

# KIT 4 BIODIVERSITY CONDITION AND LAND CONDITION IN GRAZED LANDS





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# WHAT IS LAND CONDITION FOR GRAZED LANDS?

The Grazing Land Management (GLM) education package define grazing land condition as "the capacity of land to respond to rain and produce useful forage".



The 'ABCD' grazing land condition framework of the GLM differentiates four grazing land condition classes, relative to a particular land type, where 'A' represents grazing land in very good condition and 'D' represents grazing land in very poor condition, requiring mechanical intervention. Indicators used in the 'ABCD' framework include:

#### **SOIL CONDITION**

The capacity of the soil to absorb and store rainfall, store and cycle nutrients, provide habitat for seed germination and plant growth, and to resist erosion. It is measured by the condition of the soil surface, which is influenced by the amount of ground cover over time, and the signs and extent of erosion.

#### **PASTURE CONDITION**

The capacity of the pasture to capture solar energy and convert it into green leaf, use rainfall efficiently, conserve soil condition, and to recycle nutrients. It is measured by the types of perennial grasses present, their density and vigour and the presence or absence of weeds. Ground cover is not an indicator of land condition as it tends to fluctuate with seasons and events such as fire.

It is the combination of these two factors (soil and pasture condition) that determines a land condition rating. Woodland condition (see below) is also assessed by measuring tree basal area.



#### **WOODLAND CONDITION**

The capacity of the woodland to grow pasture, cycle nutrients and regulate groundwater. It is measured by measuring the density and trunk size of trees and shrubs present using a variation of the Bitterlich technique.

### WHAT IS BIODIVERSITY CONDITION FOR GRAZED LANDS?



Condition assessment for biodiversity ('1234' BioCondition) aims to show how well a terrestrial ecosystem is functioning for the maintenance of biodiversity values at a local or property scale.

Sites rated as '1' represents habitat in highly functional, or very good condition, whereas a '4' represents habitat in dysfunctional, or very poor condition. The assessment describes the state of vegetation from functional through to dysfunctional condition based on a set of habitat features known to be important for biodiversity. Features assessed include: tree and shrub species richness; tree and shrub canopy cover; number of large live trees; woody debris; cover of preferred and intermediate grass cover; litter and non-native plant cover. In addition, BioCondition includes the assessment of landscape features such as connectivity, the amount of vegetation within the landscape (context) and the distance from watering points.

Fundamental to the use of BioCondition is the comparison of a patch of vegetation to another of the same type in 'functional' biodiversity condition, based on a set of benchmarks representing functional condition. They are quantitative values for each attribute that is assessed in BioCondition and are based on the average values of a mature and long undisturbed 'reference' site, or from best-on-offer sites, obtained during optimal seasonal conditions.

### **HOW DO THEY COMPARE?**

A comparison between grazing land condition and biodiversity condition was made during a study in the Brigalow and Mulga Lands bioregions. Seventy-eight percent of sites assessed in the study were in close agreement between grazing land and biodiversity condition. This is good news as maintaining good grazing land condition will mean that in most cases biodiversity condition will also be functional. However, sometimes there is divergence between grazing land condition and biodiversity condition. See below for examples of where there is agreement and divergence between the two condition assessments.

# Benchmarks are the 'yardstick' against which you compare your site.

Based on 171 sites, dark green represents sites with direct agreement between biodiversity condition and grazing land condition, light green sites are where classification differed by one, light purple where classification differed by 2, and dark purple where classification differed by 3 classes. The size of the circle represents the number of sites eg a large circle means more sites.



## WHERE GRAZING LAND AND BIODIVERSITY CONDITION AGREE

Examples of sites assessed for grazing land and biodiversity condition that aligned with regard to good or functional condition or poor or dysfunctional condition are given below.

#### GRAZING LAND CONDITION CLASS: 'D' BIOCONDITION CLASS: '4'



This site rated poorly for grazing land condition due to the dominance of unpalatable species and absence of 3P grasses in the ground layer. The site also scored poorly for biodiversity condition due to an absence of recruitment, large trees, shrub cover, and limited native species grass cover.

#### GRAZING LAND CONDITION CLASS: 'A' BIOCONDITION CLASS: '1'



This soft mulga site scored well for grazing land condition due to the predominance of 3P grasses and good soil condition. The site also scored well for biodiversity condition, due to high native species richness and ground cover, lots of large mature trees, and woody debris. It was also located within a large patch of remant vegetation.

### WHERE GRAZING LAND AND BIODIVERSITY CONDITION DIFFER

Where there was a divergence between biodiversity and grazing land condition, the sites were either pasture or regrowth, and lacked structural features such as large trees, woody debris and shrub cover (see Kit 2 – Key features). Retaining some logs and large trees and maintaining good grazing land condition can significantly contribute to improved outcomes for biodiversity.

Examples of poplar box on alluvial sites assessed for grazing land and biodiversity condition during the study that differed by two to three condition classes are shown in the following examples.

#### GRAZING LAND CONDITION CLASS: 'A' BIOCONDITION CLASS: '4'



This site scored well for grazing land condition due to the predominance of buffel grass, an introduced 3P grass, as well as the presence of a native 3P grass, kangaroo grass. However, the site was assessed as relatively 'dysfunctional' condition for biodiversity due to an absence of large trees and low shrub species diversity and cover and little remnant vegetation in the surrounding landscape.

#### GRAZING LAND CONDITION CLASS: 'A' BIOCONDITION CLASS: '3'



This site differed from the site to the left in that it had some shrubs, a greater diversity of native species in the ground layer, and low non-native plant cover. In addition, the site had a greater amount of remnant vegetation in the surrounding landscape.

#### GRAZING LAND CONDITION CLASS: 'A' BIOCONDITION CLASS: '4'



This site had a very good grazing land condition rating due to the predominance of buffel grass, and stable soil condition. In contrast, the site scored poorly for BioCondition due to an absence of large trees, low native species richness and cover and because there was little retained remnant vegetation in the landscape.

#### GRAZING LAND CONDITION CLASS: 'A' BIOCONDITION CLASS: '3'



This site was also assessed as an 'A' for land condition, but scored a '3' for BioCondition. This site differed from the site to the left as it had a greater richness of native species, some tree cover, a shrub layer, some litter and woody debris, and was located in a landscape with more remnant and regrowth vegetation. The addition of these elements results in better outcomes for biodiversity, whilst not detracting from its productive potential.

# **IN SUMMARY**

Land that is in good condition for grazing is also in good condition for biodiversity, as long as some key habitat features are maintained. Key features include large, mature trees, patches of shrub cover and fallen woody material. Even maintaining small amounts of these key features in the paddock will greatly benefit many fauna species (see Kit 2).

### In the paddock, maintaining even small amounts of key features will result in better outcomes for biodiversity

## NOTES



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