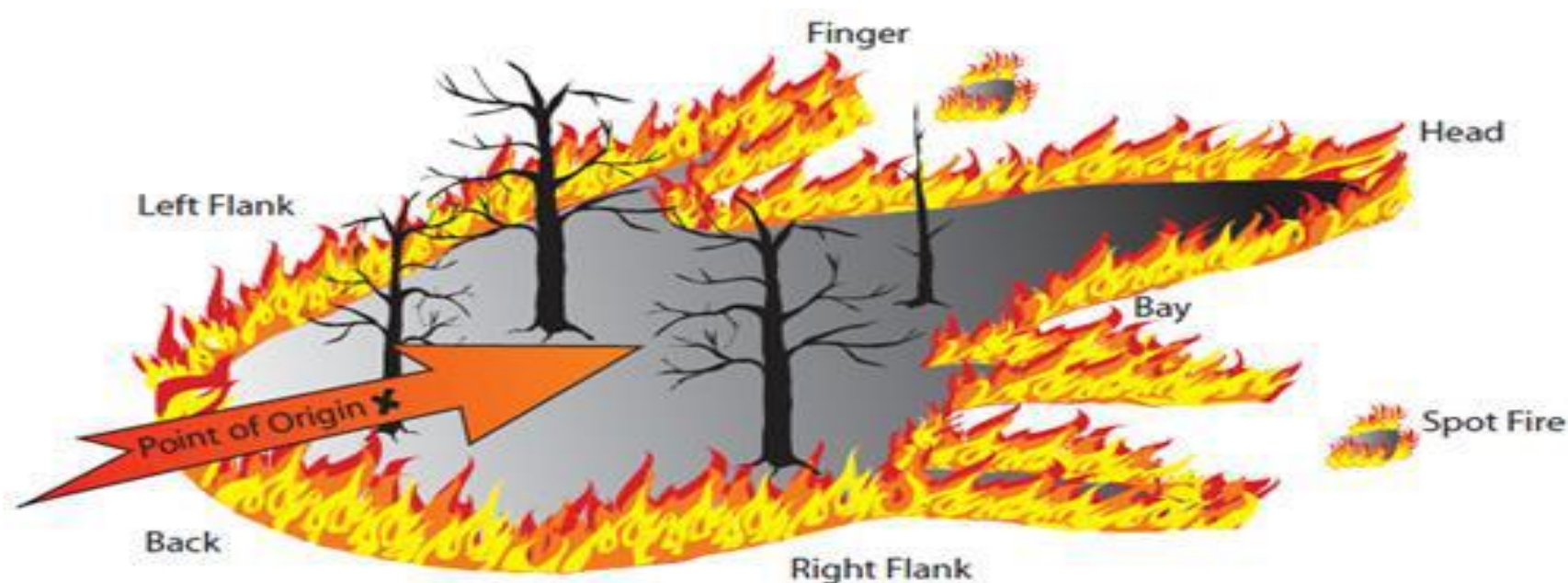
Narrow point of fire caused by a shift in wind or a change in topography

Can grow and produce a secondary direction of travel for the fire



Anatomy continued

- Pocket
- Unburned fuel surrounded by fire
- Island
- Unburned area surrounded by fire



Anatomy continued

- **Spot fire**

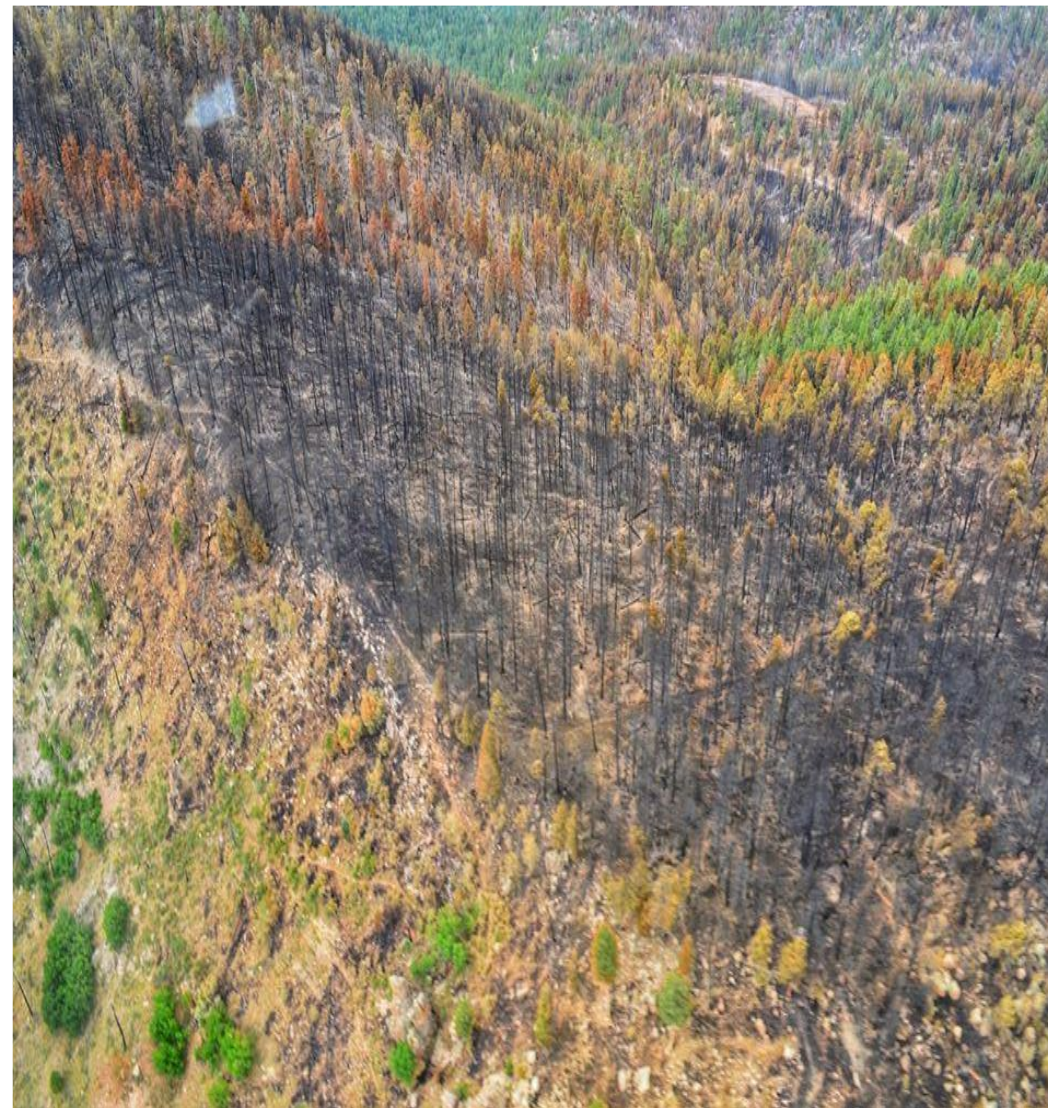
New fire that starts outside the main fire

- **Green**

Area of unburned fuels

- **Black**

Areas that have already been burned



FIRE SUPPRESSION

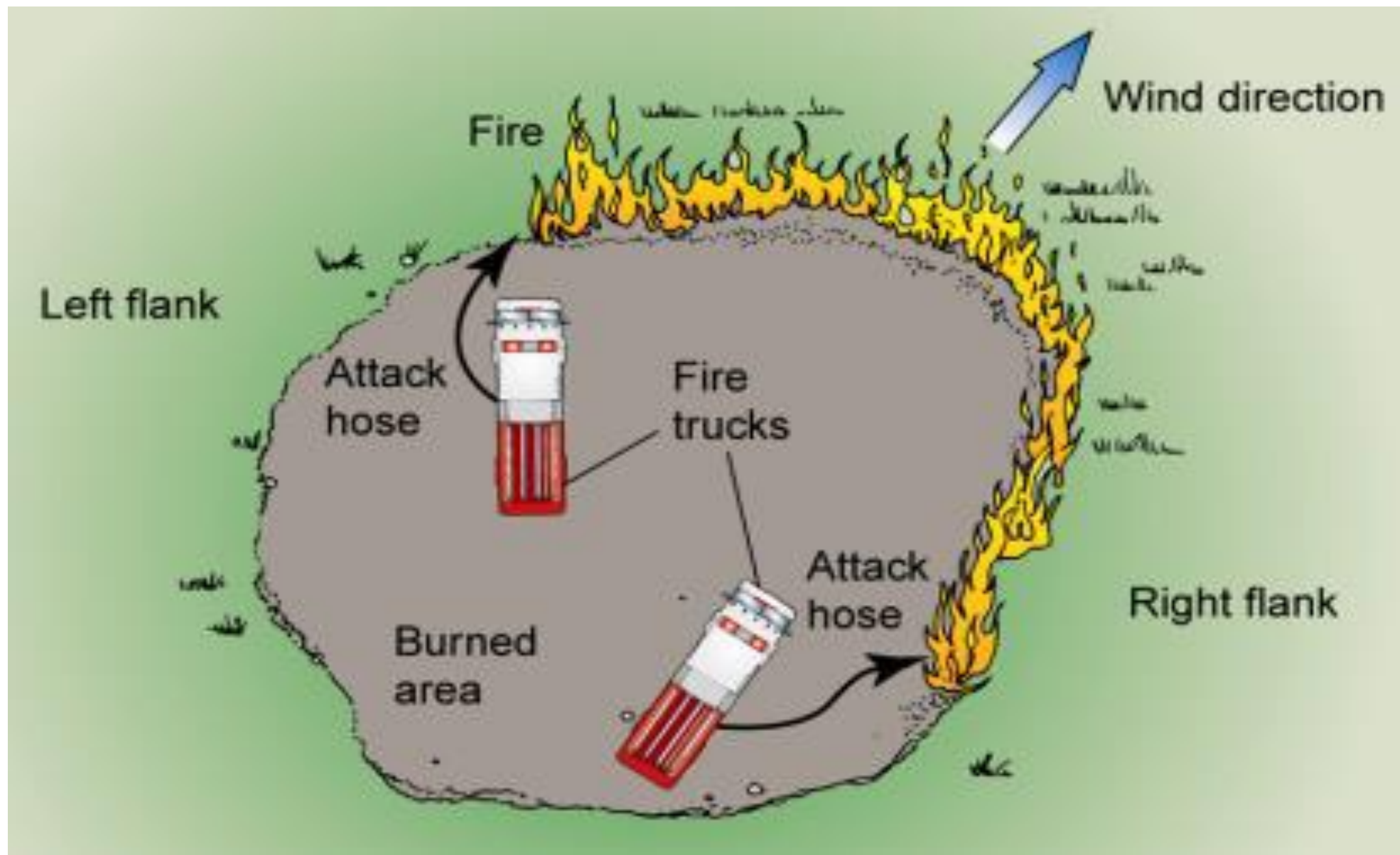
Direct Attack

- Containing and extinguishing the fire at its burning edge
- Dangerous to fire fighters because they must work in smoke and heat
- Advantage is quick containment of fire

Direct Attack

Pincer attack

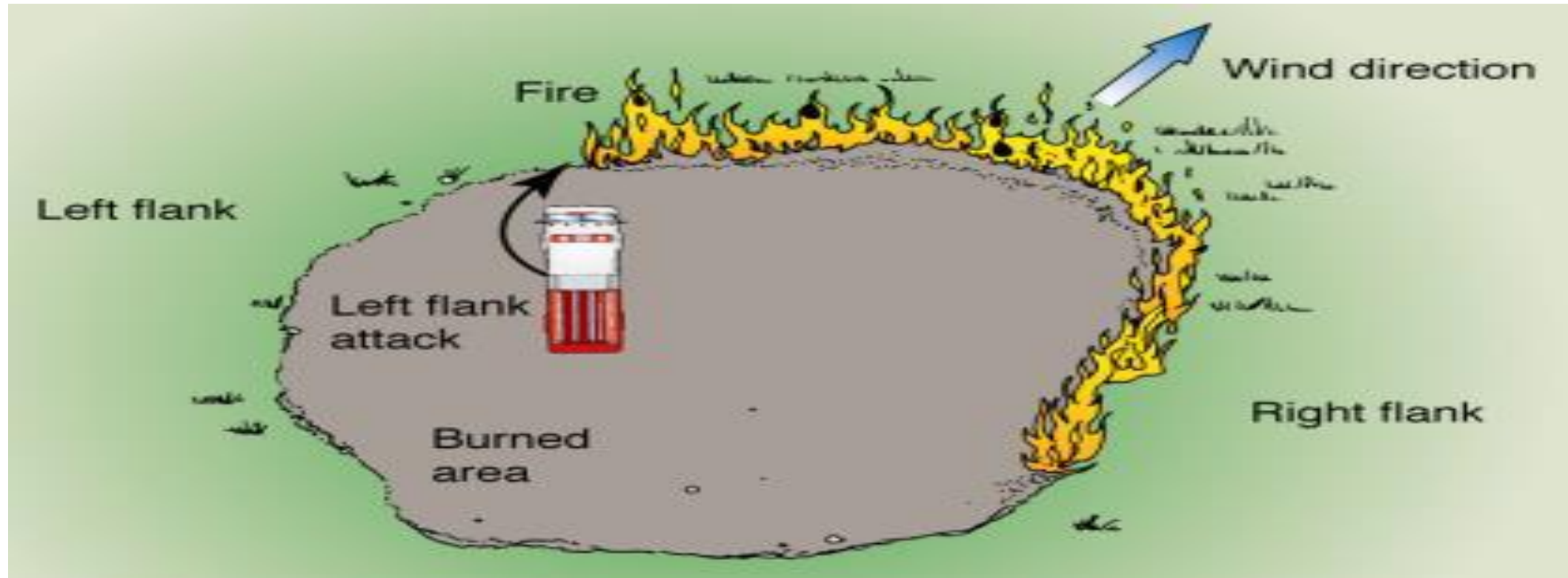
- Requires two teams
- Team one mounts along left flank near point of origin
- Team two mounts along right flank near point of origin





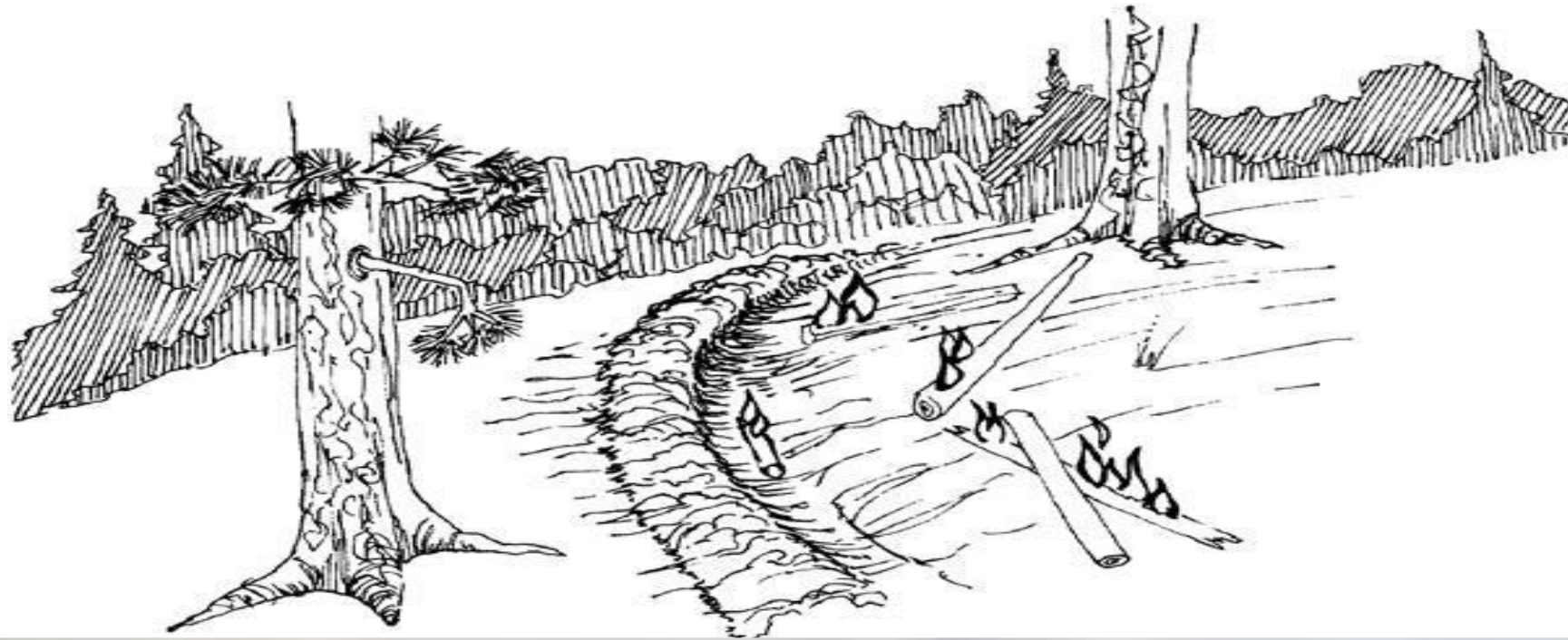
Flanking attack

- Requires one team
- Attack is made on either flank
- Based on flank with greatest risk



Indirect Attack

- Used for large fires that are too dangerous to approach through a direct attack
- Most appropriate when the topography is so rough that a direct attack is dangerous
- BURNOUT
- BACKBURN
- BUILDING BREAKS (Removing Fuel)



Priorities of Attack

- The Incident commander must assess and evaluate
- the priorities for preserving lives and property before
- determining how to attack a veld fire.



TOOLS



Protective Clothing

- Minimum requirements for all farmers and their
- Workers as well as volunteer crews
- Overalls, safety wear or jeans: 100% cotton
- Leather boots
- Leather gloves
- Bottle of drinking water
- At night: Torch



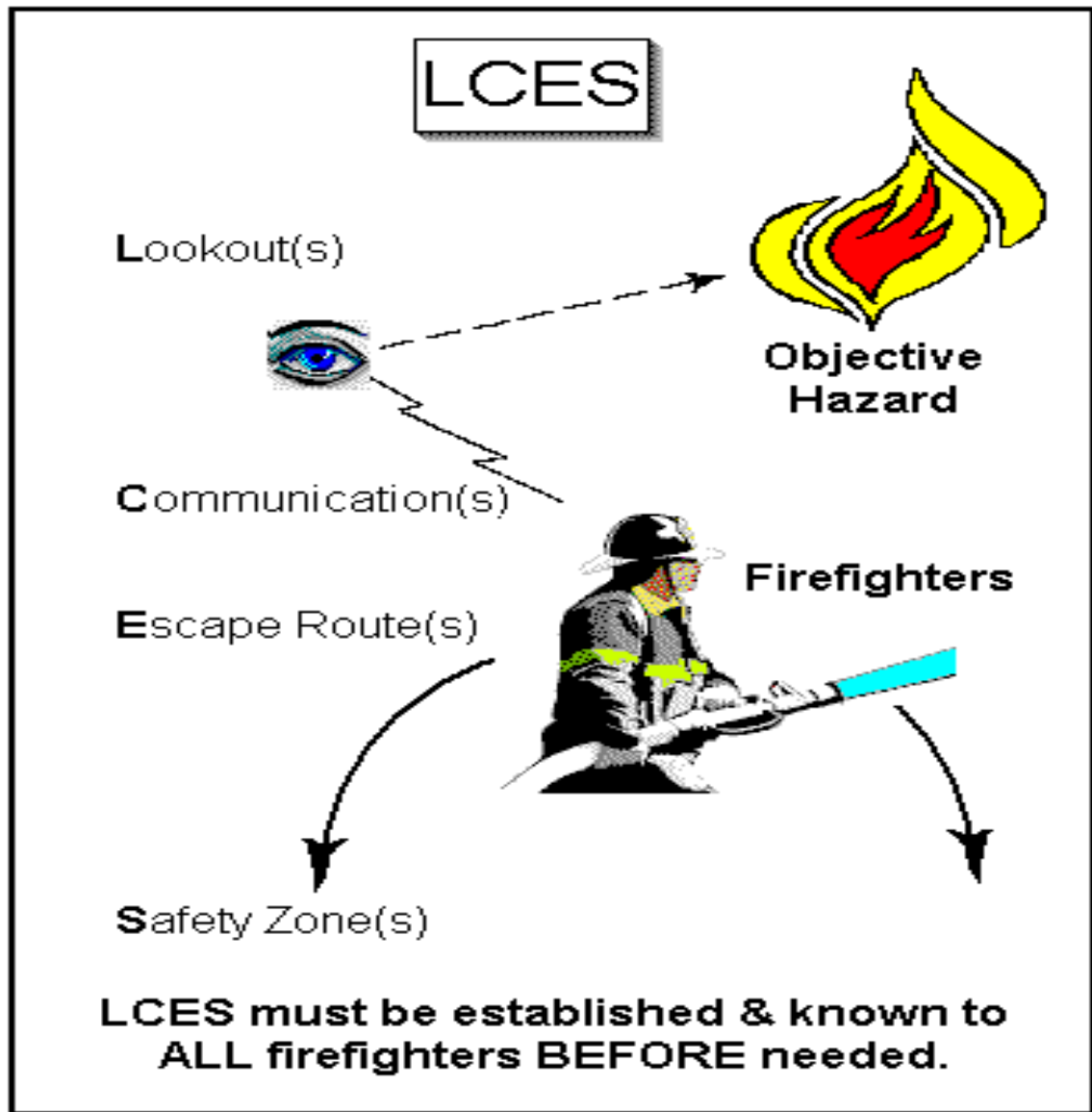
Helicopters and planes

- **HELICOPTERS ARE NOISY AND DANGEROUS**
- Water drops can kill or hurt
- Be aware, move out of the way.
- Stay away from choppers on the ground



“L C E S” for SAFETY

- **LOOKOUTS**
 - SOMEONE MUST SEE THE DANGER COMING AND WARN THE TEAM
- **COMMUNICATIONS**
 - IF YOU CANNOT TALK TO EACH OTHER YOU ARE IN TROUBLE
- **ESCAPE ROUTE**
 - YOU MUST BE ABLE TO SAFELY ESCAPE IF THINGS GO WRONG
- **SAFETY ZONE**
 - A AREA CLOSE TO THE FIRELINE WHERE YOU CAN ESCAPE TO WHERE YOU WILL BE SAFE
 - WITHOUT FIGHTING



Fire Safety Orders

- **FIRE BEHAVIOUR**

- 1 –Recognise current fire weather conditions and obtain forecasts.
- 2 –Obtain current information and regular updates on fire status.
- 3 –Initiate all actions based on current and predicted fire behavior.

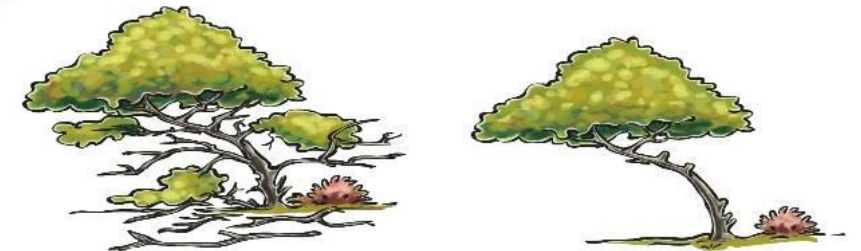
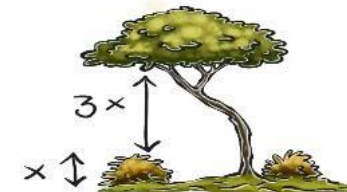
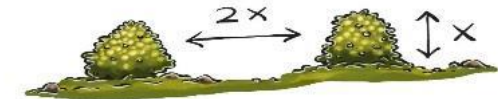
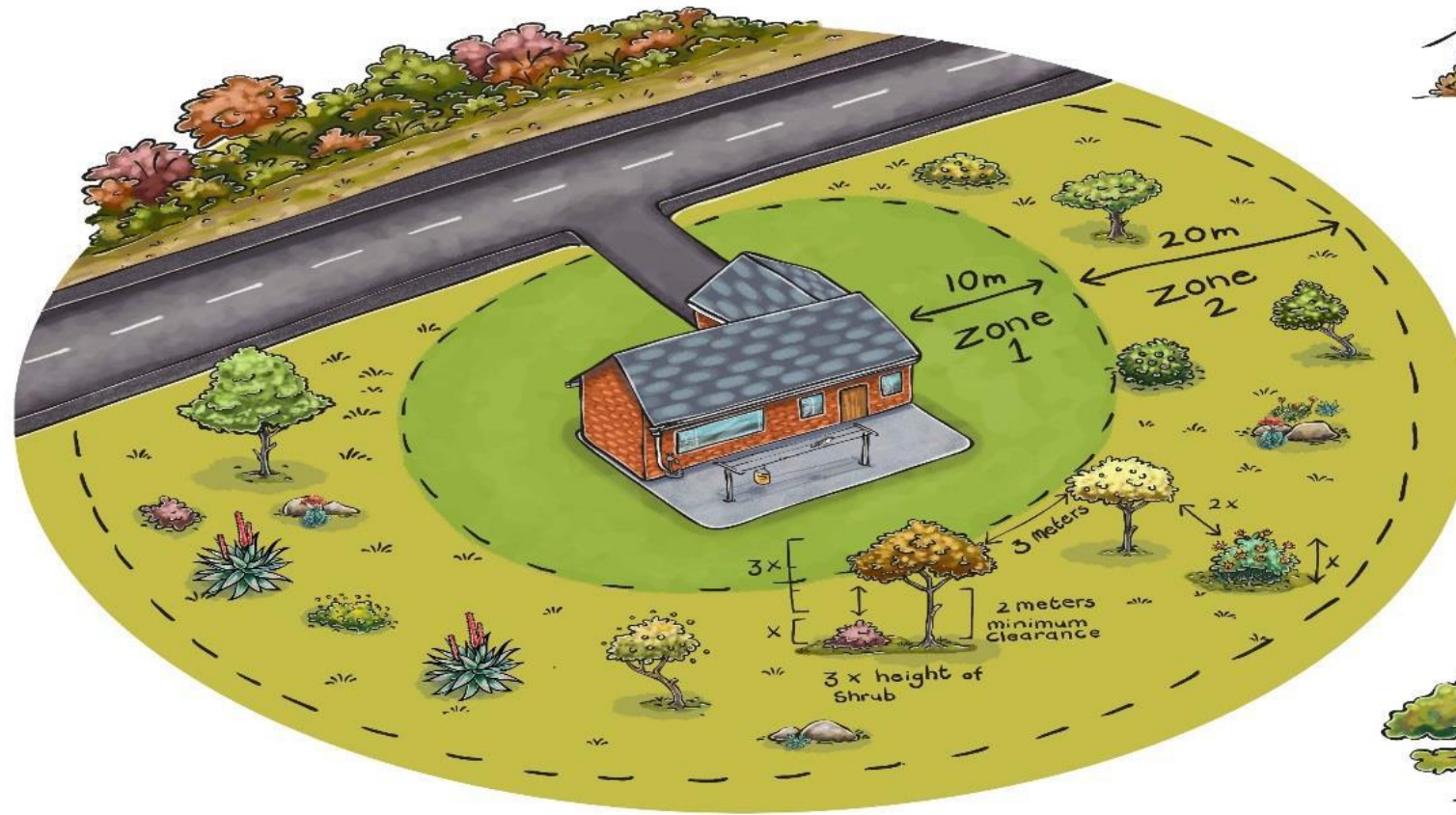
- **FIRE LINE SAFETY**

- 4 –Determine escape routes and safety zones.
- 5 –Establish lookouts in potentially hazardous situations.
- 6 –Stay alert, keep calm, think clearly and act decisively.

- **OPERATIONAL COMMAND**

- 7 –Remain in communication with crew, supervisor and adjoining resources.
- 8 –Ensure instructions are given, are clear and are understood.
- 9 –Remain in control at all times.
- Once ALL of these have been considered then one should.....
- 10 -Fight fires aggressively having provided for safety first.

Defensible Space



Wildland Fire Safety

- Keep informed on fire weather conditions and forecasts.
- Know what your fire is doing at all times.
- Base actions on the behavior of the fire.
- Identify escape routes and safety zones.
- Post lookouts when there is danger.
- Be alert, calm, clear, and decisive.

- Maintain prompt communications.
- Give clear instructions and ensure they are understood.
- Maintain control of your forces.
- Fight fire aggressively, having provided for safety first.



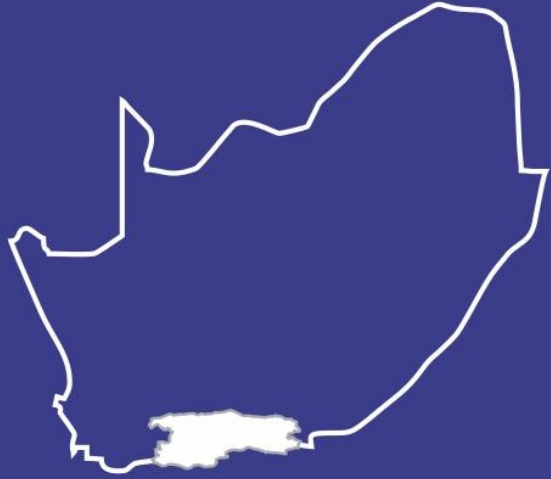
Summary

- The wildland fire triangle consists of three elements.
- The size and shape of a fuel influence how it burns.
- Air movement (wind) influences the speed and direction of the fire.
- Weather conditions and topography have a great effect on wildland fires.

- The head of the fire is normally rapidly moving.
- A finger is an extension of fire.
- Green areas contain unburned fuels; black areas
- have already burned.
- Direct and indirect attacks are used.
- Fire fighters should know escape routes.
- **LCES**

How is your Situational Awareness?

- Know the current weather
- Know the terrain
- Be aware of the fire intensity and behaviour.



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- ✓ tenders
- ✓ training/skills development

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