

# Victoria River District



Understanding the productivity of grazing lands

## Land Condition Guide



CARING  
FOR  
OUR  
COUNTRY



Northern Territory  
Government



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Further information on land condition can be found through the Grazing Land Management (GLM) workshops. For information about the GLM courses available in the Northern Territory please contact the Department of Resources on 8973 9739.

# Land Condition Guide

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# Land Condition Guide

## Introduction

This booklet is a pastoral land condition assessment tool that has been produced to assist land managers.

Land condition can be described as the ability of land to respond to rainfall and produce useful forage. Country in good condition is robust and can recover quickly from stresses such as grazing, fire or a few dry years.

Land in poor condition is lacking in productive perennial pastures and is often affected by soil erosion due to a decline in ground cover and the stabilising effects of perennial grass tussocks and roots.

Often land is somewhere between good and poor condition where pastures are in some state of decline or soil condition is starting to deteriorate. It is important to understand what processes are causing the decline so that changes in management can be implemented before land condition declines further.



Good condition 
→
 Poor condition

To assess a given area for land condition we look at FOUR major features of the landscape: pasture structure and composition, soil condition, presence of weeds and woodland structure. Table 1 outlines how these features change with varying land condition states and what criteria must be met to assign an area to a land condition group.

Land condition is divided into 4 categories A, B, C and D condition with A condition being the best and D condition the worst.

**Table 1**

Land Condition	Soil	Pasture	Weed	Woodland
<b>A</b> (All of these features)	No erosion and good surface condition	Good coverage of 3P grasses,* little bare ground (<30%) in most years	Few weeds and no significant infestations	No signs of woodland thickening
<b>B</b> (At least one or more of these features)	Some signs of previous erosion and some current signs of erosion risk	Some decline in the presence of 3P grasses and/or bare ground (more than 30%, but less than 50% in most years)	Small infestations of weeds	Some thickening in the density of woody plants
<b>C</b> (One or more of these features)	Obvious signs of past erosion and/or current susceptibility to erosion	General decline in the presence of 3P species and/or bare ground (>50% in most years)	Obvious presence of weeds	General thickening in the density of woody plants
<b>D</b> (One or more of these features)	Severe erosion, scalding or compaction resulting in a hostile environment for plant growth	General lack of any perennial grasses or forbs	Large weed infestations covering significant areas	Thickets of woody plants that cover significant areas

\*3P grasses= Palatable, Productive Perennial grasses

# Soil

Good soil condition is important for healthy plant growth. The uppermost layer of the soil is known as top soil or the A horizon. This layer is anywhere from a few cm to 20+ cm deep and is where seed germination occurs and plants concentrate their roots for stability and nutrient uptake. When top soil is eroded, plants struggle to establish which leads to less ground cover and subsequently higher rates of runoff, reduced infiltration of rain water and further erosion.

The key to maintaining soil condition is good plant cover. Plant tussocks and leaf litter provide barriers which slow the velocity of water and wind and reduce resource loss from the system.

## Types of soil erosion

These are some of the erosional processes that may occur in land with declining land condition.

### Rills and Gullies

Channels cut upslope by flowing water, often initiated by water flowing down a cattle pad, fence line or road.

### Terracettes

Small abrupt walls 1-10cm high cut into the slope and aligned with the contour.

### Sheeting or sheet erosion

Progressive removal of thin layers of soil across extensive areas.

### Scalding

The loss of A horizon material to expose a hard-setting subsurface horizon.

### Hummocking

Confined to soils with coarse textured surface layers such as sand and is the result of accumulation of wind borne material around obstructions.

### Pedestalling

Removal of soil from around obstructions (commonly plants) to leave them perched on a mound above the surrounding soil surface.



Rill erosion



Sheet erosion



Pedestalling erosion

# Pasture

The presence of palatable productive perennial grasses (3P's) in most cases indicates good land condition. These species are the first to disappear under heavy grazing and are often replaced by less productive grasses and forbs. Carrying capacity is therefore reduced because there is less palatable forage for stock.

Some land types such as those dominated by spinifex don't typically meet the 3P grass criteria for good land condition. While spinifex is not as productive or palatable as other 3P grasses, it is perennial and can facilitate good land condition when other land condition components are maintained.

Areas of land in good condition have healthy soils that provide water and nutrients for plants to grow. In return, the plants help protect the soil and return nutrients through decomposing leaf litter. Carbon is also captured and stored effectively where good land condition occurs. When land condition declines, the cycle is broken and resources such as nutrients and water are lost from the system.



The solid lines represent the movement of resources such as nutrients, water or vegetative cover such as leaves. The dashed lines show how the grass tussocks encourage the retention of these resources so they remain available to the surrounding plants.



Land in poor condition often has wide spaces between grass tussocks which allow resources to leave the local ecosystem. More bare ground also leads to greater rates of erosion by wind and water which accelerates the decline in land condition.

A modification in grazing strategies can assist in improving pasture condition. Wet season spelling and stocking rate adjustments can encourage the re-establishment of preferentially grazed pasture species and increase ground cover.

Strategic burning can also be used to manage pastures by removing rank growth and modifying grazing distribution. In the VRD, a low-moderate intensity fire after rain at the beginning of the wet season is recommended for black soil pastures to improve pasture quality and encourage more even grazing as cattle will be less selective when grazing new growth. At least 1500kg/ha is required to successfully burn under these conditions.

Annual-dominated pastures do not respond well to fire. As annual species only live for one year, a fire can completely remove ground cover until the next rains occur and seeds are germinated. If fire occurs before the annual species have set seed then the seed bank is depleted and even good rain may not produce much forage.

# Weeds and woody thickening

A decline in land condition is not always a decline in vegetative growth. A weed infestation or woody thickening will also decrease land condition while maintaining some of the “good” condition characteristics such as ground cover. However weeds and woody thickening can have a large impact on land condition because they require more intensive and expensive management techniques to rectify.

Weeds, trees and shrubs in large numbers affect land condition by competing with pastures for nutrients, water and sunlight. Minor weed infestations or woody thickening can quickly spread to dominate the landscape, inhibiting pasture growth and making them less viable for cattle production.

Studies conducted in the VRD and Katherine region show that trees can reduce pasture growth by up to 50%. However, total clearing of trees is not recommended in extensive grazing systems due to the costs of controlling tree regrowth. The most effective way to maintain good tree basal area is with appropriate fire and grazing management.

Burning conditions required for various weed and woody management objectives.

Management Objective	Fire Intensity	Fuel Load (kg (dry weight)/ha)	Season of Burn
Maintaining woody vegetation structure	Moderate-High	2000-3000	April-October
Change woody vegetation structure, control exotic weeds	High-very high	2500-4500	August-October
Hazard reduction – reducing risk of wildfire	Low-moderate	>1500-2000	March-June



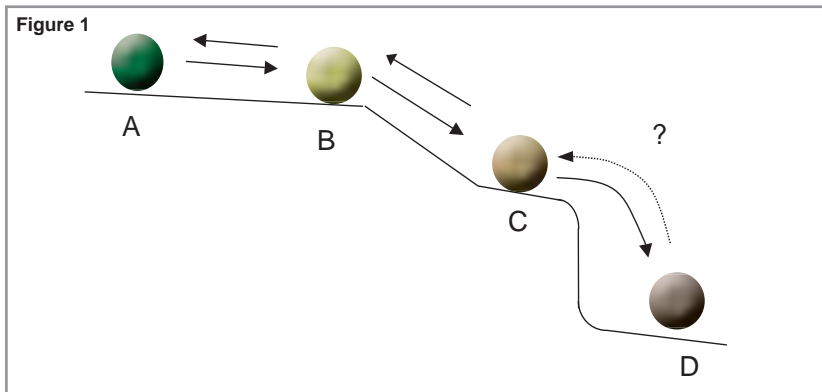
**Parkinsonia on Wavehill land system**



**Prickly acacia on Wavehill land system**

# The ABCD Land Condition Framework

The ABCD land condition framework provides land managers with a standardised approach for assessing the capacity of their land to respond to rainfall.



In the ABCD framework, land condition can be represented by a ball sitting on a slope. The further the ball travels down the slope, the poorer the land condition. The slope of the line represents the relative management effort required to reverse the change in land condition. As land condition declines, the slope becomes steeper which makes improving land condition more labour intensive, expensive and time consuming the further it declines.

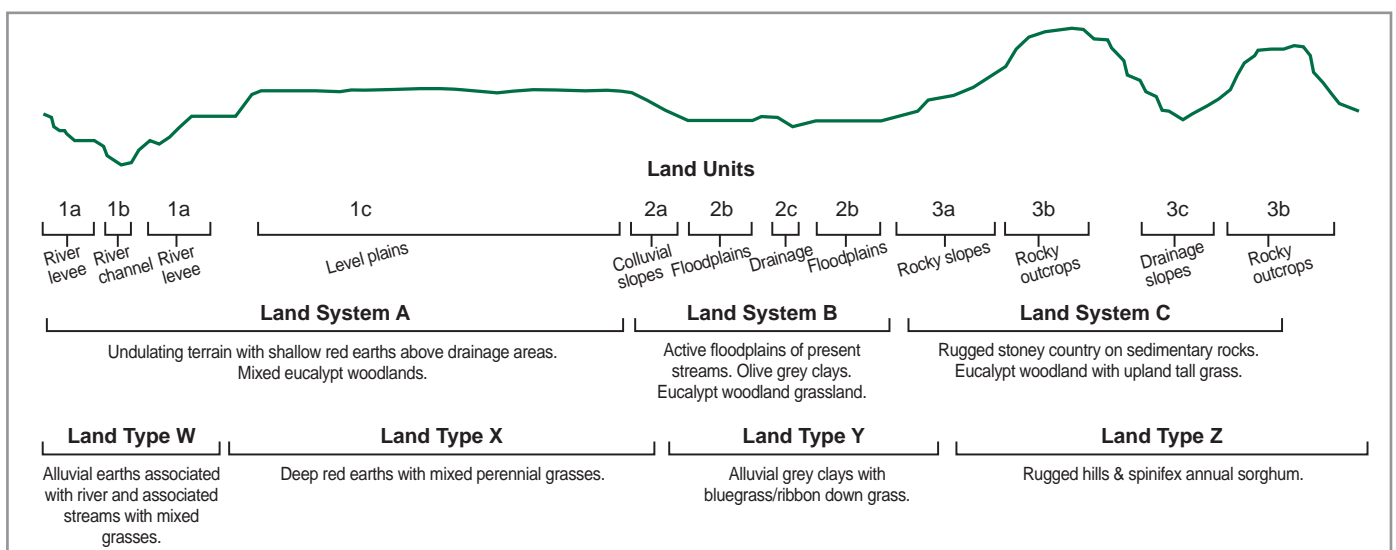
Land in 'A' condition is relatively stable. Land that is trending towards 'B' condition can be fairly quickly reverted to 'A' by small changes in management.

However, land in 'B' condition is susceptible to a quick decline to 'C' condition. Reversing this change may require more significant changes in management and will take some time to occur.

Land in 'C' condition is very susceptible to falling rapidly to 'D' condition. Land in 'D' condition will not revert to 'C' condition by simply changing management, at least not in any time frame of practical interest to grazing land management. Improving land in 'D' condition to 'C' condition requires a large input of external energy (mechanical and/or chemical), and even this may be insufficient if soil condition has been severely damaged.

## Understanding land systems

The term 'land system' describes areas of similar soil and vegetation patterns. Land systems are widely used and referred to because they have been quantified by field surveys and mapping. 'Land units' are a more detailed measure of land systems and describe unique areas of specific soils and vegetation. Each land system usually contains a number of land units.



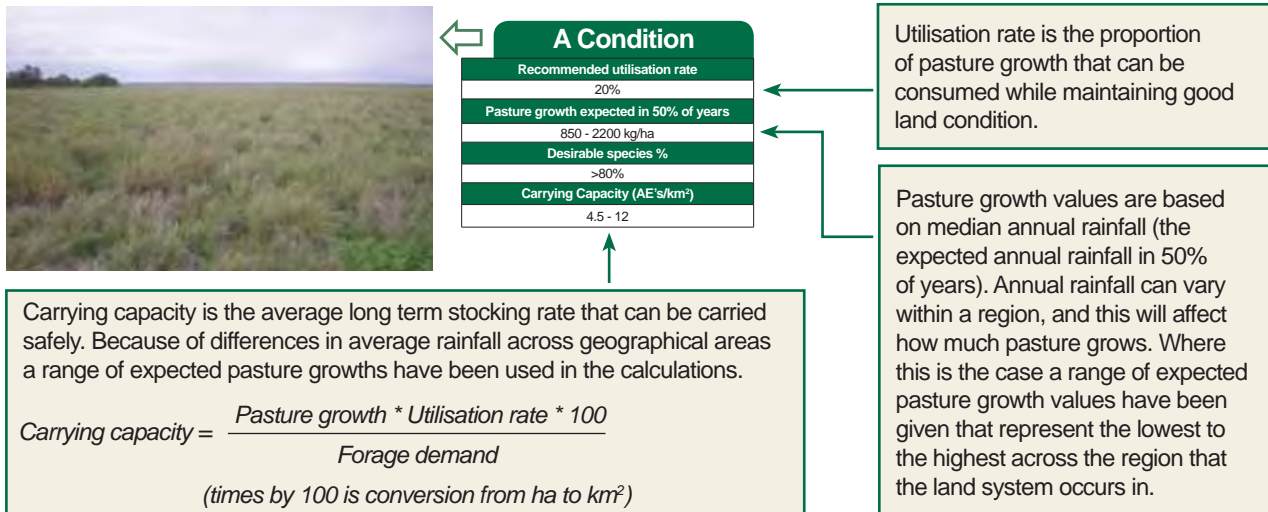
'Land type' is another term commonly used and it refers to specific soil and vegetation features. These are more commonly 'layman's' terms and often are described by the dominant soil, tree or pasture species, for example Northern tall grass country or Perennial grasses on basalt cracking clay. They are generally broad and can occur over a number of land systems. For example, Wavehill and Argyle are different land systems due to the nature of their geology, but are both the same land type; Perennial grasses on basalt cracking clays.



# Using this guide

This guide includes information on pasture growth and carrying capacity for a selection of land systems in the region. Above the land system name is a general land type description. This will help you identify which pages are most suitable to land systems not mentioned in the booklet.

Use the land system photos in conjunction with the land condition assessment table on page 2 to help you identify your pastures and what condition they are in.



Forage demand = annual animal intake per AE (3650kg/year)

AE = Adult equivalent (One AE = One 450kg dry cow)

Carrying capacity is expressed as AE's /km<sup>2</sup>

## Carrying capacity assumptions and notes

Long term carrying capacity is the average number of animals that a paddock can be expected to support over a planning horizon (5-10 years) without affecting land condition.

Pasture growth estimates have been calculated using models created from data collected from monitoring sites across the NT.

Carrying capacity figures assume all land is within 3-5km of water (depending on terrain).

Discounts for pasture growth for land condition changes have been calculated using GLM principles

**Table 2**

Land Condition	Discount applied to pasture growth	Land Condition	Discount applied to pasture growth
A	100% of A condition pasture growth	C	45% of A condition pasture growth
B	75% of A condition pasture growth	D	20% of A condition pasture growth

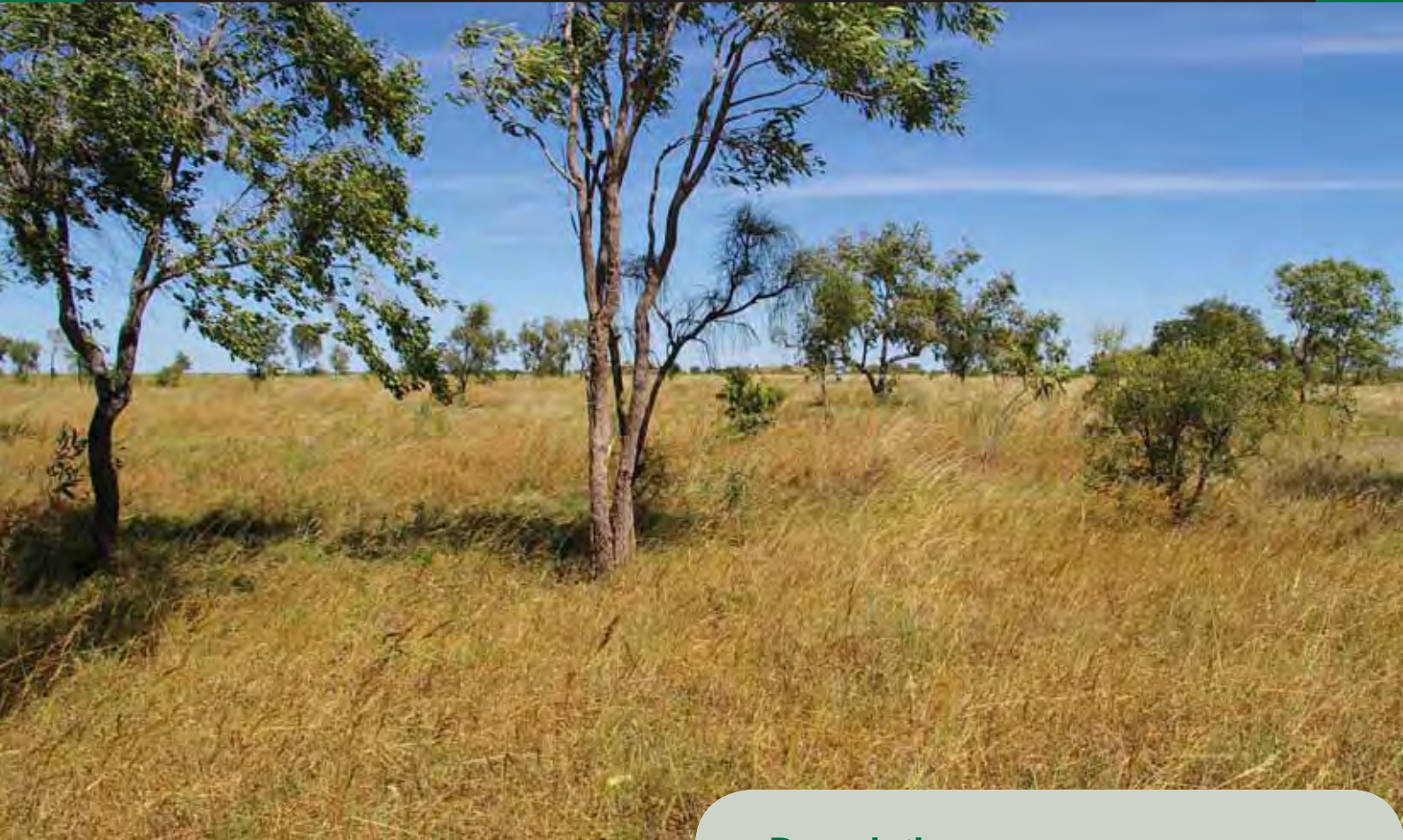
Pasture growth may vary outside of the given ranges depending on the type of land condition decline you have. Where high yielding weeds and undesirable plants invade, pasture growth values may actually be higher but the overall productivity of useful forage or carrying capacity would be reduced.

Utilisation rates are based on research work conducted across northern Australia. As a general rule, recommended utilisation rates are 20% for robust black soils, 15% for productive red soils with perennial grasses, 10% for poorer red soils with a mix of less palatable perennial and annual grasses and 5% for spinifex dominated land types.

Utilisation rate recommendations and carrying capacity figures have been excluded for land in D condition. While pastures in this condition can grow limited grass, it is not recommended that these areas be grazed until land condition can be improved.

# Arid short grasses on red soil

## Antrim land system



### Dominant Pastures

Limestone grass (*Enneapogon* species)  
Spinifex (*Triodia* species)  
Annual sorghum (*Sorghum timorense*)

### Other Pastures

Wiregrass (*Aristida* species)  
Fairy grass (*Sporobolus australasicus*)  
Ribbon grass (*Chrysopogon fallax*)  
White grass (*Sehima nervosum*)  
Native couch (*Brachyachne convergens*)

### Dominant Shrubs

Conkerberry (*Carissa lanceolata*)

### Dominant Trees

Inland bloodwood (*Corymbia terminalis*)  
Southern box (*Eucalyptus argillacea*)

### Other Trees

Cabbage gum (*Eucalyptus confertiflora*)  
Whitewood (*Atalaya hemiglauca*)

## Description

Hilly country with useful lowlands - mostly rocky outcrops with basalt boulders and pockets of red clay soils. Located in southern parts of the VRD region.

## Pastoral Value

Low to moderate pastoral value. Small areas of the lower slopes and drainage lines most productive. Steeper, annual grass dominated areas are generally good quality pastures but lack bulk.

## Management Implications

Possibility for overgrazing during wet season, particularly when associated with large areas of black soil (notably Wavehill land system). Frequent burning is not recommended for annual dominated pastures.



## A Condition

<b>Recommended utilisation rate</b>	10%
<b>Pasture growth expected in 50% of years</b>	1950 – 2550 kg/ha
<b>Desirable species %</b>	>80%
<b>Carrying Capacity (AE's/km<sup>2</sup>)</b>	5.5 – 7



## B Condition

<b>Recommended utilisation rate</b>	10%
<b>Pasture growth expected in 50% of years</b>	1450 – 1900 kg/ha
<b>Desirable species %</b>	50 – 80%
<b>Carrying Capacity (AE's/km<sup>2</sup>)</b>	4 – 5



## C Condition

<b>Recommended utilisation rate</b>	10%
<b>Pasture growth expected in 50% of years</b>	900 – 1150 kg/ha
<b>Desirable species %</b>	25 – 50%
<b>Carrying Capacity (AE's/km<sup>2</sup>)</b>	2.5 – 3

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## D Condition

<b>Recommended utilisation rate</b>	0%
<b>Pasture growth expected in 50% of years</b>	400 – 500 kg/ha
<b>Desirable species %</b>	0 – 25%
<b>Carrying Capacity (AE's/km<sup>2</sup>)</b>	0

# Northern tall grass country

## Dinnabung land system



### Dominant Pastures

Ribbon grass (*Chrysopogon fallax*)  
Black speargrass (*Heteropogon contortus*)  
Kangaroo grass (*Themeda triandra*)  
Plume sorghum (*Sorghum plumosum*)  
White grass (*Sehima nervosum*)

### Other Pastures

Bluegrass (*Dichanthium* species)  
Native couch (*Brachyachne convergens*)

### Dominant Trees

Woollybutt (*Eucalyptus tectifica*)  
Cabbage gum (*Eucalyptus confertiflora*)  
Broad-leaf bloodwood (*Corymbia foelscheana*)  
Southern box (*Eucalyptus argillacea*)

### Other Trees

Silver box (*Eucalyptus pruinosa*)

### Description

Timbered gently undulating limestone country in the northern parts of the VRD. Brown-grey sandy loam over red and yellow clays. Scattered limestone outcrops.

### Pastoral Value

Moderate pastoral value. High proportion of 3P grasses but quality is limited particularly in higher rainfall areas where nutrients are diluted by plants or leached through the soil profile.

### Management Implications

Benefits from strategic burning to manage woody thickening.



## A Condition

Recommended utilisation rate	15%
Pasture growth expected in 50% of years	1800 – 2100 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	7.5 – 8.5



## B Condition

Recommended utilisation rate	15%
Pasture growth expected in 50% of years	1350 – 1600 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	5.5 – 6.5



## C Condition

Recommended utilisation rate	15%
Pasture growth expected in 50% of years	800 – 950 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	3 – 4



## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	350 – 450 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Arid short grass on limestone hilly country

## Humbert land system



**Dominant Pastures**  
Limestone grass (*Enneapogon* species)  
Spinifex (*Triodia* species)  
Annual sorghum (*Sorghum timorensis*)  
Black speargrass (*Heteropogon contortus*)

**Other Pastures**  
Barley mitchell (*Astrelba pectinata*)  
Wiregrasses (*Aristida* species)  
Fairy grass (*Sporobolus australasicus*)

**Dominant Trees**  
Inland bloodwood (*Corymbia terminalis*)

### Description

Hilly limestone country in the southern parts of the VRD.

### Pastoral Value

Low to moderate pastoral value. Small areas of the lower slopes and drainage lines most productive. Higher, rocky limestone hills with annual grass dominated areas are generally good quality pastures but lack bulk. Most valuable during and immediately after the wet season.

### Management Implications

Potential for overgrazing during the wet season, particularly when adjacent to large areas of black soil. Frequent burning not recommended for annual dominated pastures.



## A Condition

Recommended utilisation rate	15%
Pasture growth expected in 50% of years	2150 – 2450 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	6 – 7



## B Condition

Recommended utilisation rate	15%
Pasture growth expected in 50% of years	1650 – 1850 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	4.5 – 5



## C Condition

Recommended utilisation rate	15%
Pasture growth expected in 50% of years	1000 – 1100 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	3



## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	400 – 500 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Southern Mitchell grass plains on alluvial clay

## Inverway land system



### Description

Nearly treeless, elevated alluvial “black soil” plains in the southern parts of the VRD.

### Pastoral Value

High pastoral value. Fertile soils with a high proportion of palatable perennial grasses.

### Management Implications

Benefits from wet season spelling to allow seed germination and plant establishment. Moderate to hot fires required to control woody weeds.

#### Dominant Pastures

Barley mitchell (*Astrebla pectinata*)

#### Other Pastures

Weeping mitchell (*Astrebla elymoides*)  
Bull mitchell (*Astrebla squarrosa*)  
Curly bluegrass (*Dichanthium fecundum*)  
Feathertop wiregrass (*Aristida latifolia*)  
Silky browntop (*Eulalia aurea*)  
Flinders grass (*Iseilema* species)  
Sensitive plant (*Neptunia* species)  
Native couch (*Brachyachne convergens*)





## A Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	850 – 2200 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	4.5 – 12



## B Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	650 – 1700 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	3.5 – 9



## C Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	400 – 1000 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	2 – 5.5

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## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	100 – 450 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Bluegrass on alluvial clay plains

## Ivanhoe land system



**Dominant Pastures**  
Bluegrasses (*Dichanthium* species)

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**Other Pastures**  
Bull mitchell (*Astrebla squarrosa*)  
Annual sorghum (*Sorghum timorense*)  
Cane grass (*Ophiuros exaltatus*)  
Feathertop wiregrass (*Aristida latifolia*)

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**Dominant Shrubs**  
Rosewood (*Terminalia volucris*)

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**Dominant Trees**  
Bauhinia (*Bauhinia cunninghamii*)  
Coolibah (*Eucalyptus microtheca*)

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**Other Trees**  
Silver box (*Eucalyptus pruinosa*)

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### Description

Gently sloping alluvial “black soil” plains (grey/ brown cracking clays) with some timbered “red” soil in central and northern regions of the VRD.

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### Pastoral Value

Moderate to high pastoral value. Fertile clay soils produce large quantities of 3P grasses.

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### Management Implications

Benefits from wet season spelling to allow seed germination and plant establishment. Moderate to hot fires required to control woody regrowth.

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## A Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	1550 – 3850 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	8.5 – 21



## B Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	1200 – 2900 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	6.5 – 16



## C Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	700 – 1750 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	4 – 9.5

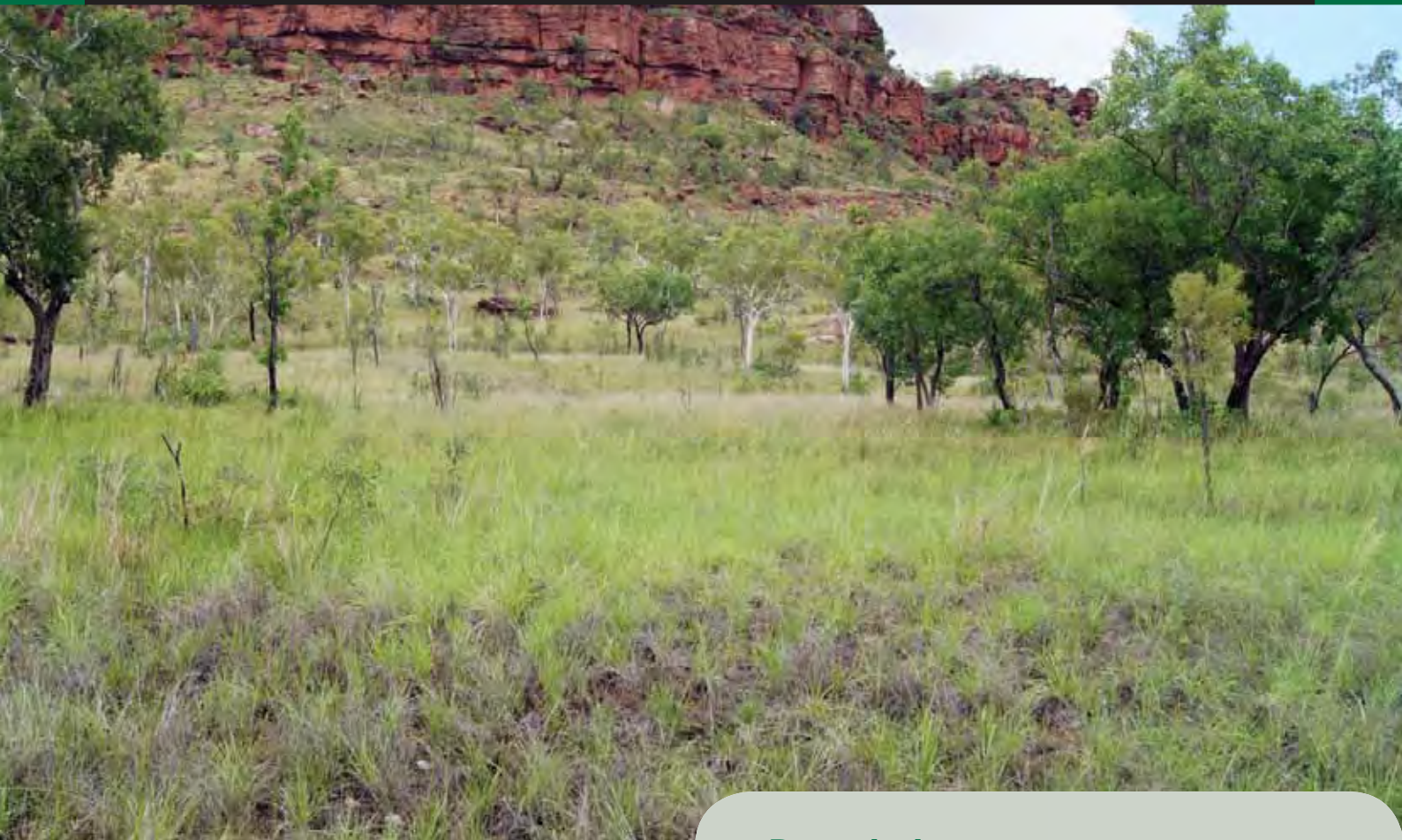


## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	300 – 750 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Spinifex on rugged hilly country

## Pinkerton land system



### Dominant Pastures

Soft spinifex (*Triodia pungens*)  
Feathertop spinifex (*Triodia bitextura*)  
Annual sorghum (*Sorghum intrans*)

### Other Shrubs

Wattles (*Acacia* species)  
Turkey bush (*Calytrix exstipulata*)

### Dominant Trees

Stringybark (*Eucalyptus tetradonta*)  
Variable-bark bloodwood (*Corymbia dichromophloia*)  
Smooth-stemmed bloodwood (*Corymbia bleeseri*)  
Woollybutt (*Eucalyptus miniata*)

### Other Trees

Rusty bloodwood (*Corymbia ferruginea*)  
Grey box (*Eucalyptus tectifica*)  
Large-leaf cabbage gum (*Eucalyptus grandifolia*)

## Description

Rugged stony country formed on sedimentary rocks, shallow sandy skeletal soils in southern parts of the VRD. Comparable to Wickham land system.

## Pastoral Value

Low pastoral value. Mostly unpalatable species and low forage production. Steep rugged country reduces accessibility for stock.

## Management Implications

Poor accessibility for mustering. Rugged areas can protect feral animals such as horses, scrub cattle and wild dogs.



## A Condition

Recommended utilisation rate	5%
Pasture growth expected in 50% of years	900 – 1700 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	1 – 2.5



## B Condition

Recommended utilisation rate	5%
Pasture growth expected in 50% of years	700 – 1300 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	1 – 2



## C Condition

Recommended utilisation rate	5%
Pasture growth expected in 50% of years	400 – 800 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	0.5 – 1



## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	200 – 350 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Spinifex plains

## Geebee, Coolindie, Redsans, Barry land systems



**Dominant Pastures**  
Soft spinifex (*Triodia pungens*)

**Other Pastures**  
Gulf wiregrass (*Aristida pruinosa*)

**Other Shrubs**  
Silver Cassia (*Senna glutinosa* ssp. *pruinosa*)  
Wattles (*Acacia* species)

**Dominant Trees**  
Snappy gum (*Eucalyptus brevifolia*)  
Silver box (*Eucalyptus pruinosa*)  
Long-fruited bloodwood (*Corymbia polycarpa*)

### Description

Gently undulating red sandy and gravelly “desert” soils in the southern and south-eastern parts of the VRD. Includes Redsans, Geebee, Barry and Coolindie land systems.

### Pastoral Value

Low pastoral value. Dominated by unpalatable and unproductive species with low forage production.

### Management Implications

Burning may encourage new growth of spinifex in higher rainfall areas which can increase the palatability of the plant. In lower rainfall areas spinifex can be killed by fire late in dry season. Unstructured, sandy soil is prone to erosion when ground cover is low.



## A Condition

Recommended utilisation rate	5%
Pasture growth expected in 50% of years	900 – 1100 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	1 – 1.5



## B Condition

Recommended utilisation rate	5%
Pasture growth expected in 50% of years	650 – 850 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	1



## C Condition

Recommended utilisation rate	5%
Pasture growth expected in 50% of years	400 – 500 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	0.5



## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	200 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Perennial grasses on basalt cracking clays

## Wavehill land system



### Description

Gentle undulating slopes of brown basalt-derived cracking clays, can be stony. Nearly or completely treeless. Comparable to Willeroo land system.

### Pastoral Value

Moderate to high pastoral value. Very fertile soils with some highly productive grasses.

### Management Implications

Prickle bushes common in areas with declining land condition which may require chemical treatment for control. Benefits from wet season spelling to allow seed germination and plant establishment.

#### Dominant Pastures

Curly bluegrass (*Dicanthium fecundum*)  
Millet (*Panicum* species)  
Feathertop wiregrass (*Aristida latifolia*)  
Ribbon grass (*Chrysopogon fallax*)

#### Other Pastures

Annual sorghum (*Sorghum timorense*)  
Hoop mitchell (*Astrebla elymoides*)  
Barley mitchell (*Astrebla pectinata*)  
Qld bluegrass (*Dichanthium sericeum*)  
Silky browntop (*Eulalia aurea*)  
White grass (*Sehima nervosum*)  
Flinders grass (*Iseilema* species)

#### Dominant Shrubs

Rosewood (*Terminalia volucris*)

Nutwood (*Terminalia arostrata*)





## A Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	2250 – 4200 kg/ha
Desirable species %	>80%
Carrying Capacity (AE's/km <sup>2</sup> )	12.5 – 23



## B Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	1700 – 3150 kg/ha
Desirable species %	50 – 80%
Carrying Capacity (AE's/km <sup>2</sup> )	9.5 – 17



## C Condition

Recommended utilisation rate	20%
Pasture growth expected in 50% of years	1000 – 1900 kg/ha
Desirable species %	25 – 50%
Carrying Capacity (AE's/km <sup>2</sup> )	5.5 – 10.5



## D Condition

Recommended utilisation rate	0%
Pasture growth expected in 50% of years	450 – 850 kg/ha
Desirable species %	0 – 25%
Carrying Capacity (AE's/km <sup>2</sup> )	0

# Land Condition Guide

# Species list

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## VRD

### Desirable Perennial Grasses (3P's)

Ribbon grass	<i>Chrysopogon fallax</i>
Kangaroo grass	<i>Themeda triandra</i>
Plume sorghum	<i>Sorghum plumosum</i>
Barley mitchell grass	<i>Astrebla pectinata</i>
Weeping/Hoop mitchell grass	<i>Astrebla elymoides</i>
Bull mitchell grass	<i>Astrebla squarrosa</i>
Curly bluegrass	<i>Dicanthium fecundum</i>
Silky browntop	<i>Eulalia aurea</i>
Millet	<i>Panicum</i> species

### Desirable Annual Grasses

Limestone grass	<i>Enneapogon polyphyllus</i>
Native couch	<i>Brachyachne convergens</i>
Flinders grass	<i>Iseilema</i> species
QLD bluegrass	<i>Dicanthium sericeum</i>

### Intermediate value grasses (perennials and annuals)

Soft spinifex	<i>Triodia pungens</i>
Feathertop spinifex	<i>Triodia bitextura</i>
Annual sorghum	<i>Sorghum intrans</i> (on red soil) <i>Sorghum timorense</i> (on black soil)
Northern kerosene grass	<i>Aristida hygrometrica</i>
Whitegrass	<i>Sehima nervosum</i>
Black speargrass	<i>Heteropogon contortus</i>

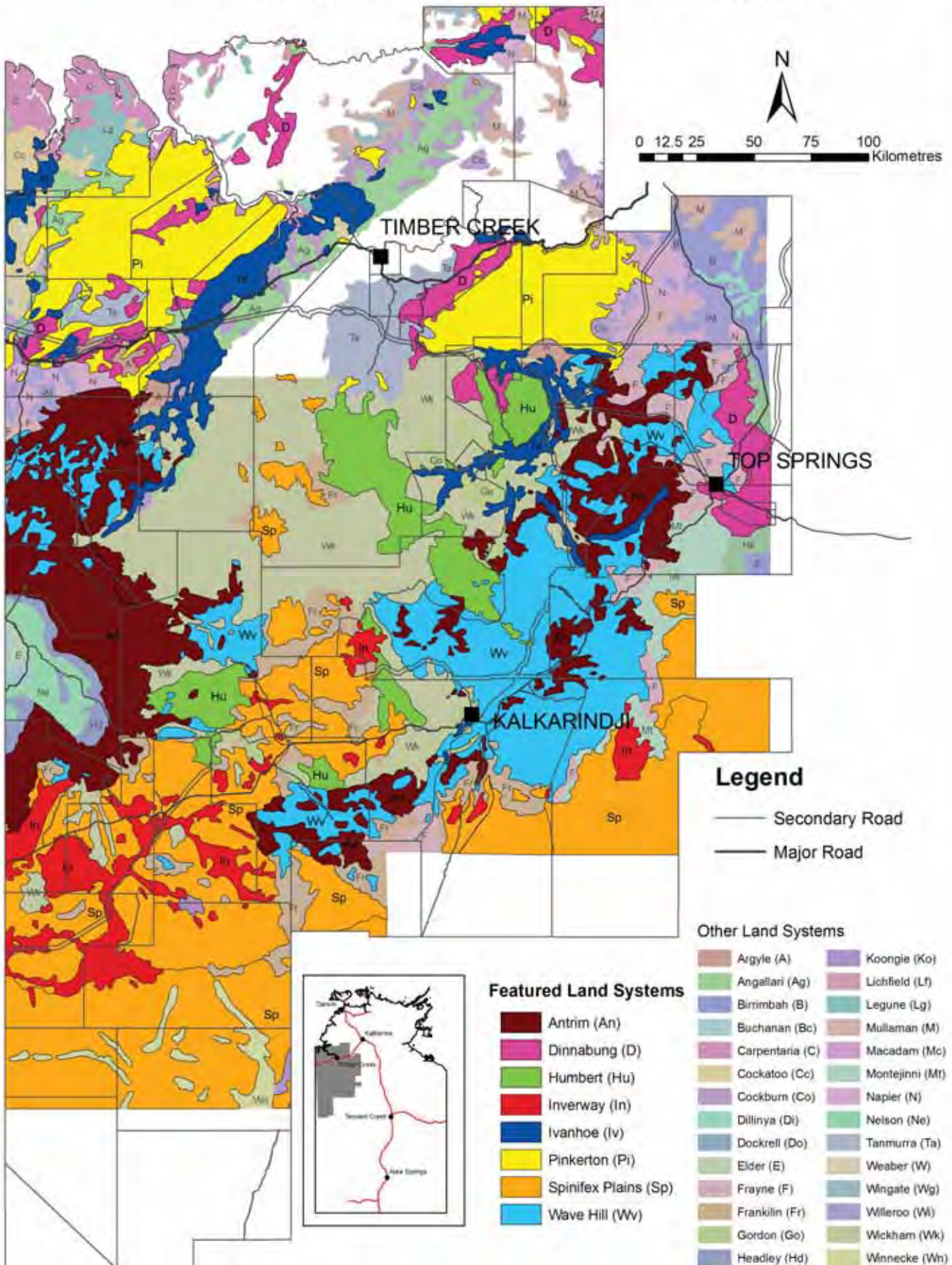
### Desirable legumes and forbs

Sensitive plant	<i>Neptunia</i> species
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### Less desirable grasses (perennials and annuals)

Fairy grass	<i>Sporobolus australasicus</i>
Feathertop wiregrass	<i>Aristida latifolia</i>
Cane grass	<i>Ophiuros exaltatus</i>
Gulf wiregrass	<i>Aristida pruinosa</i>

# Victoria River District Land Systems



Infrastructure and Cadastre data supplied by the NT Department of Planning and Infrastructure.  
 Land System data supplied by the NT Department of Natural Resources, Environment, The Arts and Sport.

Map produced by Desert Wildlife Services Technical Enquiries: 08 89521696

Victoria River District

Land Condition  
**Guide**