

Uluru–Kata Tjuta National Park Note

Fire management

Fires and burning have been a part of Tjukurpa for thousands of years.

Burning the country began with the ancestral beings in the Tjukurpa. *Lungkata* (blue-tongued lizard) burned the spinifex as he travelled towards Uluru from the north.

Anangu use fire for cooking food, warmth and making tools. They also burn patches of land as they travel to encourage bush foods to grow, to flush out game, to announce their approach and to make walking easier. Fire patches are often as small as a few hectares and close together, leaving a pattern of burnt and unburnt terrain similar to a mosaic. Traditional burning of the Uluru area stopped when *Anangu* were removed from the region during the 1930s.

During the 1940s rainfall was good and the vegetation flourished. The 1950 fire, fed by the fuel grown during the previous 20 years, burnt about one third of the park's vegetation. The pattern repeated itself and in 1976 two fires burnt 76 per cent of the park. To prevent further damage to the diversity of vegetation, park managers approached traditional land owners for advice and tuition and a system of patch burning was developed for use in the park. Today, *Anangu* direct and carry out the burning with the assistance of park rangers.

Desert vegetation and burning

In order to understand burning, it is important to know about desert vegetation. There are two main vegetation groups in the park, one dominated by spinifex and the other dominated by mulga. Both these vegetation types have adapted very differently to survival in the arid zone.

Spinifex

The spinifex-dominated vegetation of the dunes and higher plains looks grassy with openly spaced trees. Most of the plants revegetate by sprouting either from under the ground like spinifex or above the ground like the desert oaks. After fire, regrowth will be visible within weeks, even without rain! Desert oaks have a thick bark, which protects the tree from fire. Vegetation with these resilient characteristics can survive frequent burning.

Mulga

Groves of trees on the lower plains and in the dips between dunes make up the mulga-dominated vegetation and look quite different from the spinifex areas. Most of the plants in mulga areas regenerate from seed, and germination often requires heat from the sun or fire to crack seeds and encourage new growth. It takes two good seasons of rain to germinate the seeds and young mulga trees grow for around 10 to 20 years before they become mature enough to set seed.

Fires in mulga forests can eliminate whole communities of this species. In the park you will notice large stands of mulga, especially near Uluru and the seeds for these trees were germinated in the 1976 fires. While fire can enhance the germination of mulga, adequate rainfall is the most important factor determining successful regeneration events.



Left to right - spinifex regrowth is visible within weeks of fire, *Anangu* staff conducting a controlled burn in the park, and mulga vegetation, the seeds need heat for regeneration

Rainfall and natural fires

Rainfall is the key to fire danger at Uluru. The higher the rainfall, the greater the amount of fuel and the more chance there is of large-scale fire. The periods of highest fire danger occur after a few years when spinifex has built up and the growth of grasses in the mulga has peaked following heavy rain. When these factors coincide, uncontrolled fires will travel long distances through both vegetation types, making these the most devastating fires. Natural fires mostly occur in the early summer months. They are usually started by lightning strikes from dry electrical storms coming from the northwest. When these storms arrive the weather is usually hot, dry and windy, which are ideal conditions for raging fires.

What is patch burning?

Patch burning is a controlled type of burning using numerous small fires across the landscape. It is designed to protect vegetation from destructive burning. The many small patches are burned so that large areas are protected from accidental burning. From a satellite, patch-burned areas make a mosaic pattern. Over the years, as the burnt patches regrow, satellite images show different shades in the various vegetation growth stages.

How does patch burning work?

Patch burning works by reducing the amount of fuel in patches and strips throughout the park. These strips and patches also provide a natural break against the full force of a natural fire and allow it to burn out. This limits the amount of damage any one fire can cause in the park and is progressive so that regrowth is staged. Patch burning also has the ecological advantages of providing a range of habitat types for the species found at Uluru and there are lots of species that live permanently in old and burnt areas.

The patch burning program has been running in the park since 1985. A small percentage of the park is burnt in any one year to maintain a range of habitats. This strategy has already shown success as biannual fauna surveys indicate a rich diversity of life.

As a biosphere reserve, Uluru–Kata Tjuta National Park is an example of semi arid zone ecology. Management has responsibility to preserve the diversity of life within the park and patch burning is an effective management strategy applied to maintain maximum diversity.

Fire increasers

These species directly benefit from fire, either through reduced competition with other species or through various germination cues. Plants found in the park known as 'fire increasers' include northern mulga grass (*Paraneurachne muelleri*), native lemon grass (*Cymbopogon ambiguous*), threeawn wanderrie (*Eriachne aristidea*), waxy wattle (*Acacia melleodora*), and desert poplar (*Codonocarpus cotinifolius*).



A controlled burn being undertaken at the Mala Paddock, an area used to breed *mala* (rufous hare-wallaby) for re-introduction into the park. Burning encourages the growth of *mala* food plants and reduces the risk of a large fire in the enclosure



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