

Fire Management on Mataranka Station

A strategic rotational fire-management program at Mataranka Station has reduced wildfires as well as help control woody weeds.

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Mataranka station is located about 90km south of Katherine, and is run by the Northern Territory Rural College. The property is a total of 770km² in size and runs an average of 1500 breeders. Average rainfall of the station is 810mm (32 inches) though the last two years have experienced above average rainfalls of over 1270 mm (50 inches).

Mataranka station is dominated by red soils as well as a mixture of sandy white and gravelly soils, that are fairly typical of the Mataranka and Sturt Plateau region. Native grass species are dominated mostly by Kangaroo grass (*Themeda triandra*), Golden Beard Grass (*Chrysopogon fallax*), Bluegrass (*Dicanthium fecundum*), Spinifex (*Plectrachne* sp.), Bunch Spear Grass (*Heteropogon contortus*), White Grass (*Sehima nervosum*) and Aristida sp. Bull Mitchell Grass (*Astrelba squarrosa*) exists on the black soil patches which cover an area of approximately 30km².

Gary Riggs, Kevin Wallace and Geoff Baker have been using fire on Mataranka station for the past three years and have developed a strategic rotational fire management program for their paddocks. In previous years Mataranka Station has been exposed to many hot wildfires in the late dry season. Planned burning off has been a useful tool in reducing uncontrollable wildfires as well as having other positive benefits including the control of woody species and annual sorghum.

Preventing wildfires

In the past four years there were no uncontrollable wildfires on the property, largely because of better firebreaks, and rotational paddock burning.

Firebreaks along the eastern boundary of Mataranka station are the most important means of reducing the risk of wildfires entering the property from neighboring land. The eastern boundary is protected from fire by two breaks (each 2 blades wide) separated by 100 metres. The middle section is burnt early in the dry season and is proving very successful in preventing the escape of uncontrollable fires. If a wildfire were to start on the Eastern side of the station (consisting of two dry-season paddocks of 40km² each) this total area would be completely burnt in less than two hours. This would

require relocating 2000 head of cattle to the rest of the property and would lead to a substantial loss in productivity.

Altogether, about five weeks per year is spent on grading firebreaks, tracks and fencelines (two weeks on the external firebreaks.) Although this is costly in time and labour, it saves a lot of pasture from uncontrolled fires, increases efficiency of moving around the station and is an integral part of maintaining property infrastructure.

Mataranka station has 56 km of frontage along the Stuart Highway, which is often the source of many fires on the property (caused by cigarette butts, people, and grass slashers). A strip of about 200 metres wide along the roadside is burnt during mid-late wet season and is self-extinguished by late afternoon humidity or storms. This form of firebreak proves effective, and is easy to implement and maintain, as cattle grazing this area keep the fuel load to a minimum throughout the year.

Other boundaries are sprayed with Round-Up early in the growing season (December), to reduce the fuel load growth over the wet season. Spraying proves to be just as effective as grading, costs less and creates minimal soil disturbance. Parts of the boundary which do need to be graded later on in the year are easier to scrape because of the lack of ground cover. One restriction with spraying is that Round-Up won't kill all plants, and some vine type plants will not die.

Rotational burning

Rotational burning within paddocks was first started in 1996 and aims to reduce woody tree and annual sorghum growth, as well as reducing fuel loads to decrease the risk of wildfires. It was also thought that rotational burning would encourage stock to graze on the freshly burnt areas making mustering simpler, and allowing perennial grass species in the unburnt areas to build up root reserves and seed stores.

Current practice involves burning one-half of every paddock each year. Paddocks are burnt in the early wet season, and fires will not be lit until 100–150mm (4–6 inches) of rain has fallen for that season. This minimum rainfall requirement encourages the germination of sor-



ghum so that it can be substantially knocked down, and is still early enough in the season to be able to establish a fire hot enough to knock down woody plants.

Logistics of rotational burning

Control burning within each paddock requires at least two people. Fires are burnt relatively early in the day (usually 9–10am) to avoid storms in the afternoon and thus ensure that the whole section of the paddock is burnt through.

Most tracks go through the centre of the paddocks, along with the fencelines, these prove to be good Firebreaks to light off. Burning begins with lighting the downwind side to create a back burn. The whole perimeter is then lit. Gary recommends that the perimeter be lit in manageable sections at a time, to avoid fire escaping into another paddock and becoming uncontrollable.

Equipment used includes one vehicle with water cart, and a quad bike with drip torch. Radio contact is essential to successful and safe burning.

Results: anecdotal evidence

Since beginning rotational fire practice in 1996, staff at Mataranka station have seen numerous positive responses on the property:

- Woody plant growth has been knocked back;
- Annual sorghum is no longer prolific and more desirable species have increased due to reduced competition;
- Promotion of sweeter and fresher grass;
- Burnt half stays greener for longer through the year;

- Wet season lick consumption dropped by 50% .

New benefits in 2000 include:

- Higher condition scores for first round weaning cows (20kg better than last year);
- Heavier weaners (by an average of 10kg).

It is not yet established if these were a direct result from burning, the exceptional season, or a combination of both.

Costs of fire control

The costs calculated for maintaining firebreaks on the station includes wet-season spraying, dry-season grading and dry-season roadside burning. This totals \$13,924 for the entire year and works out to cost \$56 per kilometre. Much of these costs are to grade major roads and fencelines on the station—which would be carried with or without a fire-management strategy. The total cost for control burning is \$2047 per year.

It is difficult to economically calculate the costs and losses potentially incurred from uncontrolled wildfires. The relocation or agistment, and supplementary feeding of cattle as a result of pasture loss would incur great costs. Feed loss would lead to a decrease in productivity, resulting in lower calving rates and poor animal condition. Thus, the benefits of fire control and rotational burning far outweigh the costs.

Although rotational burning practices, such as those carried out at Mataranka station will not work in all scenarios, Gary recommends that these practices will work successfully in the Mataranka region. However, for a rotational burning strategy to be successful, many other factors must also be taken into account, including land condition, species composition and stocking rates.

For more information about land-management issues in northern Australia, go to the Savanna Explorer section of our website at <http://savanna.ntu.edu.au/>

For information about the Centre's extensive research program go to our research section.

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