

## Who lights fires?

In southern Africa most fires are lit by people. Fires in Kruger National Park are lit by section rangers and researchers, although some are also started unintentionally by tourists and poachers. A smaller number of fires originate from lightning strikes.

In southern African savannas burning is carried out for many reasons including:

- maintenance of natural habitats in conservation areas
- management of vegetation for pastoral production
- control of invasive and/or encroaching plants
- protection of property (fire-breaks)

## What time of year and how often should fires be lit?

There is no one fire type or way of burning that is best for all plants and animals. Some species require frequent fires while others need longer unburnt areas. In Kruger National Park fires are lit throughout the year to produce range of fire intensities and fire sizes. This approach is thought to be the best overall fire management for biodiversity.

## Not all fires are destructive

Plants and animals are very resilient to burning. Many plants are able to recover rapidly following fires. Few animals are directly killed by fires - they can often sense fire from a long way away and move out of the area. After a fire animals move back in from the surrounding unburnt area.



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Fire has been a part of the African landscape for thousands of years, and it plays an important role in the structure and functioning of many African ecosystems. Fire is especially widespread and frequent in Africa's savannas where it is widely used today as a land management tool both in conservation and agriculture.

The savannas of Africa burn regularly because of the climate - grasses grow in the summer wet season and then become highly flammable during the dry winter season

Fires are fundamental to South African savannas, and without them we would lose much of our biodiversity.

# Burning for Biodiversity

Most insects are highly resilient to fires. Ant diversity in savannas has been shown to increase with frequent burning.



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Because grasses grow from their base, they are able to quickly re-grow after fire. Often the quality of grass improves after burning.



Herbivore species show a range of responses to fires with different species recolonising a burnt area at different times. The first species onto burnt areas are often warthog (*Phacochoerus aethiopicus*) and zebra (*Equus burchelli*). Zebras eat green shoots that are available immediately post-fire with the removal of dead grass.



Birds such as the bronze-winged courser (*Rhinoptilus chalcopterus*) or Temminck's courser (*Cursorius temminckii*) use recently burnt areas for breeding. Their eggs and chicks are well camouflaged on the blackened ground surface.

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Burning for Biodiversity is a research programme that aims to improve ecological understanding and inform conservation managers about fires and savanna biodiversity.

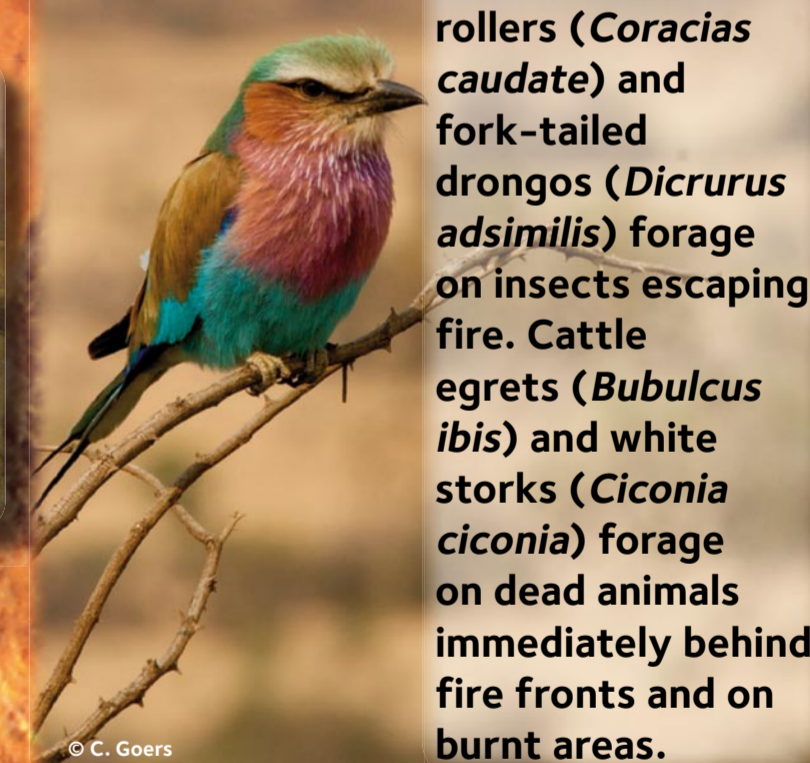


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Many savanna trees are protected from the heat of fires by thick bark.



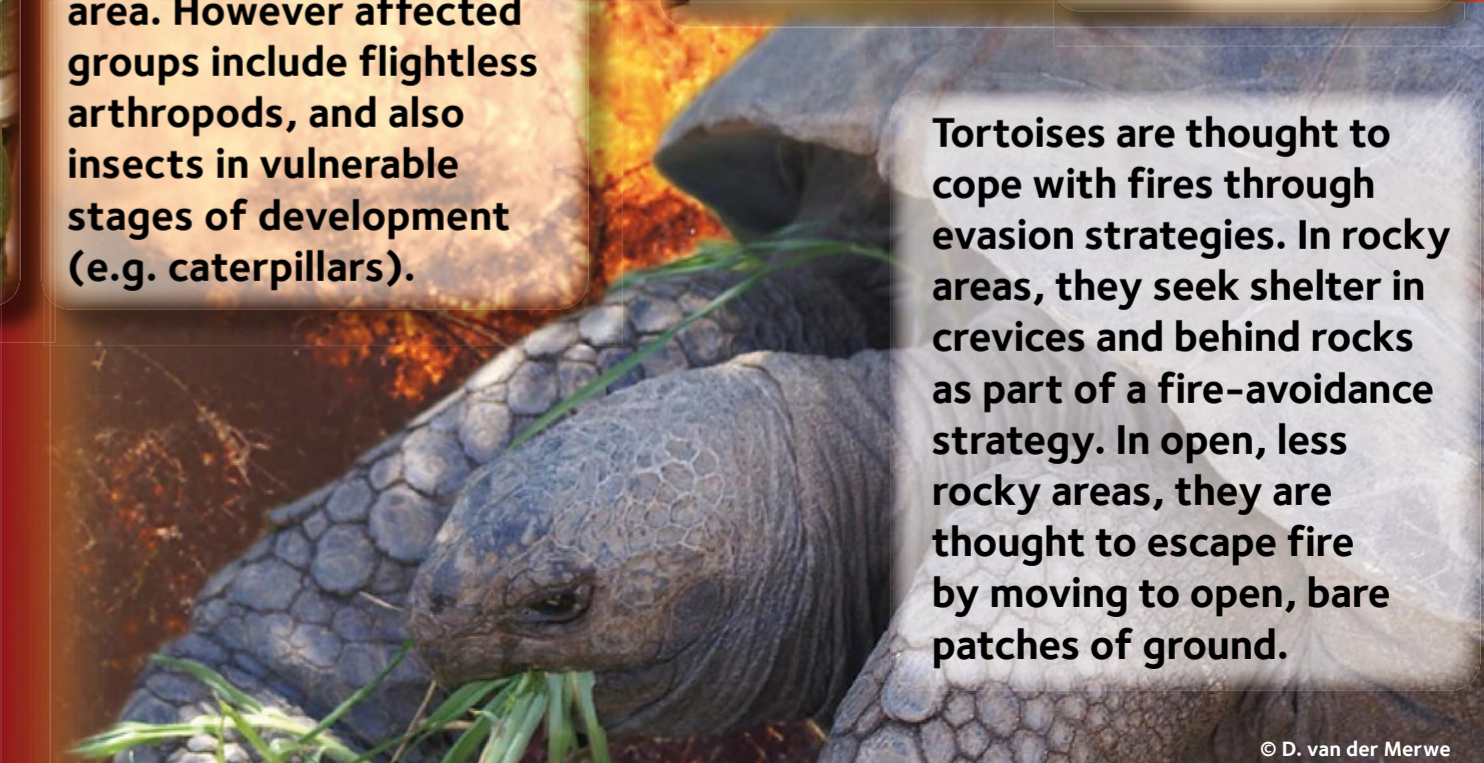
Mortality is generally low because most animals move out of the affected area. However affected groups include flightless arthropods, and also insects in vulnerable stages of development (e.g. caterpillars).



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Lilac-breasted rollers (*Coracias caudate*) and fork-tailed drongos (*Dicrurus adsimilis*) forage on insects escaping fire. Cattle egrets (*Bubulcus ibis*) and white storks (*Ciconia ciconia*) forage on dead animals immediately behind fire fronts and on burnt areas.

Tortoises are thought to cope with fires through evasion strategies. In rocky areas, they seek shelter in crevices and behind rocks as part of a fire-avoidance strategy. In open, less rocky areas, they are thought to escape fire by moving to open, bare patches of ground.



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Often only when leaves have grown back on the trees do browsers such as kudu (*Tragelaphus strepsiceros*) return to burnt areas.



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For more information on the Burning for Biodiversity program contact Dr Kate Parr at the Environmental Change Institute, University of Oxford (kate.parr@ouce.ox.ac.uk)

