HOTSPOTS FIRE PROJECT

Fact sheet: Fire & grazing in the Northern Rivers region ~ DRAFT ONLY

A diverse, grassy understorey of native species

Using & living with grass

Do you live in a grassy landscape or use it for primary production? If so, you or your neighbours may already be using or considering using fire for grazing, biodiversity or other reasons. When used appropriately, fire can do wonders for the health and productivity of Northern Rivers' grassy ecosystems.

Value on the ground

When many of us think of biodiversity, often it's the more conspicuous native trees, birds and animals that spring to mind. Few of us realise just how much native diversity can be found close to the ground and how this diversity can be important to our management needs.

Take a close look at the ground layer of a healthy grassy community and you can expect to find a good mix of native herbs and grasses. These might range from unusual orchids and herbaceous native legumes and daisies to better-known species like Kangaroo Grass (*Themeda australis*), Weeping Grass (*Microlaena stipoides*) and Native Sorghum (*Sorghum leiocladum*) - to name just a few.

Many of the region's early graziers understood the value of the existing native species and their diversity for their livestock - and many still do. For those early graziers, the ground layer provided an abundance of quality feed for cattle and other livestock. However, over time, many areas were overgrazed and not managed appropriately for fire. Today's graziers and newcomers to the region stand to benefit from efforts to protect and bring back a healthy, diverse ground layer. Fire has an important role to play in this.

The fire-grazing mix

While grazing continues to be a major landuse in the region, growing interest in fire management planning is prompting many people to ask "how do fire and grazing influence one another?"

Evidence from the productive subtropical areas in and near the Northern Rivers region suggests a mixture of livestock grazing and periodic fire *can* support high biodiversity values - so long as the area isn't heavily grazed. These tend to be the less fertile hillsides; 'rough grazing' areas where native grasses and herbs often survive in a woodland matrix. (Note: it isn't a good idea to introduce domestic stock into high quality native vegetation that lacks a history of grazing).

Why do farmers burn?

There are a number of reasons why farmers use fire as a management tool on their property, to:
- Convert rank grass to palatable 'green pick'
- Attract animals (livestock) to particular areas
- Maximise grass production
- Encourage particular ground layer species
- Manage shrub and tree abundance
- Prevent wildfire burning out large areas, and
- Encourage native plant and animal species.

The Hotspots Fire Project has drafted a paper that looks into the merits of each of these and the questions that they raise. Some of the draft recommendations are reported here.

How often & when to burn

Where the aim is to combine sustainable cattle grazing with biodiversity conservation, ***frequent but not annual burning*** appears to be the regime most likely to allow for animal weight gain as well as retaining biodiversity value. Plus burning at intervals of around 2-5 years may have better outcomes for soil health than annual burning. Available evidence also suggests that spring burns may be better for soils and perennial

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native tussock grasses than autumn burns (although shrub regeneration may be less successful after autumn burning).

While annual burning may have benefits for cattle production short-term, it is likely to put long-term pasture sustainability at risk. Longer fire intervals of say 6-15 years may have merit in some parts of the landscape to provide habitat variability for native fauna and flora. Excluding fire may benefit some native plants and animals but its value for cattle grazing is likely to be low.

What to burn

Appropriate burning can help to retain good-quality swards of native C4 tussock grasses (eg. *Themeda australis*, *Sorghum leiocladum* and *Capillipedium* species). Where these grasses have been grazed out, the role of fire is less clear-cut. Large C4 tussock grasses are important for maintaining soil condition and ecosystem function. They can capture and redistribute nutrients, stabilise the soil surface and minimise erosion, encourage less runoff, incorporate organic matter into the soil, limit deep drainage and associated acidification, and reduce the rate of spread of invasive exotic grasses.

The use of fire alone may not always produce desirable results. For instance, fire may encourage exotic grasses and other patterns of degradation in pastures long-unburnt and grazed for many years. One way to restore degraded grassy native vegetation may be by burning together with seeding in of perennial native grasses, particularly *Themeda*. Caution and an integrated weed management approach are also recommended. Where lantana and/or shrubs and vines with rainforest affinities have become well established - and the aim is to re-establish a grassy understorey - a series of fires, integrated weed management and perhaps even seeding in of native perennial grasses may be needed.

Post-fire grazing

Northern Rivers graziers wanting to boost the abundance of *Themeda* and other tall tussock grasses should consider spelling their native pastures for several months after burning, or keeping post-burn stocking relatively low.

Among other things, it may help to rest burnt areas until the grass is at least 15 cm high. Other options for managing grazing pressure might include burning relatively large areas at one time so cattle can roam widely, or burning a series of patches in turn to attract stock to different areas. Where the aim is to increase the abundance of particular native pasture species, spell them until they have flowered and set seed. This may best be accomplished in years of good rainfall.

Aim for diversity

While some burning and grazing regimes may be better than others for meeting particular management aims, diversity in regimes and across the landscape is also important. As well as helping out native species, patchiness associated with trees and the gaps between them adds to habitat diversity in forests and woodlands and may help maintain a range of summer and winter grasses.

WHAT GRAZIERS & LANDHOLDERS CAN DO

Get to know and appreciate the variety of native grasses and other plants that make up a healthy grassy ecosystem - and the role of fire in maintaining these.

Consider how often and when to burn, what to burn and if and when you will allow grazing animals back in. Remember that burning on its own may not provide a ‘quick fix’. Consider patterns of fire over time and the use of supplementary measures such as integrated weed management and the re-introduction of native plant species.

Keep in mind that there is no ‘one superior way’ for all landholders in a region to approach fire management and grazing. Diversity in approaches can help to create variety in habitat for native plants and animals as well as meet different management objectives.

Acknowledgements Thanks to Penny Watson **Reading** Watson, P. (2006) *Fire and Grazing in the Northern Rivers Region Draft 1, Preliminary Draft for Comment.* Hotspots Fire Project, Sydney. **Further Information** The Hotspots Fire Project is managed by the Nature Conservation Council of NSW, with funding from the New South Wales government through its Environmental Trust. For further information contact the Project Co-ordinator on (02) 9279 2466, email hotspots@nccnsw.org.au or visit www.hotspotsfireproject.org.au **Credits** Text: Julie Hinchliffe, Photo: Waminda Parker