KIT 3
'1234' BIOCONDITION ASSESSMENT

Queensland Government

mla
MEAT & LIVESTOCK AUSTRALIA

Acknowledgments

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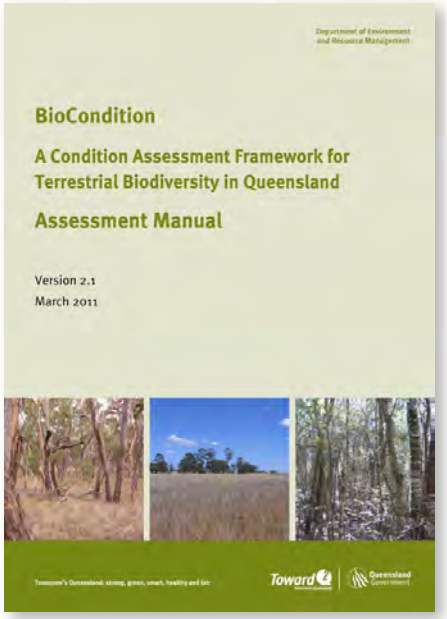
INTRODUCTION

This kit provides a practical and rapid method that enables land managers to assess the condition of paddocks and properties for biodiversity. The aim of the assessment is to provide a better understanding of how well the vegetation on a property is functioning for biodiversity.



The assessment provides an estimate of how functional a site is by comparing how its features differ from benchmark values – being those features of a site in the same land type, in its reference state. The approach is based on a technical framework known as 'BioCondition' (www.derm.qld.gov.au/wildlife-ecosystems/biodiversity/index). A more rapid system is presented here within these Kits. The term '1234' BioCondition will be used to describe this approach to assessing biodiversity condition.

The assessment has been designed to complement the 'ABCD' scoring framework for assessing grazing land condition (see Kit 4), and provides a '1234' rating. A rating of '1' represents very high functionality for biodiversity, through to '4' which represents low functionality and requiring management intervention.

THE ASSESSMENT
WHY ASSESS?

What do you want to learn from the assessment of condition for biodiversity? There are many questions that can be asked, which may be general (how well is my property functioning for biodiversity?) or specific (does the regrowth in this paddock really contribute value for biodiversity?). What you want to learn from the assessment is an important question to ask, as it will determine how many sites to assess, where to locate them and how often they get reassessed, if at all.

> **"What you want to learn from the assessment"**

QUESTIONS MIGHT INCLUDE:

- From grazing land condition assessments I know this paddock is in good condition for grazing, but what about biodiversity?

If asking this question, then '1234' BioCondition sites could be located with the grazing land condition assessment sites within a paddock to complement the information obtained from these sites.

- How well does this patch of remnant vegetation function for biodiversity following fire?

If asking this question, then '1234' BioCondition sites would be located only within the remnant vegetation of interest, and marking the sites may be useful for re-assessing them in the future.

THE ‘ASSESSMENT UNIT’

‘1234’ BioCondition is assessed at the scale of the land type. A land type is a unique parcel of land with a characteristic landform, soil and vegetation. This is the unit of assessment that grazing land condition also uses. Native vegetation is important for biodiversity, so the distribution of vegetation across paddocks and the property is also of interest for ‘1234’ BioCondition. The unit of assessment for ‘1234’ BioCondition is therefore the land type, and whether it is remnant or not (see Box 1 for an example). In a paddock, at least one assessment site for each assessment unit is recommended, but more can be undertaken if time permits, particularly if the assessment units are very large (>100ha) or vary in condition. Increasing the number of assessments done per assessment unit will increase the accuracy of the final condition rating for a paddock, if that is the aim of the overall assessment.

WHEN TO ASSESS?

Most of the features of ‘1234’ BioCondition can be assessed at any time of the year. However, the assessment of preferred and intermediate grass species during the peak of summer or following a period of drought is not recommended, as they will be difficult to identify or even find.

In the Mulga Lands and Brigalow bioregions, the best time to assess grasses is May to June when plant diversity is generally at its greatest. However, this is a general rule and timing for an assessment should be guided by local knowledge and recent climatic conditions.

HOW OFTEN?

Many features of ‘1234’ BioCondition do not generally change within a year (eg large trees, tree and shrub cover, fallen logs), unless there has been a major event such as wildfire. The percent yield of preferred and intermediate grasses is much more variable within shorter time frames; hence grazing land condition recommends assessment of this feature annually. Therefore a site need only be reassessed for ‘1234’ BioCondition around every five years for all features except preferred and intermediate grass cover, where yearly assessments are recommended.

> **“Most of the features of ‘1234’ BioCondition can be assessed at any time of the year...”**

BOX 1:

In Creek paddock there are two land types: brigalow belah scrub and poplar box on alluvial. Some of the poplar box has been cleared and there is some regrowth, while the rest remains as remnant (hatched area). The brigalow land type in this paddock is all remnant.

If the objective is to assess Creek paddock for '1234' BioCondition, then three assessment sites could be set up – a non-remnant poplar box (site A), a remnant poplar box (site B) and a remnant brigalow belah scrub (site C).

EQUIPMENT REQUIRED

The most helpful tool for planning an assessment will be a property map showing the location of fence lines, water points, and the extent of land types. Knowing where remnant and high value regrowth vegetation is on the property will be useful for planning where assessments will be done, and also for estimating landscape scale feature values. Information about remnant and high value regrowth vegetation can be downloaded free from *www.derm.qld.gov.au/wildlife-ecosystems/biodiversity/regional_ecosystems/introduction_and_status/regional_ecosystem_maps/*.

Aerial photos can also be a useful way of delineating the extent of land types on the property (*www.derm.qld.gov.au/property/mapping/aerial_photography*).

EQUIPMENT THAT WILL BE USEFUL DURING THE ASSESSMENTS INCLUDE:

- Camera
- Plant field guides
- Land type profile sheets (*http://www.dpi.qld.gov.au/27_13350.htm*)
- Canopy cover guide (included in kit)
- Score sheet (included in kit)
- Tape measure

THE SCORE SHEET

There is a score sheet specific for each land type. This is because the score sheet incorporates benchmark information, based on a large number of research sites, specifically for that land type. Score sheets specific to land type with relevant technical guides are available for:

- Brigalow belah scrub (**Kit 3a**)
- Poplar box on alluvial (**Kit 3b**)
- Soft mulga (**Kit 3c**)

For each site-based and landscape scale feature a score is assigned to a range of values, based on the benchmarks. The total assessment of '1234' BioCondition is recorded on the bottom of the score sheet, and the total is then related to a '1' (very high), '2' (high), '3' (moderate) or '4' (low) rating.

ON SITE

Within an assessment unit, choose a 'site' that is representative of the area. For future re-location and photo-taking, marking the site with a star picket or natural feature can be useful. At least two photos can be taken at a fixed point (eg star picket) for each site (landscape and trayback photos). See Taking Photos for tips and standards.

The only feature that needs to be assessed from a fixed point is the number of large trees, which can be estimated from within a 50 x 50m area. The features shrub canopy cover and tree canopy cover can be assessed using the Canopy Cover Guides. The cover features (preferred and intermediate grasses and litter) can be visually estimated using the Cover Guide in this kit.

THE SCORE
PUTTING IT TOGETHER FOR A PADDOCK

To obtain an estimate of '1234' BioCondition for a paddock, average the '1234' BioCondition assessment ratings within each assessment unit, and then relate this score to the total area that assessment unit covers in the paddock. For this, the area of each assessment unit is needed, ie the area of each land type and how much of each land type includes remnant vegetation or is cleared. See Box 2 for an example.

BOX 2:

From **Box 1** we saw where to place assessment sites in Creek (~573ha) paddock An additional two sites were also selected in Buffel paddock (~315ha) and another was selected in Creek paddock to increase the robustness of the assessment. '1234' BioCondition was assessed for the six sites with the following results:

CREEK PADDOCK:

- Site A (cleared poplar box with some regrowth) – Rating '2' for 63ha
- Site B and D (remnant poplar box) – Rating '2.5' for 318ha (an average of rating '3' and '2' for sites B and D respectively)
- Site C (remnant brigalow) – Rating '1' for 192ha

This shows that most of Creek paddock is in very high to high '1234' BioCondition (rating '1' or '2').

BUFFEL PADDOCK:

- Site E and F (buffel pasture on cleared brigalow) – Rating '3.5' for 315ha paddock (an average of '3' and '4' for sites E and F, respectively).

Buffel paddock is in moderate to low condition.

TAKING PHOTOGRAPHS

(Adapted from Grass check (Forge 1994), and Land Management Agreement – Rural Leasehold Land Self-Assessment Guideline (www.derm.qld.gov.au) and BioCondition v1.6.)

Taking photographs of site features from a fixed point is a great way to keep a permanent visual record of how attributes have changed over time. Photographs can be the most reliable and useful record collected in any monitoring program, as they best represent how things were over time, in comparison to our memories, which aren't as reliable as we think. Two photo types are recommended to be taken at each site, each time you do an assessment.

THE 'TRAYBACK' PHOTO

The trayback photograph is taken standing on the back of a ute tray, or on a stepladder. This approximately equals an elevation of about 3 metres and a downwards angle of 15 degrees, and will best illustrate ground condition and the amount of feed available in a pasture. It can also show the amount, type and condition of nearby vegetation or the condition of a small gully.

The vehicle trayback or stepladder is positioned at the photopoint post (Figure 1). Focus the middle of the viewfinder on the base of the sighter post located 10 metres (approximately 17 paces) to the south of the photopoint post. The top quarter of each post can be painted bright white or yellow for safety purposes, and each photopoint is marked with a unique number which is useful for identifying the site and keeping records.

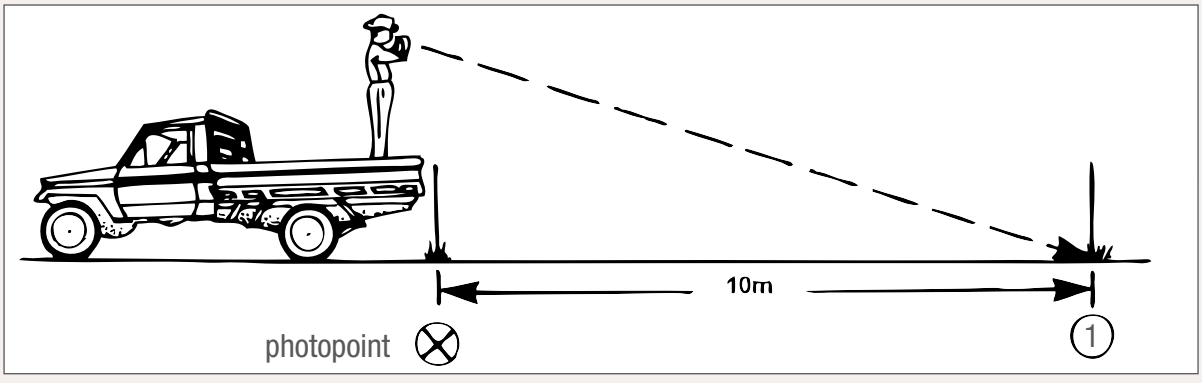


Figure 1: Taking the 'trayback' photo with viewfinder centred on the base of the sighter post.

THE LANDSCAPE PHOTO

The landscape photos are taken of features in the intermediate distance or further to provide an overview of the entire site and its surrounds. They illustrate the general condition of the site, showing changes in tree, shrub and ground layers over time. These site specific landscape photos can also be used to record particular disturbance events such as flood levels and damage or the impacts of a bushfire.

The landscape photo is also taken from near the site marker, holding your camera so that the image is taken with a 'landscape' perspective – that is where the picture is wider than it is high. Stand next to the site marker (Figure 2), facing south (recommended direction – see 'photo tips'), and position the horizon so it cuts the photo frame in half (half above the horizon and half below). Then take the photo focusing on infinity. Recording how the photo was lined up or simply taking a copy of the picture with you on future visits will make lining up the shot easier. Alternatively, taking a series of landscape photos in a north, south, east and west direction (with the aid of a compass), allows you to pick up more of the variation across the site and is easy to replicate next time an assessment is done.

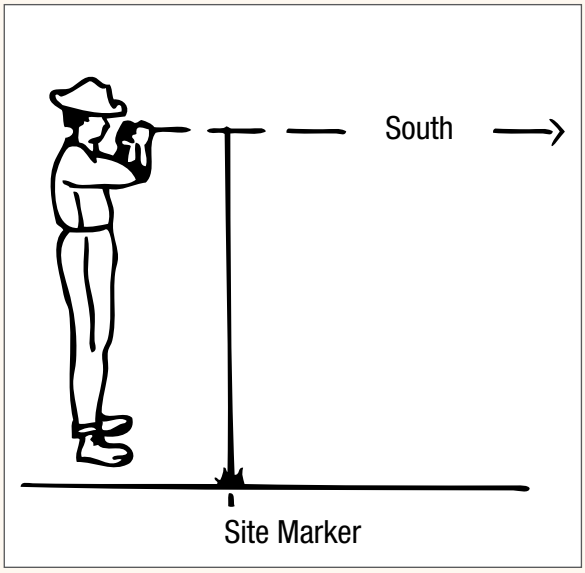


Figure 2: Taking the landscape photos – record the bearing or direction that you are taking the photo in order to allow you to replicate the photo on subsequent visits.

> **"...landscape photos are taken of features in the intermediate distance or further to provide an overview of the entire site and its surrounds."**

PHOTO TIPS

Any type of camera from colour print film to a digital camera can be used to take these photos. Digital cameras are ideal, allowing instant review of an image for clarity and colour; making sure you always have a good photo for your records.

The best photos are generally taken on a clear day between 9am and 3pm. Before 9am and after 3pm will generally result in more shadowing and different colour cast which may conceal some important features. Overcast days are great for photography in closed communities such as rainforests, scrubs and thickets, as the even light removes much of the shadowing.

A common problem is too much light blanking out the colour and detail of the image. If you have control over your camera settings, this can be reduced by setting the exposure compensation to a negative setting; using the auto-exposure lock (AE lock); or by using spot metering. Your camera's user guide will explain how to use these functions on your particular camera – the troubleshooting section is often a good place to find these and other useful solutions.

You will always get a better photo by having the sun behind you with the sunlight shining on the landscape facing you. So, if you are only taking one photo it is best to be facing south, avoiding having the sun shining into your lens.

For each photograph record the relevant area, land type and site; the date the photo was taken; and the direction the photo was taken (N/S/E/W). The date stamp feature on your camera may be useful if it does not obscure important components of a photograph. Photos can be stored in a database (scanned if not digital) and/or printed and kept on file with the monitoring records.

NOTES

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