

Grazing management principles: No.3

Maintain and improve groundcover

Maintaining and improving groundcover provides benefits in productivity as well as the health of the environment.

Managing groundcover protects the soil surface from erosion and improves its ability to capture and absorb rainfall.

Why manage groundcover?

Groundcover is any material that covers the soil, including gravel, living and dead plant material, dung and biological soil crusts. Without effective management of groundcover, we cannot maintain landscapes and their biodiversity.

Effective groundcover management techniques favour the growth and regeneration of perennial species and are critical to establishing healthy pastures.

Groundcover management is one of the few ways that soil performance can be improved on extensive rangeland properties.

Benefits of improving groundcover

There are significant benefits in effectively managing and improving groundcover for the productivity of any property, as well as the health of the environment.

Adequate groundcover will:

- protect the soil surface from potential wind erosion
- improve the soil's ability to capture and absorb rainfall
- reduce water erosion and turbidity of streams
- protect the available moisture from evaporation
- improve soil nutrient retention and buffer soil temperature
- improve the soil structure and soil health
- increase the biodiversity of landscapes
- assist with soil carbon sequestration
- decrease drought recovery time.

How much groundcover?

Research has shown that a reduction in groundcover levels is the primary cause of wind erosion throughout the rangelands. Improving groundcover is the most cost effective means of controlling this soil loss.

For the NSW rangelands, research has shown a minimum 50% groundcover is necessary to protect soil from wind erosion in dry times.

The key techniques

Compared to other highly cleared parts of NSW, the native vegetation of western rangelands is mainly intact. However, it needs to be actively managed to maintain landscapes and biodiversity in good condition and long-term enterprise viability. Important techniques to manage and improve groundcover include:

- manage total grazing pressure (TPG)
- manage stocking rates to feed availability
- rest pastures regularly
- actively control pest animals
- manage for drought
- manage invasive native scrub (INS)
- keep water in the landscape by controlling erosion
- manage watering points to better control total grazing pressure.

These techniques favour the growth and regeneration of perennial species as well as making the most of productive flushes of annual growth.

Figure 1: Managing groundcover protects the soil surface from erosion.



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Strategies

1. Manage total grazing pressure (TGP)

The control of total grazing pressure, especially the impact of unmanaged goats and kangaroos is a critical step in implementing sustainable management practices. With controlled TGP, land managers can rest pastures and match stocking rates to feed availability. Some steps to manage TGP include:

- Control watering point access to ensure all grazing is managed, e.g. turn off troughs in ungrazed paddocks; use trap yards around water points to capture unmanaged goats.
- Monitor and adjust domestic stock numbers, particularly when dry conditions are developing.
- Rest paddocks to promote the establishment of palatable perennial grasses.
- Install TGP fencing around paddocks to exclude unmanaged goats.
- Remove all unmanaged goats and kangaroos as well as control rabbits.
- Use a trigger point based on groundcover and grazing levels as a basis for destocking.
- Reduce the impact of stock by spreading watering points.
- Fence to landscape type – separate board areas of differing productivity.

2. Match stocking rates to feed and rest pastures regularly

Effective techniques include:

- Actively controlling herd numbers. Be ready to de-stock early.
- Monitor pastures for signs of grazing pressure on the best grasses.
- Resting pastures and rotate grazing to improve pasture composition.
- Adopting a grazing system that uses grazing charts, forage budgets and climate forecasting tools to help manage risk.

3. Manage for drought

To help prevent and reduce the devastating impacts drought can have on groundcover and property viability, the following techniques can be used:

- Gain TGP control so that you can budget feed supplies into the future. Dry feed can remain useable for up to 12 months if protected from unmanaged grazing.
- Continually monitor rainfall and conditions. Learn from the lessons and mistakes of previous droughts and act early.
- Paddocks should be grazed to a level that ensures groundcover stays above 50% and pastures readily able to recover.
- Develop a plan with trigger points so that emotions don't cloud your decisions.
- Use the resources and support available if you or somebody you know finds it difficult to cope.
- Maintain a stocking rate that balances profits with pasture conservation.

What does good groundcover look like?

These photos, taken at the same points near Cobar, show the contrast between a good and bad season if adequate groundcover is maintained.

Figure 2: Good groundcover in a poor season.



Figure 3: The same site with almost 100% groundcover in a good season.



Monitoring groundcover

Monitoring is important to assess groundcover status. It can also highlight vegetation changes over time, identify the need to change management and assist in planning into the future.

When undertaking groundcover monitoring, it is important to consider what you are looking for, how you will measure and what you will do as a result of the data.

What to look for

Groundcover has several components:

- Vegetative cover- this is the pasture that is consumed by grazing animals, consisting of plant material anchored by roots
- Litter- this is unattached plant material on the soil surface, such as dead leaves or broken down herbage
- Gravel, gibber and rock- this can be an important component of cover on some land types especially in the Broken Hill- White Cliffs area. It provides important soil surface protection.
- Cryptogam- this is the algae, moss and lichen crusting present on some soils. This crusting also protects bare soil surfaces but readily breaks down with disturbance due to stock movement.

Total groundcover consists of the sum of all of the above. To maintain soil protection, total groundcover needs to be at least 50%. To meet this target, pasture and stock management has most influence on the vegetative cover component.

Monitoring techniques

Examples of techniques you can use to monitor groundcover include:

- using visual assessment while walking through paddocks
- taking annual photo points to detect change in groundcover and vegetation structure over time
- 'step pointing' to assess percent groundcover by counting when you hit grass, herbage, rock, bare ground, litter or cryptograms when walking 500 steps
- using quadrats to provide a more detailed assessment of groundcover condition, identifying percent groundcover; percent abundance of each pasture species; and evidence of erosion occurring
- Increasingly detailed satellite information on groundcover is becoming available to landholders.

It is useful to install permanent monitoring sites which you can observe and compare year to year. Sites should be representative of the paddocks and/or sites vulnerable to overgrazing. Multiple sites may be necessary if a paddock contains several different land systems. Monitoring sites should be away from water points, roadways and fence lines to ensure an accurate assessment is made. Ask your Local Land Services Staff for a Monitoring Fact sheet if you want to know more.

Using the data

About 50% total cover is a critical trigger point. With less than 50% cover, soils are vulnerable to wind and water erosion

Potential levels of total cover vary across the Western Local Region according to land type. For instance, black soil country should have total groundcover levels significantly higher than 50%. Such areas generally support high levels of vegetative cover, such as Mitchell grass.

Indicative vegetative cover levels that can be achieved where pastures are in good condition include:

- Northern floodplains- up to 70%
- Cobar Peneplain- up to 60% on the flats, 40% on the rises
- Central Darling and Wentworth districts- up to 60%
- Far west including West Darling districts- up to 50%
- Western rivers including Cuttaburra Basin- up to 70%
- Riverine Plain- up to 70%.

Case Study

Through a program of fencing and rotational grazing, Mike Rosser has taken the peaks and troughs out of how he operates Argyle Station. By knowing what feed he has on his 45,000ha grazing property near Wanaaring, Mike has taken control over the good and the dry times and is able to make better business decisions.

"We have a good understanding of what plants our stock are eating and at what time of year," Mike said. "For us, groundcover is the most important thing. We would do anything to keep away from bare ground, which is our enemy."

In the days when Mike's fences weren't stock proof, his stock rotation efforts seemed pointless because feral goats were continually getting into paddocks where he was trying to maintain groundcover. "We were getting annoyed that we didn't have control over when our grass was being grazed," he said. "We did a lot of fencing and that has really helped us control when the plants are getting eaten and by which animals."

In the past, Mike experienced a small lift in production by letting his stock eat the remaining groundcover in the early stages of drought. The result was erosion, dust storms and cleaning dust out of troughs every few days. Now each paddock still has some grass remaining before stock are moved out for up to 12-months at a time so the grasses and edible shrubs have a chance to recover.

"We have a much friendlier environment for raising animals now, including the native ones. We have had to do a lot of fencing to maintain the grass and keep the stock out, but it is by far the most important part of what we are doing."

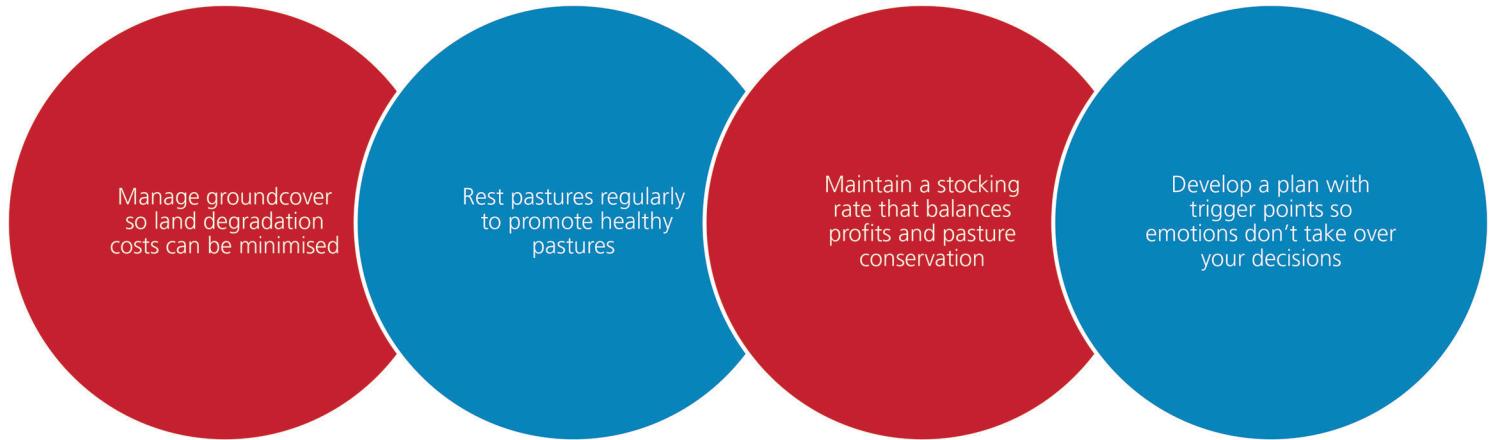
Learn more about the Rosser family's operation in the Looking over the Fence DVD series.

Call 1300 795 299 for a copy of the DVD or visit www.youtube.com/WesternLLS

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What are the consequences of not actively managing groundcover?

- Overgrazing causes reduced pasture growth and impacts on profitability and year-to-year income stability
- The loss of groundcover and decline in perennials may lead to soil and vegetation changes that are difficult to reverse. Rainfall will be less effective, will run off and not soak in.
- Decreased carrying capacity of the land and lower reproductive performance of livestock lead to reduced productivity and income
- Reduced habitat diversity, reduced food sources and lack of cover limits populations of birds and other wildlife.



Further reading

Other fact sheets in this series

- No.1 Actively control feral animals
- No.2 Control access to watering points
- No.4 Managing in dry conditions
- No.5 Manage invasive native scrub (INS)
- No.6 Manage pasture species
- No.7 Total grazing pressure
- No.8 Match stock numbers to feed availability
- No.9 Rest pastures regularly

Case study

Good management, less stress – the Mosely family

DVD

Looking over the Fence – grazing management in the rangelands, Western Catchment Management Authority, 2013

Other fact sheets/publications

Best Management Practices for Extensive Grazing Enterprises, Hacker, R, Beange, L, Casburn, G, Curran, G, Gray, P, Warner, J, NSW Department of Primary Industries, 2005

Management of Total Grazing Pressure, Fisher, A, Hunt, L, James, C, Landsberg, J, Phelps, D, Smyth, A, Watson, I, Commonwealth of Australia, 2005

Review of the Implications of the Feral Goat Harvest Industry for Total Grazing Pressure Management in the Western NSW Rangelands, Ferguson, C, Western CMA, 2011

Total Grazing Management (series of five fact sheets), Department of Conservation and Land Management

Books

Graziers' Experiences in Managing Mulga Country, Heywood, J, Hodgkinson, K, Marsden, S and Pahl, L, Department of Primary Industries Queensland, 2000

Living with Kangaroos: A guide to kangaroos and their management in the Murray-Darling Basin, Hacker, R and McLeod, S, NSW Agriculture, 2003

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