

Illustration 10.2 - Heatwaves

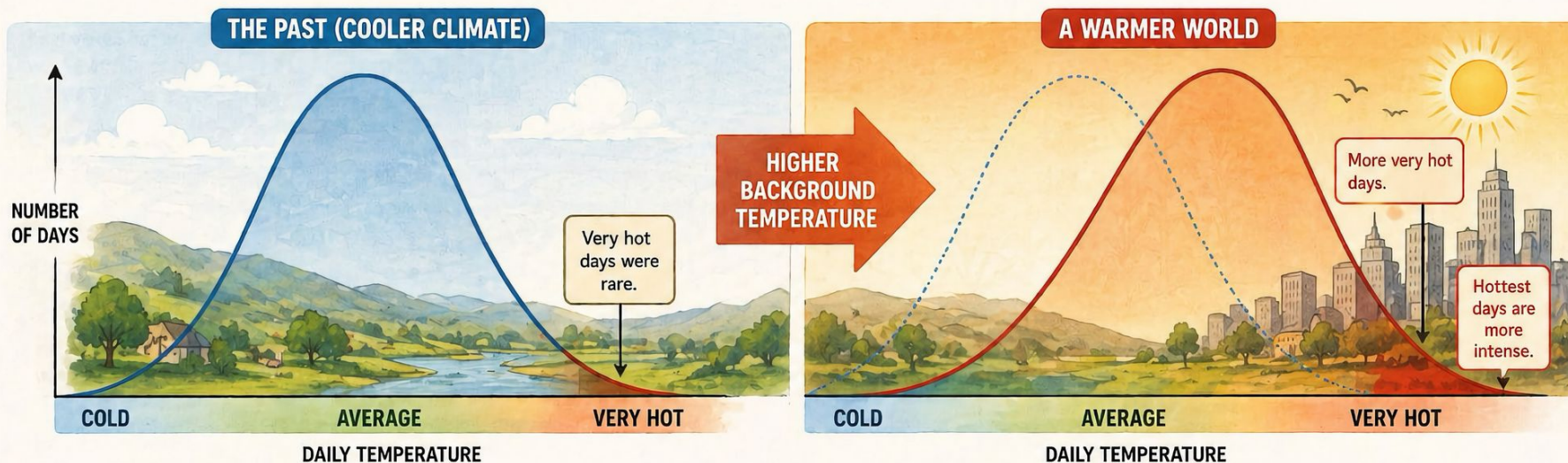
10.2 HEATWAVES: A SHIFTED PATTERN

As the background temperature rises, very hot days become more common and more intense.

Most days are near normal.
Extreme heat days are rare.



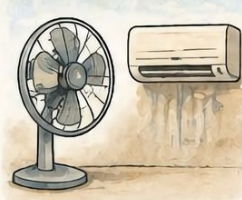
In a warmer world,
extreme heat days happen
more often and are hotter.



WHAT THIS MEANS



Heat affects our bodies
Very hot days and hot nights can be dangerous, especially for some people.



More demand for cooling
People use fans and air conditioning more, which can increase electricity use.



Impacts on places
Roads can soften, railway tracks can buckle, and building materials can wear out faster.



Rivers and wildlife
Warmer water can stress fish and other wildlife, especially for longer periods.



Cities get hotter
The urban heat island effect means cities can have more very hot days than nearby countryside.

KEY IDEA

A warmer climate does not make every day hot.

But it shifts the odds.

Very hot days become more common.

The hottest days become more intense.

Illustration 10.3 - Drought

10.3 DROUGHT: WHEN THERE IS NOT ENOUGH WATER

Heat can make drought worse by drying soils, plants and water sources faster.

THREE KINDS OF DROUGHT

These often overlap, but not always.



1. METEOROLOGICAL DROUGHT

Unusually little rain over a period of time.



2. AGRICULTURAL DROUGHT

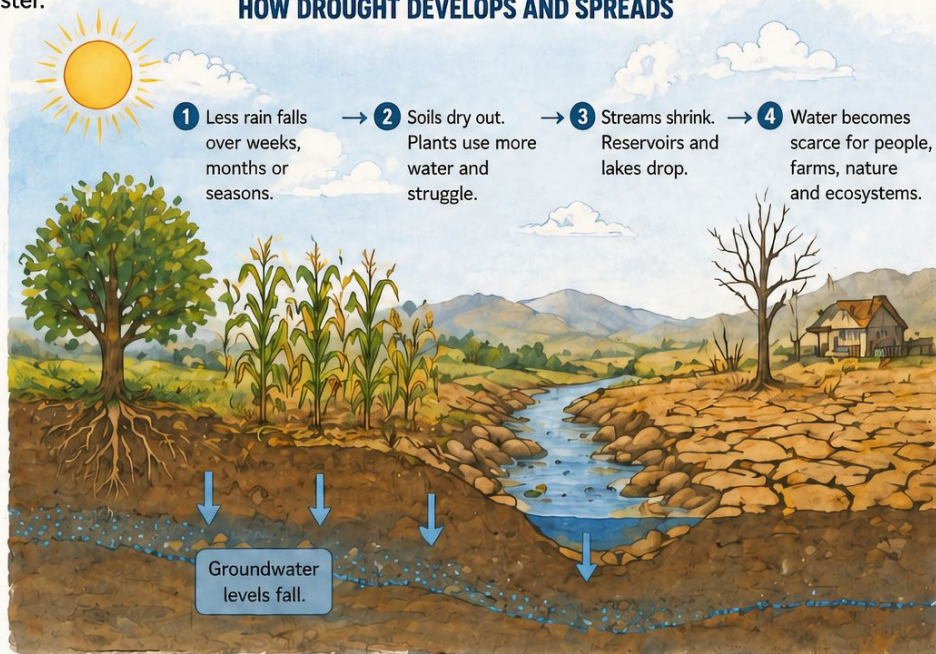
Soils are too dry for crops and plants.



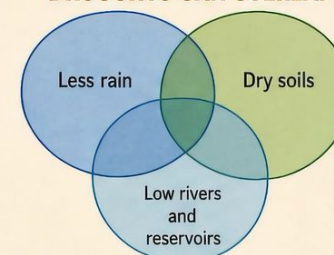
3. HYDROLOGICAL DROUGHT

Rivers, reservoirs, lakes or groundwater have fallen too low.

HOW DROUGHT DEVELOPS AND SPREADS



DROUGHTS CAN OVERLAP



A dry spring may stress crops even if reservoirs are still fairly full.

A hot summer can dry soils quickly even if the year began with plenty of rain.

HOW HEAT MAKES DROUGHT WORSE



Warmer air holds more water vapour. This can lead to heavier downpours when conditions are right.



But warmth also increases evaporation from soils, lakes and rivers, and transpiration from plants.



The same extra heat that loads the air with moisture can also pull water out of land more quickly.

Strange but true: heavier rain in some situations, yet worse drying in others.

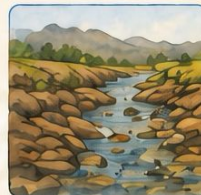
WHAT HAPPENS WHEN LAND DRIES OUT



Grass turns yellow.



Leaves wilt.



Streams shrink.



Crops need more water.



Wildlife searches harder for shade and water.



Dry land heats up more easily.

FEEDBACK LOOP

Drought can feed back into heatwaves.

Heat dries the land, and dry land can make heat worse.

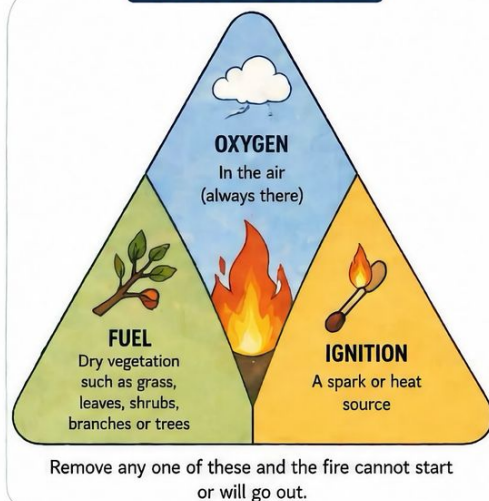


Illustration 10.4 - Fire

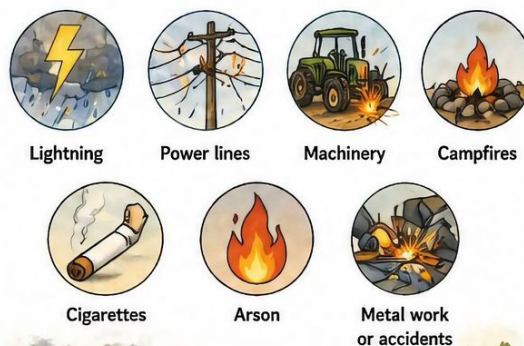
10.4 FIRE: THE RIGHT CONDITIONS

Fire needs the right conditions to start and spread. Three things are essential: fuel, oxygen and ignition.

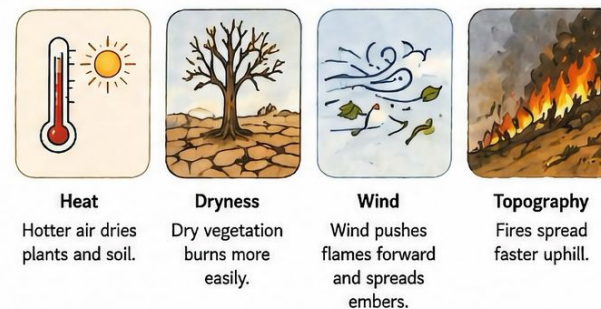
THE FIRE TRIANGLE



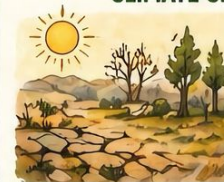
IGNITION CAN COME FROM MANY SOURCES



FIRE WEATHER MAKES FIRES WORSE



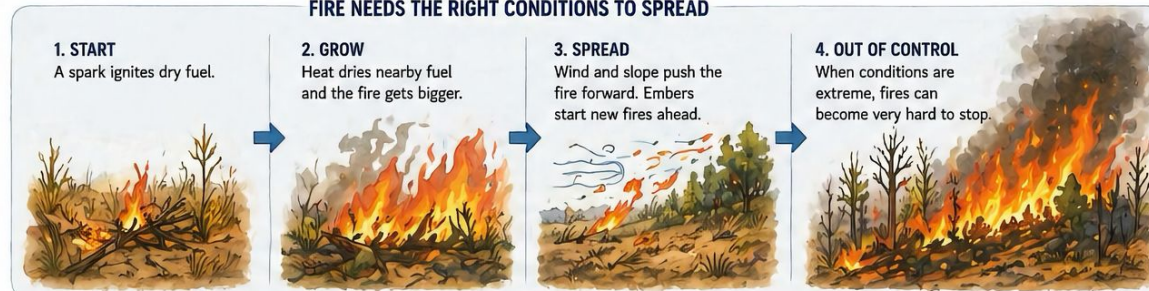
CLIMATE CHANGE AND FIRE RISK



Climate change does not provide the spark. But it can make heat, dryness and some wind conditions more common and more extreme.

That can mean more days of high fire danger in many regions.

FIRE NEEDS THE RIGHT CONDITIONS TO SPREAD



KEY MESSAGE

Fire needs fuel, oxygen and ignition. Climate change does not light the match, but it can make the conditions more dangerous when a spark appears.



Hotter
air

+



Drier
land

+



Stronger
winds

=



More
fire danger

IT IS TOO SIMPLE TO SAY...



“Climate change caused that fire.”

Fire risk depends on many things: weather, vegetation, land management, housing patterns, firefighting capacity and human behaviour.



“...climate change has nothing to do with it.”

A warmer, drier world can make some fires start more easily and spread more rapidly when a spark occurs.

Illustration 10.5 - Cooler, greener, safer neighbourhoods

10.5 ONE BRIGHT THING

Cooler, greener, safer neighbourhoods

Smart design and nature-based solutions can help cities stay cooler, use less water and reduce fire risk.

TOO HOT

Dark surfaces absorb heat.
Few trees or shade.
Water runs away instead of soaking in.

PALE & REFLECTIVE SURFACES

Lighter roofs and pavements reflect sunlight and reduce heat buildup.



TREES & SHADE

Trees cool the air, provide shade and make streets more comfortable.



GREEN ROOFS & BALCONIES

Plants on roofs and balconies provide shade, cool buildings and support wildlife.



TIMBER BUILDINGS

Timber stores carbon and creates healthy, comfortable homes and workplaces.



WATER-WISE PLANTING

Plants that need less water thrive in dry conditions and help keep the neighbourhood cool.



RAIN GARDENS & PLANTED SWALES

Soils and plants soak up rain when it falls and store moisture for dry times.



FIRE-SAFE LANDSCAPES

Using the right plants, keeping spaces between vegetation where removing excess dry matature can reduce fire risk.

COOLER SHADES SAFER TOGETHER



THE BIG IDEA

Designing with nature, using better materials and planning carefully can help reduce heat, support water in dry times and lower fire risk.



More trees & shade



Green roofs & pale surfaces



Timber & low carbon materials



Water-wise landscapes



Fire-smart design



BETTER PLACES, BETTER FUTURE

Small changes, together, create neighbourhoods where people, wildlife and nature can thrive.