

Nature's workforce



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Give grasses a go! Discover a new work force

Grasslands are perhaps often overlooked as providing benefits, but this unassuming 'workforce' has many surprises to offer.

Grassland restoration has benefits all round for soil health, pasture production, animal health as well as native grassland biodiversity.



Wal and Jane Friend 'Carlton', Walgett. Photo Yvette Cunningham

In summary....

The science

Grasslands support different wildlife to woodlands with a variety of plant species supporting soil fauna, animals, birds, amphibians and insects that cropping land and overgrazed pastures cannot. The three most common methods of actively managing grasslands are revegetation, grazing and fire.

Helpful hints

- When planting trees consider whether the area was grassland.
- Sow a small cultivation paddock down to local grasses as a nursery to renovate pastures on the other parts of your farm.

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- Match your grazing to your environmental conditions and land capability.

Benefits to the farmer

- Healthy grasslands are a fantastic filler strip to control run-off of soil particles and nutrients from bare soil into rivers.
- Well managed native pastures are excellent for cattle feed.

Are you making a difference?

Paint a liquid paper dot on your boot and every ten paces record what the mark on your boot has hit. 'Diversity is good!'



Cotton Catchment Communities CRC

CASE STUDY - Restoring Mitchell grasslands on 'Carlton'

Wal and Jane Friend run a 6000 ha mixed farming enterprise on 'Carlton' of irrigated and dryland cropping and beef cattle, on the Cryon Plain east of Walgett. The Friend's have been working to restore the curly Mitchell grass (*Astrebla lappacea*) pastures on "Carlton" to improve their pasture production.

The Friend's have managed the stock on the farm for a number of years to encourage their most productive native grass species to establish and increase. The Mitchell grass is their most productive species although both Wal and Jane consider that a more diverse paddock is a more productive paddock. Their stock management includes adjusting their stocking rate, according to 'common sense' as Wal says, to match the carrying capacity of their country and spelling paddocks to allow their productive grass species to set seed.

The results from stock management were slow, so herbicide control was added to the mix of management tools. In the last four years, Wal and Jane have been controlling black roly poly and wild turnip by herbicide application at the right time, depending on rainfall and seasonal conditions. Wal says "there's nothing wrong with the wild turnip, but in wet years it gets out of control and sucks all the moisture from the soil and shades the grass, stopping it from growing." Wal says to get it under control and no longer let that happen, he sprays when he needs to depending on rainfall events.

Wal and Jane Friend say "we are very happy with the results" and say they have seen more productive species are coming back in great numbers, have 100% groundcover and much improved soil health and moisture profile.



No Management



Stock Management and Weed Control

"The results are outstanding, we have gone from very little grass to substantial coverage with great green pastures that were not there 5 years ago, particularly due to this summer rain extra species have popped up", said the Friends.

What does the science say?

Grasslands are endangered habitats and it is estimated that in some regions less than 1% of native grasslands still remain. Most of these remaining native grasslands occur on private lands, leaving landholders the important task of saving these endangered habitats and their enormous plant and genetic diversity.

There are over 1200 species of Australian native grasses. A wide variety of perennial and annual grasses and forbs are present in native grasslands depending on rainfall and grazing regimes. Mitchell grass and Bluegrass tussock grasslands are some of the more dominant species occurring on the cracking clay plains of cotton growing areas in both QLD and NSW. Native pastures may also contain native perennial legumes e.g. forbs, shrubs and trees.

Grazing by domestic livestock has greatly degraded many Australian ecosystems. It is particularly likely to have detrimental impacts in relatively intact ecosystems on unproductive soils. By contrast, in some environments grazing may be a useful management tool to manage biodiversity, for example, control biomass (native or exotic), prevent encroachment by undesirable aggressive species and maintain fauna habitat structure. In many cases, burning may achieve similar, but not necessarily more effective outcomes, especially in degraded or invaded areas.

Research is still emerging as to when livestock grazing—or the removal of grazing—is likely to have positive or negative impacts on grassland biodiversity.

What can you do?

The three most common methods of actively managing grasslands are revegetation, grazing and fire.

Planting trees

- Consider whether the area was grassland.
- Sow a small cultivation paddock down to local grasses as a nursery to renovate pastures on the other parts of your farm.

Grazing and Fire

- 'Leave some areas alone'.

Where possible, leave some grassland areas, such as floodways and awkward areas around your farming, undisturbed from grazing (or slashing) and fire. In particular, consider fencing around grassy areas with lighter soils, such as red ridges, to exclude grazing.

- "Don't do the same thing everywhere".
- The essence of managing diversity is to have a range of ecosystems in a landscape mosaic. It is preferable to stick with either grazing or fire, and for them not to follow in succession.
- Most grasslands can tolerate occasional fire (1 in 10 - 20 years) however best to avoid burning when there is active growth and it is management after the fire is very important. Frequent fire is devastating to grasslands, resulting in loss of groundcover, loss of carbon, loss of habitat.
- Plan and control your grazing.

There are many different grazing regimes which may be more or less suited to your environmental conditions and enterprise. Planning your grazing allows control of plant competition, plant and pasture growth rates, pasture utilisation, pasture composition – species diversity. To control the grazing process it is often recommended you use fewer and bigger mobs and more paddocks per



The Golden-headed Cisticola lives in rank grasses along creeks, other wetlands, roadsides & railway lines. Photo: Jan Prewett

mob this allows you to lengthen the recovery period and shorten the graze period and control your stock density and stocking rate.

Are you making a difference?

To identify potential grasslands on your property look for areas remote from water where stock only occasionally graze, where the main grasses present are of a tussocky form and are perennial (annual grasses are completely dead by summer) and you should notice different wildflowers growing in the spring.

To monitor any changes in your grasses paint a liquid paper dot on top of your boot and after every 10 paces record what the paint dot on your boot has hit. It might be easier to group plants as annual grasses, perennial grasses, weeds, forbs, legumes and woody vegetation, instead of attempting to identify every plant species. Record all the plants along a 100 m transect. Revisit the site during each season.

Benefits for the cotton grower

- Provides habitat for birds and natural pest controllers like spiders and damsel bugs.
- Native grasses and legumes are more resilient to local conditions and relatively drought tolerant, they tolerate low nutrient, saline and acidic soils.
- Commercial potential from selling native grass seeds (for pastures, horticulture, nature strip stabilising and mine revegetation).

Benefits for biodiversity

- Important habitat for reptiles, mammals, birds and invertebrates.
- Protecting large numbers of different plant species.
- Provide genetic resources for the development of native pastures.

For more information:

Web pages

www.cottoncrc.org.au

www.greeningaustralia.org.au/resources/resources

www.namoicma.nsw.gov.au

www.cottoncrc.org.au

www.raa.nsw.gov.au/reader/grassed-up

www.environment.gov.au/land/publications/rangelands-fire/

www.epa.qld.gov.au/publications?id=843

www.dpi.qld.gov.au/cps/rde/xchg/dpi/hs.xsl/26_6161_ENA_HTML.htm

www.nrm.gov.au/publications/factsheets/bio-native-grasses.html

www.stipa.com.au/bwWebsite/

Scientific Publications

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Lunt, Ian D.; Eldridge, David J.; Morgan, John W.; Witt, G. Bradd. 2007. TURNER REVIEW No. 13. A framework to predict the effects of livestock grazing and grazing exclusion on conservation values in natural ecosystems in Australia. *Australian Journal of Botany* Volume: 55, Issue: 4, pp. 401 - 415

McCosker, T. (2000) Cell grazing – the first 10 years in Australia. *Tropical Grasslands* (34), pp. 207-218.

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