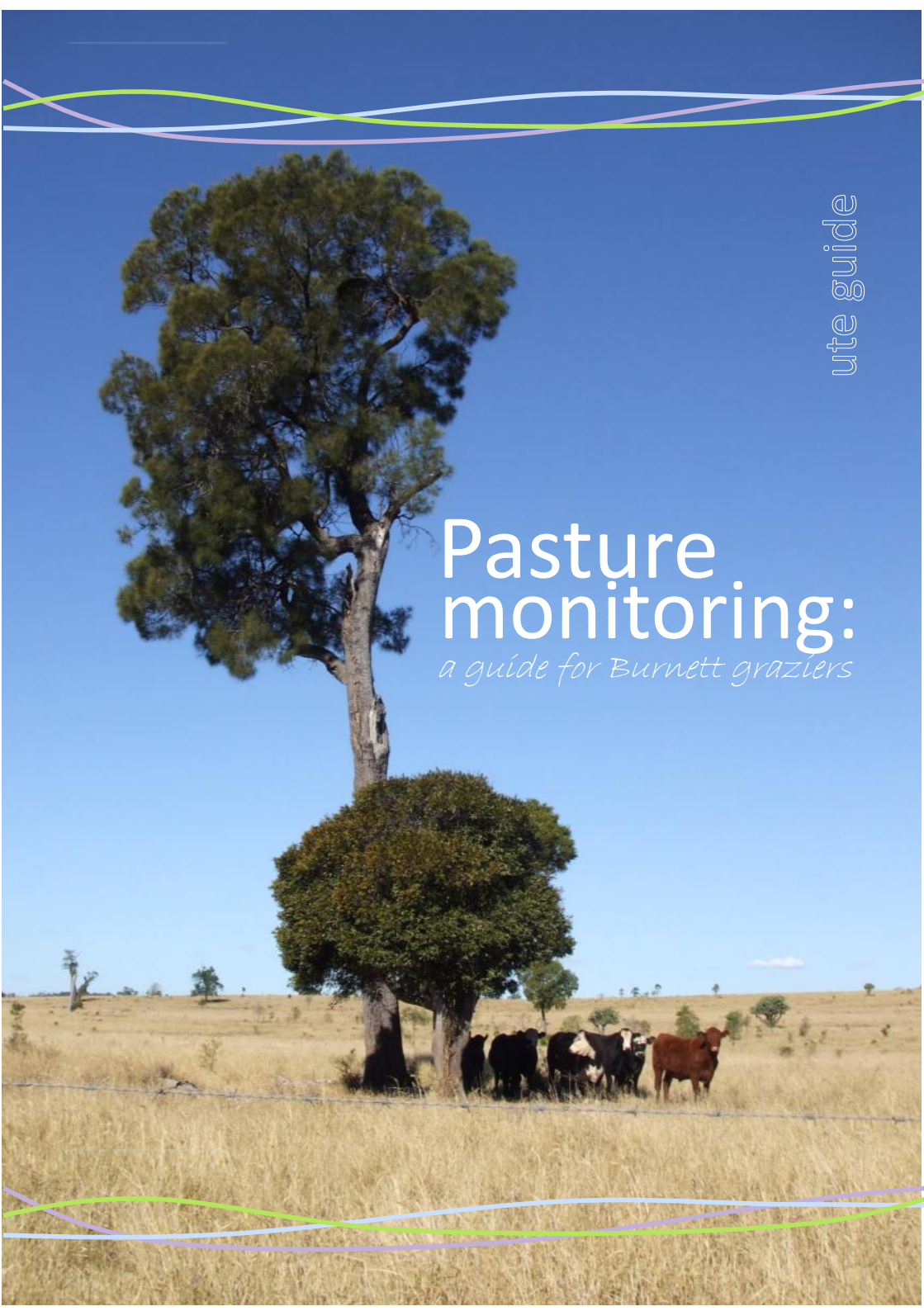




ute guide

Pasture monitoring:

a guide for Burnett graziers



This publication is based on the Queensland Primary Industries and Fisheries 'Stocktake' pasture monitoring system, however, certain elements have been modified to be specific for the Burnett region.

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CARING
FOR
OUR
COUNTRY

Disclaimer

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1. Why monitor the condition of our country?

Pasture condition monitoring is a tool that graziers can employ to determine the change in pasture condition over time. Unfortunately, our memories can't be relied upon when trying to remember details about the condition of the pasture, say, a decade ago.

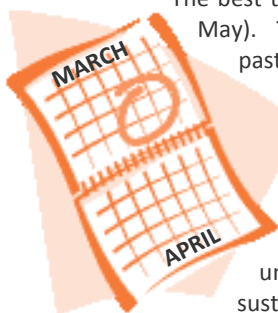
Traditionally, graziers relied upon and used the condition of their cattle to determine the condition of their country. The lag time between the pasture becoming degraded and the loss of condition of grazing stock means that any decline in soil, pasture or woodland condition may go unnoticed for some time, until it becomes obvious that weed invasion, woodland thickening or erosion is impacting on animal production.



By implementing a simple pasture monitoring system, as outlined in this booklet, any changes in pasture condition, whether it be due to seasonal or management factors, can be closely watched. It can provide an early warning of loss of desirable species, feed shortages, weed invasion, woodland thickening and the loss of soil condition. If detected early enough, management practices can be altered to halt the decline in land condition. After all, land in declining condition results in less forage grown, leading to less feed available for stock.

2. When is the best time to monitor?

The best time of year to monitor is at the end of the growing season (March-May). This assists the recorder to easily identify pasture species, as most pasture plants will have seeded, along with an indication of 'feed on hand', or a 'Stocktake' of the pasture biomass at the end of the growing season.



In our subtropical climate, we can expect very little or no growth after the end of the growing season. This gives land managers the opportunity to use the information from the monitoring to undertake a 'forage budget', which will assist in the determination of a sustainable stocking rate during the winter months.

3. How do we record our monitoring?

The method of monitoring the condition of your grazing country as outlined in this booklet, allows you to monitor soil, pasture and woodland condition as well as ground cover. The simple act of taking a few photographs in the same area each year is a particularly simple and useful method of assessing change over time. These photographs, coupled with written notes, make for powerful and useful resource tools, hence, these two techniques are the basis of this pasture monitoring system.

The photographic record

Taking photographs at permanently located sites can give us a permanent visual record, enabling us to assess changes over time. Two photos are taken during the monitoring process, the **Landscape Photo** and the **Trayback Photo**.



The written record

The Pasture Monitoring Recording Sheet (found on page 18) is broken into two sections; the **Set Up Details** and **Field Assessment**.

The **Set Up Details** are recorded when the monitoring site is initially established and includes: set up date, paddock name, paddock size, landtype name, GPS location, soil description and tree species present in the immediate area. An 'Any comments' box is available to record other observations that are of interest. Examples of interest could include: tree/pasture dieback, flood events, management actions impacting on results such as clearing, stick-raking, fire, sowing improved species etc.

The **Field Assessment** section allows the recorder to record:

1. Soil condition
2. Pasture condition
3. Groundcover
4. Woodland condition
5. Livestock situation
6. Overall land condition
7. Dry season forage estimate

We will go into more detail about each of these areas in section 5.

4. Where do we set up our monitoring sites?

Initially, the establishment of a monitoring site on each major landtype on your property is a great start to the monitoring process. As you become more comfortable with the concept of monitoring, you may wish to set up a monitoring site on each landtype in each paddock. This way, you will be able to determine how your management practices affect different landtypes, within different paddocks.

Identifying landtypes

The Burnett has been divided into 2 main landtype regions; inland and coastal. Both regions then have a number of landtypes. Landtypes are combinations of vegetation and soil types describing a particular suite of land systems that have common fertility and grass growth characteristics. The following tables are summaries of the different landtypes within the inland and coastal Burnett including the vegetation and soil characteristics.

Table 1: Inland Burnett Landtypes

Landtype	Timber	Soil
Brigalow softwood scrub	Brigalow, belah, softwood scrub	Red brown clay loams, red earths
Blue gum on clay	Blue gum	Deep black cracking clays with deep uniform loamy & sandy soils
Box on erosive soils	Box, gum-topped box	Loamy texture contrast soils
Box on clay	Box, currant bush, wilga, false	Deep uniform loamy and sandy soils
Gum-topped box	Gum-topped box, narrow-leaved ironbark	Shallow loam soils and shallow to moderately deep texture contrast soils
Narrow-leaved ironbark & wattles	Narrow-leaved ironbark, wattles, red ash	Shallow loamy soils & shallow to moderately deep gravelly soils
Spotted gum ridges	Spotted gum, narrow-leaved ironbark, red ash, wattles	Shallow loamy soils & shallow to moderately deep texture contrast
Blue gums (granite)	Blue gum, narrow-leaved ironbark	Shallow to moderately deep, texture contrast soils
Silver-leaved ironbark (granite)	Silver-leaved ironbark	Shallow to moderately deep, texture contrast soils
Narrow-leaved ironbark (granite)	Narrow-leaved ironbark, blue gum, wattles	Shallow to moderately deep coarse sandy texture contrast soils
Ironbarks & bloodwoods on non-cracking clays	Silver leaved ironbark, narrow leaved ironbark, bloodwoods	Dark or brown non-cracking clay
Silver leaved ironbark on cracking clays	Silver leaved ironbark	Moderately deep, dark cracking clays & deep red structured earths
Brigalow melonhole	Brigalow, belah, tea-tree	Brown and grey, medium to heavy clays
Ironbarks & spotted gum on duplexes and loams	Spotted gum, narrow-leaved ironbark, wattles	Texture contrast soils & shallow sandy & loamy soils; some areas of dark clay soils, red & yellow earths & deep sands
Tall woodlands on snuffy red soils	Spotted gum, Gympie messmate, narrow-leaved ironbark, wattles & scrub	Red brown clay loams, red earths

Table 2: Coastal Burnett Landtypes

Landtype	Timber	Soil
Bloodwood and stringybark (coastal plains)	Bloodwoods, stringybarks, narrow-leaved ironbark, grey ironbark, Queensland peppermint and smooth-barked apple	Grey, sandy loam with hard setting surfaces
Blue gum flats	Blue gum, Moreton bay ash, silver-leaved ironbark, gum-topped box	Coarse structured clays, alluvial loams and alluvial black earths
Blue gum, ironbark and bloodwood slopes and hollows	Blue gum, narrow-leaved ironbark, bloodwood and wattles	Brownish black, sandy loam
Gum-topped box	Gum-topped box, narrow-leaved ironbark, blue gum, spotted gum and wattles	Dark greyish brown, clay loam
Hoop pine scrub	Hoop pine, Crows ash and Burdekin plum	Dark brown, clay loam
Ironbark, stringybark and supplejack ridges	Narrow-leaved ironbark, grey ironbark, yellow stringybark, thin-leaved stringybark, spotted gum, bloodwoods, turpentine, wattles, grass tree and supplejack	Dark brown, sandy clay loam
Ironbark and bloodwoods on non-cracking clays	Silver-leaved ironbark, narrow-leaved ironbark, bloodwood and wattles	Brown, sandy clay loam
Ironbarks and blue gum on basalt ridges	Blue gum, silver-leaved ironbark, Moreton bay ash, pink bloodwood	Black, heavy clay with self-mulching and cracking surface
Ironbark and spotted gum on duplexes and loams	Spotted gum, narrow-leaved ironbark, grey ironbark, bloodwoods and wattles	Brown, sandy clay loam
Mixed eucalypts on uplifted coastal plains	Bloodwoods, stringybarks, narrow-leaved ironbark, grey ironbark, red ironbark, Queensland peppermint, spotted gum, smooth-barked apple and grass trees	Yellow brown, fine sandy loam with hard setting surface
Softwood scrub	Softwood scrub including bottle trees, white cedar and crows ash	Dark reddish brown, light clay
Tea tree flats	Paper-barked tea-tree, bloodwoods, blue gum, swamp mahogany	Grey, fine sandy loam

These landtypes were developed from landholder descriptions, relevant Shire handbooks and land management manual information and were compiled by the Queensland Primary Industries and Fisheries.

More details on each landtype can be found in the Grazing Land Management Landtypes Sheets.



Mapping landtypes & monitoring points



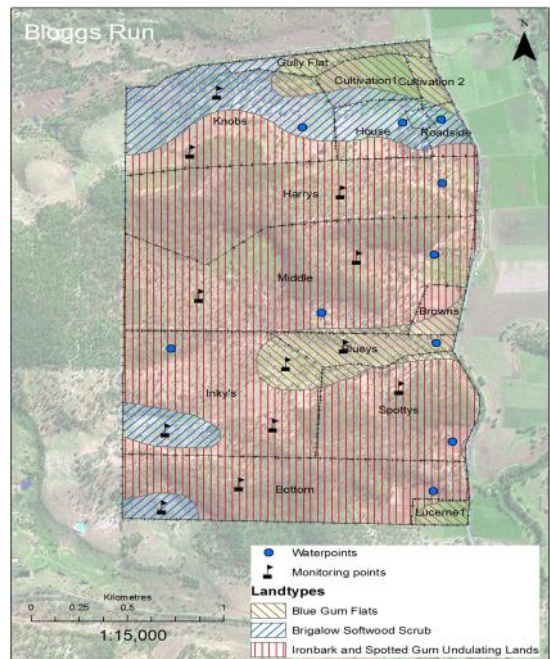
To assist in defining and calculating the areas of the different landtypes in each paddock, BCCA have issued you with a property map. Your property map consists of your property boundary, with Spot 5 satellite imagery, consisting of 2.5 m x 2.5 m resolution.

Natural features, such as creeks and ridges, along with infrastructure such as building and dams should be distinguished on the map.

Using an OHP pen, you can draw in your paddocks, watering points and landtypes and determine how many monitoring sites you will set up and an approximate location of the sites.

Using the scale provided and a ruler, you can calculate the area of the different paddocks and landtypes. Alternatively, you can use dot grids to calculate area.

The map illustrated on the right is an example of how you may map your landtypes and position your monitoring points.

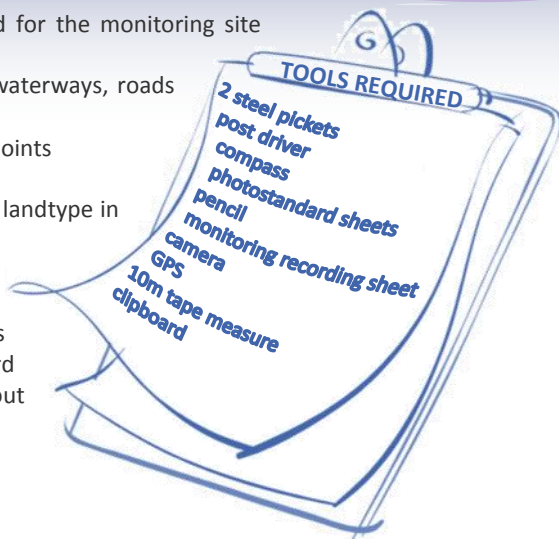


5. How do we monitor the condition of our country?

As a rule of thumb, the area selected for the monitoring site should be:

- ~ At least 100 m from fencelines, waterways, roads and cattle yards
- ~ At least 300 m from stock waterpoints
- ~ Accessible by motor vehicle
- ~ On an area representative of that landtype in that paddock.

Once you have selected your suitable sites, you need to gather the tools required, as outlined on the clipboard on the right, and then you can head out into the paddock.



Marking the site



Once you have selected a suitable site, drive in a steel picket. This picket will be your 'Northern post' and will be permanent. A piece of white pipe placed on top of the steel picket will help it stand out, or the top can be spray painted with bright coloured surveyors paint.

Using the compass and the tape measure, drive the second steel picket 10 m south of the Northern Post. This 'Southern Post' is only temporary, so there is no need to drive this picket into the ground to any great depth. Using your GPS, record the GPS coordinates of the 'Northern Post' on the Pasture Monitoring Recording

Sheet.

Also complete the rest of the **Set Up Details** on the Pasture Monitoring Recording Sheet including:

- | | |
|-------------------|---|
| ~ Photo site name | ~ Set up date |
| ~ Paddock name | ~ Paddock area |
| ~ Landtype name | ~ Landtype area (within the paddock) |
| ~ Location | ~ Soil description (colour and texture) |
| ~ Landform | ~ Tree species present |
| ~ Any comments | |

Taking photos

Two photos are taken per monitoring site; the landscape photo and trayback photo. The landscape photo visually captures the overall condition of the monitoring site, including the tree and shrub populations. The trayback photo, named as such as the photo is taken from the trayback of a ute, looks into the pasture. The photo numbers, as automatically saved on the digital camera, are to be recorded on the Pasture Monitoring Recording Sheet under **Field Assessment**.

Landscape Photo

Whilst standing at the northern post, face the southern post. Position the top of the southern post in the middle of the camera's viewfinder. See Figure 1 below.

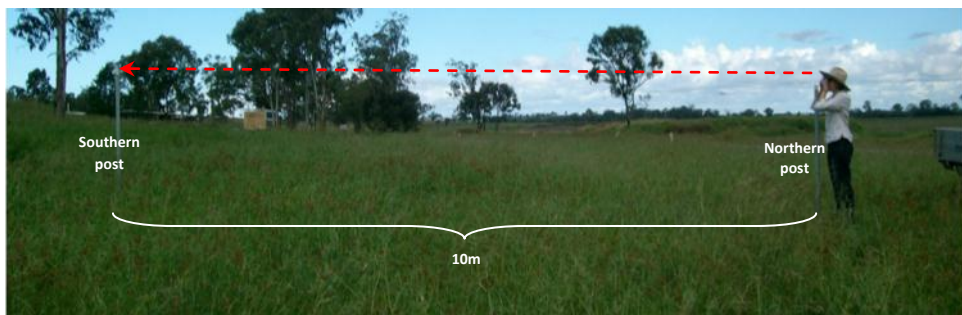


Figure 1 : The top of the Southern post is in the middle of the cameras viewfinder

Trayback Photo

Park the vehicle adjacent to the northern post. Climb into the back of the vehicle and face the southern post. Position the bottom of the southern post in the middle of the camera's viewfinder. See Figure 2 below.

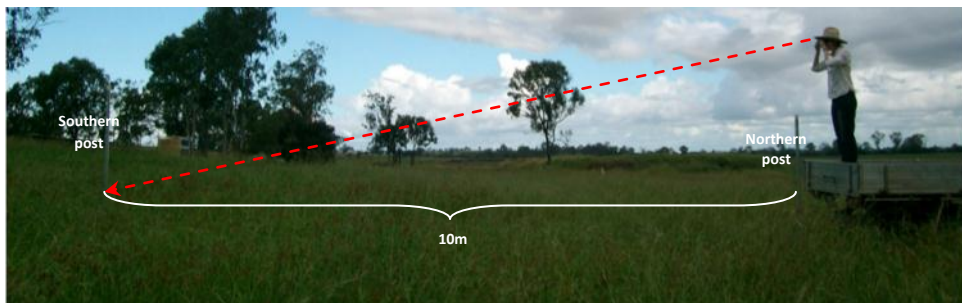


Figure 2 : The bottom of the Southern post is in the middle of the cameras viewfinder

Site assessments

The field assessment involves assessing and rating the soil condition, pasture condition, pasture yield, and tree basal area. Traditionally, steel or plastic quadrats have been used to assist the assessor to define a boundary to assess these parameters in detail. In this method of pasture monitoring, instead of delineating an area using a quadrat, we simply imagine an area, and make assessments within that area – a **'virtual' quadrat**. The area used in this method of pasture monitoring is 4 m^2 , which is 2 m long by 2 m wide. See figure 3 below. In this method we use two 'virtual' quadrats and then calculate an average. The quadrats will be located:

1. at the **northern post**, facing the southern post, and
2. at the **southern post**, facing the northern post.



The soil condition, pasture condition, and groundcover will be assessed within our two 4 m^2 'virtual' quadrats, whereas the forage yield, tree basal area and overall land condition will be assessed in the surrounding area. Results from the assessment will be recorded on the Pasture Monitoring Recording Sheet under **Field Assessment**.

Figure 3: A virtual quadrat at the Northern post facing the Southern post. The second quadrat would be at the Southern quadrat facing the Northern post.



1. Soil Condition

The loss of our topsoil can cause severe and permanent damage to our grazing country. Within each virtual quadrat, we are looking at four indicators when determining overall soil condition.

These indicators include the incidence of soil compaction, erosion, presence of cattle tracks and other indicators, such as any evidence of scalding or salt. These four indicators are ranked, and results recorded on the Pasture Monitoring Recording sheet in under Field Assessment.

1) Soil compaction

Rank from 1 (no compaction) to 5 (very severe compaction)

2) Evidence of erosion

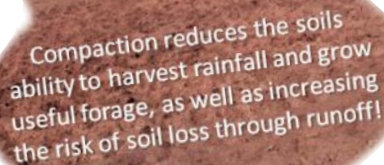
Rank from 1 (no erosion) to 5 (sheet/gully erosion greater than 15 cm deep)

3) Cattle tracks

Rank from 1 (no tracks) to 3 (deep tracks)

4) Other indicators

Rank from 1 (no scalding or salt) to 3 (many areas of scalding and/or salt evident)



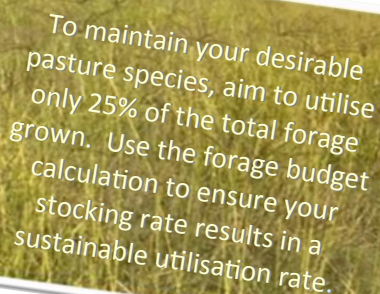
Compaction reduces the soils ability to harvest rainfall and grow useful forage, as well as increasing the risk of soil loss through runoff!



2. Pasture Condition

A healthy pasture is crucial for maintaining your grazing country in good land condition. The presence of desirable grasses, also known as 3P grasses, should be maximised. Grasses can be considered as 3P if they are perennial, palatable and productive – the three P's.

Perennial pasture species, as opposed to annual pasture species, live for more than 2 years duration. As a rule, the palatability of a pasture plant is proportional to the amount of green leaf. Plant species that have a high proportion of stem, and that mature (hay off) quickly are not as palatable as those that have a high proportion of green leaf. The productivity of a pasture plant is related to the amount of leaf the plant can produce over time.



To maintain your desirable pasture species, aim to utilise only 25% of the total forage grown. Use the forage budget calculation to ensure your stocking rate results in a sustainable utilisation rate.

Pasture condition comprises of **five elements** within the two quadrats:

1) Percent of desirable species – An estimation of the proportion of desirable species within the quadrat, including desirable grasses & legumes.

2) Percent of intermediate species – An estimation of the proportion of intermediate species within the quadrat.

3) Percent of undesirable species – An estimation of the proportion of undesirable species within the quadrat, including undesirable grasses and weeds. Ensure the percent of desirable, intermediate & undesirable species sum to 100% for each quadrat.

4) Number of desirable species – Count the number of desirable species and record the result.

5) Health of desirable species – Pastures in good condition consist of healthy grass tussocks. Healthy tussocks are those that are vigorous, and free from disease and pests. Record the health of the desirable pasture species, ranging from **1** (healthy plants) to **4** (many dead plants).

aim for:
more than 80% desirable
species in your pasture



3. Groundcover

Groundcover plays an important role in maintaining soil health. By acting as a mulch, it protects the soil from the effects of the sun, wind and rainfall damage, thus preventing erosion.

therefore...
good groundcover reduces
rainfall runoff & increases
water infiltration maximising every mm of rain

When
rainfall
hits the ground,
it either infiltrates
the soil or
runs off

Solar energy is captured through green leaves and drives pasture growth
therefore...
good groundcover
ensures efficient
capture of solar
energy & in turn
good pasture
growth

Groundcover is an estimation of the percent of the ground that is covered by organic material, such as live and dead plant material, sticks, leaf litter and animal dung, when viewing the quadrat from directly above. Sometimes, it may be easier to visualise what proportion of bare earth there is within the quadrat.

Remember to estimate groundcover in both quadrats and average the result!



4. Livestock Situation

Record the stock type (i.e breeders) along with the number of stock currently in the paddock. This will be useful information when determining the sustainable stocking rate.



5. Woodland Condition

As a general rule, woody vegetation competes with the pasture for moisture, nutrients and light. Woody vegetation includes any plants with stems that mature into wood. Woody plants often have an extensive root system, and their canopy is broad, giving them a competitive advantage to sunlight. It is advantageous, from both a production and ecological perspective, to maintain the tree-grass balance. High stocking rates, which results in reduced pasture biomass, can often be the trigger for the disruption of the tree/grass balance. With a reduced pasture biomass, the resultant lack of fuel to carry a fire allows young seedlings to proliferate.



We use a measure called 'tree basal area' to determine how the density of woody species could be reducing pasture growth. Tree basal area is a measurement of the density of trees in m^2/ha . It can account for both the size and number of trees per hectare. Imagine all of the trees in a 1 hectare area were sawn off at 30cm above ground level. The sawn area on top of the tree stumps, added together, gives us the tree basal area, in m^2/ha .

1) Tree Basal Area - Standing at the northern post, hold the pencil vertically at arms length. As you turn in a circle, count every tree in your line of vision that has the trunk appearing wider than the pencil, at 30 cm above the ground. Record this in 'tree count'.

$$\text{Tree Basal Area (m}^2/\text{ha)} = \frac{\text{Tree count (TC)}}{4}$$

4

2) Saplings per hectare - If saplings are dense, count the number of saplings in a 1m wide strip, 10m long. Record this as 'sapling count' (SC).

$$\text{Saplings/ha} = \text{Sapling count} \times 1000$$

Estimate the average diameter of the saplings (cm) at approximately 30cm from the ground. Record this in the 'average sapling diameter' (SD).



6. Overall Land Condition

Once the site assessment has been conducted, you can then assess overall land condition. The condition of grazing land can be ranked into **four categories (A, B, C or D)** based on indicators including the presence of desirable pasture species, presence of undesirable pasture species (weeds), presence of woody weeds, signs of erosion and percentage of original carrying capacity.

Land Condition is the lands ability to:
~ respond to rain
~ grow pasture

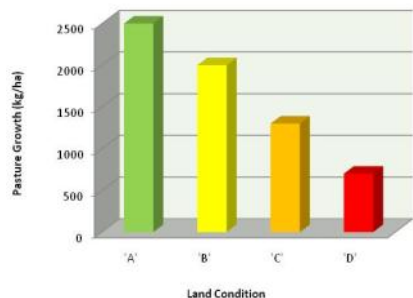
Ground cover should not be used as an indication of land condition, as groundcover can change rapidly i.e in the case of fire. However, groundcover could be used as a crystal ball to determine future soil condition. Table 3 summarises the land condition indicators for all four categories.

Table 3: Land Condition Framework

Land Condition Indicators	'A' Good	'B' Fair	'C' Poor	'D' Very Poor
Presence of desirable pasture species	Good	Some decline	Large decline	Low
Presence of undesirable pasture species (weeds)	Very few	Some	High	Complete coverage
Presence of woody weeds	No	Some	High	Complete coverage
Erosion	Not present	Some signs	Many, obvious signs	Severe
Percentage of original carrying capacity	100%	80%	55%	20%

The graph to the right illustrates that as land condition declines, so does pasture growth and ultimately livestock production and your bottom line.

The Land Condition Framework is sourced from the Qld Primary Industries & Fisheries Grazing Land Management workshop series and CSIRO & MLA Sustainable Grazing for a Healthy Burdekin Catchment project.





7. Dry Season Forage Estimate

This dry season forage estimate is optional. Choose the most suitable photostandard for the landtype and record the name of the photostandard in the Field Assessment section of the Pasture Monitoring Recording Sheet. The pasture yield photostandards are produced by Queensland Primary Industries & Fisheries. Compare the photostandard to the pasture across the paddock to estimate the dry matter yield (DM). Record the estimate, in kg/ha, in Estimated Yield (A) of the recording sheet. Complete the rest of the table by using the steps shown in the table below to calculate:

1. feed available;
2. feed required; and
3. estimated carrying capacity for the dry season

Table 4: Dry Season Forage Budget

	Example	Explanation
Feed Available		
Estimated Yield (kg/ha) (A)	2500	Derived from photostandards
Detachment/Trampling (%)	15%	Rate is provided
Detachment (kg/ha)	375	% detachment x yield (A)
Available Pasture (kg/ha)	2125	Estimated yield— detachment
Useful pasture (%)	70%	% Desirable species
Useful pasture (kg/ha)	1487	% Useful pasture x Available pasture
Utilisation rate (%)	25%	Usually 25%
Total available for grazing (kg/ha) (B)	372	Useful pasture x Utilisation rate
Residual pasture (kg/ha) (A-B)	2128	Aim for at least 1000 - 1500 kg/ha. If not, the % utilised must be reduced
Feed Required		
Current Date	31/5/10	Current date
Date of expected good rain	15/11/10	Date of expected break of season
Days until good rain	168	Length of dry season (days)
Average weight of cattle (kg)	300	Liveweight (kg)
Intake as a % liveweight	2%	Usually between 2-3% of liveweight
Demand (kg/head/day)	6	Liveweight x 2%
Feed required for period/head (C)	1008	Days until good rain x Demand
Estimated Carrying Capacity		
Carrying Capacity (ha/head)	2.7	(C) ÷ (B)
Paddock Size (ha)	400	Area of paddock (ha)
Head Supported	148	Paddock size ÷ Carrying Capacity

6. What to do with your assessments?

Now that you have set up monitoring sites and taken the first assessment, this information needs to be stored in a way that will be useful for you.

Photographic Record

If you have a digital camera, the landscape and trayback photos should be downloaded on your computer. If you do not own a digital camera, the film should be processed, and the photo's scanned and saved on your computer.

If you do not own a computer, the film should be processed, and the photos attached to the 'pasture monitoring recording sheet'.


Written Record

The pasture monitoring recording sheet should be filed for future reference. If you own a computer, you may wish to enter the data on the 'pasture monitoring' spreadsheet, the excel file provided to you. The spreadsheet provides an area to import your landscape and trayback photos and once you have entered the data from the 'pasture monitoring and recording sheet', the spreadsheet will provide reports, known as 'report cards', which can be viewed and printed. A


separate spreadsheet can be used for each monitoring site so that, in time, you can view the report cards for a particular paddock and monitor its change in condition.

An example of the Pasture Monitoring Report Card developed from the spreadsheet.

Pasture Monitoring Report Card		Bloggs Holdings	
SET UP DETAILS			
Photo site name:	Back paddock site 1	Set up date:	12/03/2010
Paddock name:	Back paddock	Paddock area:	400 ha
Landscape name:	Blue gum, ironbark and bloodwood slopes and hollows	Landscape area:	300 ha
GPS - S:	24°07'31.94"	Soil Colour:	grey
GPS - E:	151°16'52.58"	Soil Texture:	medium clay
Location:	500m SW of the dam gate, near the clump of ironbarks		
Tree species present:	Bluegums, narrow leaf ironbarks, bloodwoods		
Any comments:	The paddock was sown to improved pastures in 1996. Fire went through in 2009.		
FIELD ASSESSMENT			
Assessment Date:	31/05/2010	Assessor Name:	Katie
Soil Condition			
Soil compaction (1 best - 5 worst)	2	Cattle tracks (1 best - 3 worst)	1
Erosion (1 best - 5 worst)	2.5	Other Indicators (1 best - 3 worst)	1
Pasture Condition			
Desirable species present	<input checked="" type="checkbox"/> Blackpear, Rhodes grass, Green Panic <input checked="" type="checkbox"/> Blackpear, Rhodes grass <input checked="" type="checkbox"/> Red natal <input checked="" type="checkbox"/> Red natal, pitted bluegrass <input checked="" type="checkbox"/> Lowgrass spp, winggrass spp <input checked="" type="checkbox"/> White speargrass, lowgrass spp <input checked="" type="checkbox"/> Seca stylo <input checked="" type="checkbox"/> Seca stylo, wynn cassia <input checked="" type="checkbox"/> Flannel weed, bhakti baw, maynes pest <input checked="" type="checkbox"/> Flannel weed, burn medic		
% desirables (grasses & legumes)	70%	Number of desirable spp	2.5
% intermediates (grasses)	18%	Health of desirable spp	1.5
% undesirable (grasses & weeds)	13%	(1 best - 4 worst)	
Groundcover			
Groundcover %	78%		
Woodland Condition			
Tree basal area (m ² /ha)	1		
Saplings/ha	2000		
Average sapling diameter (cm)	5		
Livestock Situation			
Current stock in paddock	5/1	size m/ha	100
Dry Season Forage Estimate			
Estimated Yield (kg/ha)	2500		
Total available for grazing (kg/ha)	172		
Available pasture (kg/ha)	2178		
Days until good rain	168		
Average weight of cattle (kg)	400		
Feed required for period (kg/head)	1344		
Carrying Capacity (ha/head)	1.6		
Food Supplemented	111		
Standardised	Black Spear grass		



Landscape Photo



Trayback Photo

Overall Land Condition

"B" Fair

Pasture Monitoring Recording Sheet

SET UP DETAILS

Photo site name:	Set up Date:							
Paddock name:	Paddock area (ha):		GPS – S:					
Landtype name:	Landtype area (ha):		GPS – E:					
Location:								
Soil Description – colour: (circle)	black	brown	grey	red	yellow	white	light	Other:
Soil Description – texture: (circle)	heavy clay	medium clay	clay loam	loam	sandy loam	sand	gravelly rock	Other:
Landform: (circle)	flat	gentle slope		undulating		hilly	mountainous	Other:
Tree species present:								
Any comments:								

FIELD ASSESSMENT

Assessment date:	Assessor Name:	Landscape Photo #:	Trayback Photo #:
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1. Soil Condition

Indicator	Quad 1					Quad 2					Average
Soil compaction: (circle)	1) None, very friable	2) Slight compaction	3) Moderate compaction	4) Severe compaction	5) Very severe compaction, hard as a rock	1) None, very friable	2) Slight compaction	3) Moderate compaction	4) Severe compaction	5) Very severe compaction, hard as a rock	
Erosion: (circle)	1) None, very stable	2) Early signs of soil movement	3) Plant pedestalling starting to occur	4) Evidence of plants/rock pedestalling & sheet/gully erosion up to 15cm deep	5) Sheet/gully erosion > 15cm deep	1) None, very stable	2) Early signs of soil movement	3) Plant pedestalling starting to occur	4) Evidence of plants/rock pedestalling & sheet/gully erosion up to 15cm deep	5) Sheet/gully erosion > 15cm deep	
Cattle tracks: (circle)	1) No tracks evident	2) Some tracks evident	3) Deep tracks evident			1) No tracks evident	2) Some tracks evident	3) Deep tracks evident			
Other indicators: (circle)	1) No scalding or salt evident	2) Some scalding &/or salt evident	3) Many areas of scalding &/or salt evident			1) No scalding or salt evident	2) Some scalding &/or salt evident	3) Many areas of scalding &/or salt evident			

2. Pasture Condition		
	Quad 1	Quad 2
Desirable grasses present:		
Intermediate grasses present:		
Undesirable grasses present:		
Legumes present:		
Weeds present:		
% desirables (grasses & legumes)	/100	/100
% intermediates	/100	/100
% undesirables (grasses & weeds)	/100	/100
Number of desirable spp	1) Healthy plants	2) Some unhealthy plants
Health of desirable spp (circle)	3) Some dead plants	4) Many dead plants

3. Groundcover		
Groundcover % :	Quad 1	Quad 2
(this includes dead and alive leaves, sticks, twigs, dung, debris, roots etc.)		

4. Woodland Condition		Result
		(taken from Northern post)
Tree Count (TC)		
Tree basal area (m ² /ha)		
[TC ÷ 4]		
Saplings count (SC) in 10m ²		
Saplings/ha (SC x 1000)		
Average sapling diameter (cm)		

5. Livestock Situation		
Current number of stock in paddock:		
Type of stock:	steers/bullocks	heifers
(circle)	breeders & progeny	breeders only
		bulls

6. Overall Land Condition (circle)				
A	B	C	D	
based on soil, pasture and woodland condition				

7. Dry Season Forage Estimate (Optional)				
Feed Available	Example	Your Result	Explanation	Photostandard used (eg. bluegrass wiregrass):
Estimated Yield (kg/ha) (A)	2500		Derived from photostandards	Example
Detachment/Trampling (%)	15%	15%	Rate is provided	31/5/10
Detachment (kg/ha)	375		% detachment x yield (A)	Current date
Available Pasture (kg/ha)	2125		Estimated yield - detachment	Date of expected good rain
Useful pasture (%)	70%		% Desirable species	Days until good rain
			% useful pasture x available pasture	Average weight of cattle (kg)
Useful pasture (kg/ha)	1487			Intake as a % liveweight
				Demand (kg/head/day)
Utilisation rate (%)	25%	25%	Usually 25%	Feed required for period/head (C)
Total available for grazing (kg/ha) (B)	372		Useful pasture x utilisation rate	1008
Residual pasture (kg/ha)			Aim for at least 1000 - 1500kg/ha	
(A-B)	2128		If not, % utilised must be reduced	Estimated Carrying Capacity
				Carrying Capacity (ha/head)
				Paddock Size (ha)
				Head Supported
				148

This document is produced by the Burnett Catchment Care Association. This pasture monitoring process is based on the Queensland Primary Industries and Fisheries 'Stocktake' pasture monitoring system, however, certain elements have been modified to be specific for the Burnett region.

