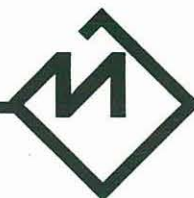


Sustaining land  
for beef production in the

# Calliope River Catchment and adjacent ranges area

*Based on producer experience*

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## Introduction

This report contains management guidelines for a beef property typical of the Calliope River Catchment area. The guidelines are for sustainable beef production. Sustainable production is defined as production which optimises profit with minimal degradation of the natural resources.

The Calliope River Catchment area is located south-west of Gladstone which is in the Calliope Shire, Central Queensland (see map page 3).

This document contains a description of land-types in the Calliope River Catchment area, their vegetation, topography, soils, pastures, production capacity and condition. The report also describes suitable enterprises, cattle management and grazing-land management. Stocking rates and property sizes are suggested as guidelines for sustainable beef production. A list of common and scientific plant names is included as Addendum 1 to ensure accurate plant identification.

This information was provided in 1992 by a group of eight producers each of whom had at least 10 years experience of beef property management in the Calliope River Catchment area.

These guidelines were developed by using a process called the Local Consensus Data (LCD) technique. This process involved discussing the best management practices for a hypothetical property typical of the Calliope River Catchment area.

Participating producers agree that this report contains a range of practical, first hand information that contributes to identifying current best practices for local property management.

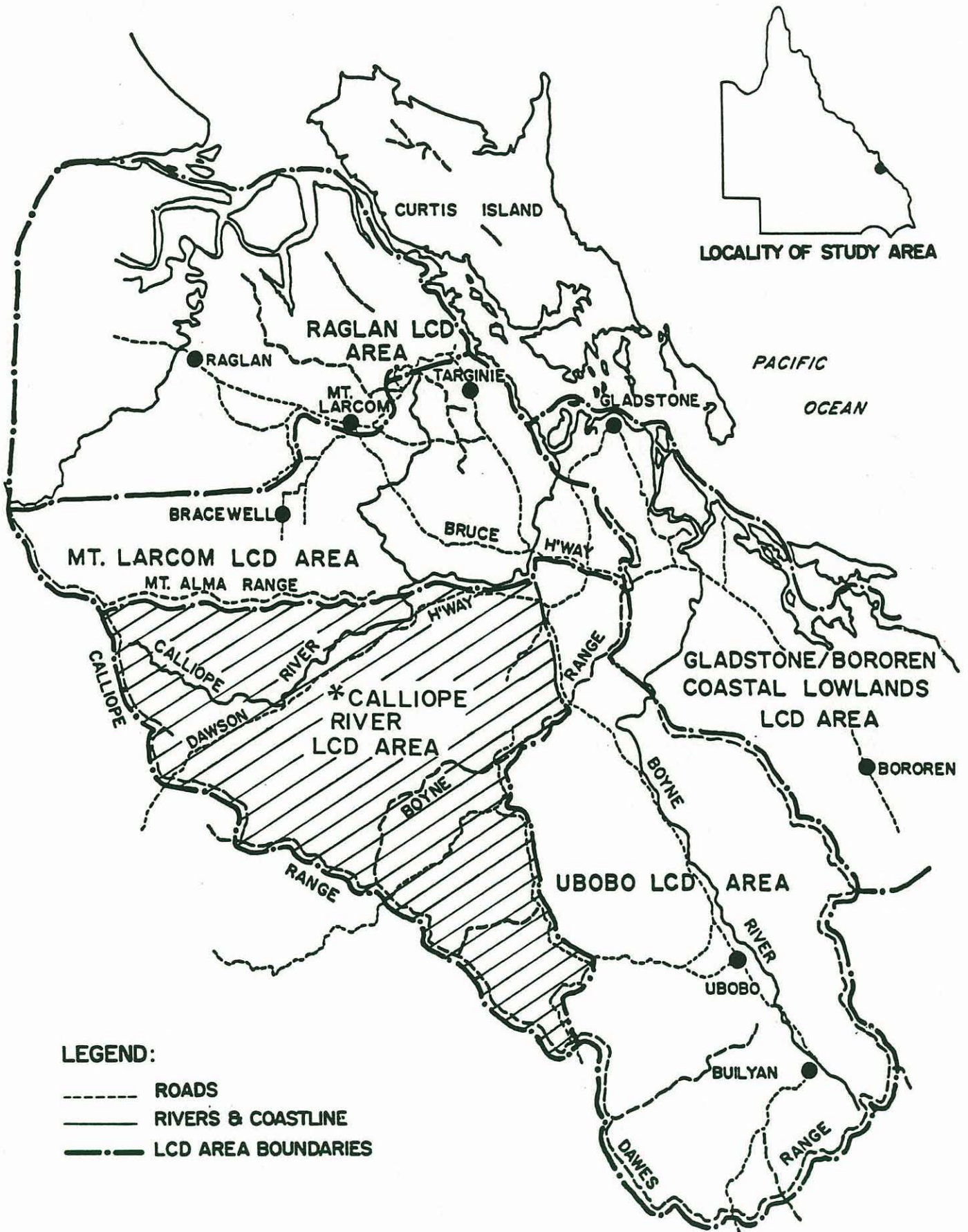
Similar reports are available for other areas in the different pasture communities of Queensland (see Native Pasture Communities map, Addendum 2).

Together, LCD reports offer a pool of practical ideas for sustainable beef production. The reports also identify industry constraints within and across pasture communities together with problems and gaps in information for further research.

These guidelines are based upon experience up to July 1992. Changes in knowledge, technology and market forces may alter the suitability of this information in the future. Producers and organisations involved in the preparation of this report accept no responsibility for adverse effects resulting from the use of this information. Some conclusions may not be endorsed by the Department of Primary Industries (DPI) or the Meat Research Corporation (MRC).

The production of LCD reports is the first step in a process which will include workshops to give all beef producers (in local areas in Central Queensland) an opportunity to participate in developing improved production systems. The process is sponsored by the MRC and the DPI. In the Calliope Shire the process was initiated and managed by the Calliope Soil Conservation Society (CSCA).

Readers should consult appropriate representatives of the CSCA or the DPI for further information or clarification.



\* Location of the Calliope River Catchment area.

## Land-types

There are three different land-types in this area. This section of the report provides a description of each land-type. Problems with each land-type and opportunities for improved management are discussed.

### River flats

This country is located on the banks of the Calliope River and major creeks, and occurs in 20% of the area (Table 1).

The dominant vegetation is blue gum with broad-leaved ironbark and mahogany trees in some areas. Soils include deep alluvial loam and sandy loams, black soils, melonhole country and loams over yellow clays.

Most trees have been cleared and stick-raked. Some areas have been established to improved pasture. Small areas have been cropped for grain, forage or lucerne production.

River flats provide productive pastures and are suitable for fattening bullocks, cull breeders and bulls.

Participants consider the infestation of pastures by thatch grass to be a serious problem.

Creek flats are generally suited to improved pastures and recommended species are:

- Callide Rhodes grass
- Hamil grass
- forage sorghum
- Bambatsi
- creeping blue grass
- green panic.

Cattle producers should spell areas of improved pasture to enhance pasture vigour. Spelling involves excluding cattle from paddocks to allow pastures to regrow.

Landholders should return cropped areas to pastures for a period of time to maintain crop productivity.

### Undulating country

This country occurs in 50% of the area (Table 1). Vegetation on this country includes broad-leaved ironbark, narrow-leaved ironbark, bloodwood, gum-topped box, poplar box or mixtures of these on undulating slopes. Soils are mainly of a granite type including moderately deep grey clays, black crumbly clays and shallow grey soils.

Undulating country is used for beef production from mainly native pastures. Most trees have been ring-barked or chemically treated and some areas have been stick-raked. Eucalypt regrowth occurs in some areas and regrowth from corkwood wattle and black wattle is a problem in this country.

Some areas of this country are suited to improved pastures and legumes, some recommended species are:

- Callide Rhodes grass
- seca stylo
- Wynn cassia
- creeping blue grass.

### Range country

The producers (participants) involved in the discussion estimated this country occurs in 30% of the area (Table 1). This country has a variety of vegetation and soils on moderate to steep slopes. The dominant vegetation is usually bloodwood, spotted gum, supplejack (brush box), or narrow-leaved ironbark or mixtures of these. Common soil types are decomposed granite with acid clays and shallow stony soils.

Most trees have been ring-barked or chemically treated except on steep slopes. These steep slopes are usually unsuitable for clearing. On steep range country where trees have been ring-barked, follow-up timber treatment is usually advisable. However, open virgin (un-treated) country should not have trees cleared or 'thinned'. 'Thinning' of trees is where a proportion of trees is killed in an area, leaving an open woodland.

Range country is used for beef production from native pastures. It provides good shelter for cattle in winter, quality green feed after rain and timber for sale or farm use. The main problems are regrowth of supplejack, infestation of rubber vine and cattle poisoning from zamia and poison peach.

The main form of control of supplejack and rubber vine is by chemical (herbicide) treatment.

Paddocks containing zamia are dangerous to cattle in two out of 10 years. Cattle are most likely to be affected after a dry period when rain produces fresh grass growth and attracts cattle to the zamia plants. If an area is burnt, cattle should be removed where possible. Zamia plants can be killed using Tordon® but this treatment is expensive.

## Enterprises

The district is suitable for breeding, growing and finishing cattle. Some producers finish cull females, steers and bulls on a range of land-types but especially on river-flat country. Where pastures and properties are developed, producers are able to finish cattle and provide suitable cattle for the Japanese and Korean markets.

## Cattle management

This section describes the type of cattle and their management, which best suit local conditions.

### Breeding

For efficient production in the area cattle require a  $\frac{1}{2}$  -  $\frac{5}{8}$  *Bos indicus* blood content (Table 2).

### Bulls

Participants use bull to cow ratios of 2-3% for small paddocks and 3-4% for large paddocks. They aim to cull bulls at 7-9 years of age (Table 2).

## Breeders

Breeders are normally run on the better class of country (undulating country) with good water supply. Producers can achieve high calving rates by reducing the stocking rate or by supplementary feeding.

Some graziers pregnancy test dry breeders in about July to assist in choosing breeders that are to be sold. Culled breeders are usually sold at about 10 years of age (Table 2).

Improved nutrition for first calf heifers may be needed in some years. This is usually achieved by supplementary feeding or by providing access to high quality grass paddocks.

## Mating

On the typical property, landholders mate breeders for 5-6 months between November and May (Table 2). Calves usually are produced between September and January. Graziers who use this method tend to leave bulls with breeders for longer periods during drier years. They expect to gain 10-20% more calves during the dry conditions by doing this. Some properties in the area practice continuous mating.

## Reproduction rates

The average calving percentage (calves branded over breeders mated) is 75% with a range of 65-90% (Table 2). Landholders expect few losses between branding and weaning.

## Weaning

Calves are usually weaned at about eight months (Table 2). Weaning normally occurs during the April to May period as one complete operation. However, some landholders use a series of weaning operations, there is usually one major operation followed by one or two more smaller operations.

Calves are weaned in yards and fed hay and molasses. It is desirable to train weaners to eat from troughs if they are to be sold to feedlots.

Most properties finish cattle, but supplementation of weaners is needed to significantly reduce the age of turn-off.

## Mustering

Mustering generally occurs 4-5 times a year for branding, weaning, culling and parasite control.

## Marketing

Most cattle are bred, grown and finished (fattened) on native pasture but some finishing takes place on improved pastures.

Marketing options involve selling store cattle, 'Jap Ox', fat breeders and bulls. Participants who market store cattle sell through a major centre such as Rockhampton. This market prefers even lines of well handled, quiet, dehorned steers, at 2-2½ years of age and weighing at least 400 kg liveweight (Table 2). The timing of sales is important because stores usually sell at a better price after rain.

In general, producers monitor marketing trends carefully.

Fat cattle are usually sold on weight and grade, direct to meatworks. Producers aim to sell 'Jap Ox', at 300-400 kg (dressed weight) at about three years of age (Table 2). This however is usually difficult to achieve on this type of country.

Producers also target markets that have a lower fat score and lighter weight requirement such as for 'Korean Ox'. Cattle for the Korean market require a carcass weight of 240-280 kg and an age of about 2½ years (Table 2).

If producers buy cattle for fattening, they usually prefer females because they are cheaper and easier to fatten than steers.

Landholders fatten most cull breeders and bulls on a range of land-types but especially on river-flat country. Cull breeders should be separated from the bull and fattened to 240 kg (carcass weight) and, sold as soon as possible after weaning.

To maintain the best production, participants sell the number of cattle equal to the number

of calves weaned. By selling some cattle before weaning (April to May) and the rest before the end of July, maximum benefit is gained from the summer growing periods.

## Health

Participants drench weaners for internal parasites particularly if they are to graze on creek flats (Table 2). They also are treated with '5 in 1' and tick fever vaccine (Table 2).

Vaccination is recommended for:

- three day sickness in bulls
- 'lepto' in female cattle
- 'vibrio' in bulls and introduced stock.

Cattle are usually only treated for buffalo fly when they are mustered for other reasons (Table 2).

## Deaths

Overall cattle death rates vary from 2-3% and causes include three day sickness, tick fever, dingoes, lantana and calving (Table 2).

Death rates for different categories of cattle are:

- breeders 2%
- growing cattle 1%
- weaners 1%.

## Grazing-land management

This section describes management to sustain the natural resources for long term beef production.

### Stocking rates

The recommended stocking rates for each land-type are listed in Table 1. Participants consider an adult equivalent (AE) to be a cow or bullock or 1½ weaners between the age of eight months and 1½ years or 1.2 growing cattle between the age of 1½ and 2½ years.

Heavy stocking rates reduce grass cover, lead to erosion and are not recommended. Heavy stocking rates:

- reduce calving percentages
- reduce steer weights (up to 40kg less)
- increase the age of sale cattle
- can force producers to sell when prices are low.

To avoid these problems, graziers should aim to maintain a reasonable grass cover on their land.

## Grazing system

Native pastures consist mainly of black speargrass and forest bluegrass and are grazed continuously.

## Dry season management

Protein supplementary feeding that is provided routinely in average seasons is not considered economical (Table 2). Participants use supplementary feeding of urea and molasses for weaners (Table 2). It is also recommended for all classes of cattle during droughts.

When recommended stocking rates are used, it is usually not necessary to sell cattle as a drought mitigation measure. Some producers pregnancy tests to select breeders for sale.

## Tree and woody weed management

More trees should be retained to recycle nutrients, guard against drying of pastures by wind and provide shade, shelter and timber. Landholders should keep potential mill timber, by sparing small straight trees during timber treatment operations. Spotted gum, narrow-leaved ironbark and blue gum are trees that produce millable timber. Returns from the sale of timber have been small in comparison to beef production. However, improved returns for mill timber may make this venture more attractive in the future. Trees are also retained to provide timber for building yards and fences.

Landholders should not disturb wattle. If wattle is left undisturbed, it usually can be controlled by fires.

## Pattern of tree retention

Participants have had experience with three methods of retaining trees, these are woodland, clumps, and/or strips. They consider that each method has its place but depends on the stage of management.

## Woodland

The woodland method of retaining trees usually involves reducing the number of trees in an area by using chemicals to selectively kill trees. The operation is often referred to as 'thinning'. 'Thinning' was favoured by participants for a number of reasons:

- scattered shade and shelter slows drying by winds
- nutrient recycling occurs with trees and provides mulch (leaf litter)
- cattle are less likely to over-graze and degrade small areas
- trees help to keep soil in a loose condition for water absorption.

However, the woodland method of clearing can cause problems in country where trees produce large numbers of suckers.

Old trees left at a wide spacing tend not to sucker, the best spacing is unknown. If landholders could identify the best spacing they could save considerable cost in the control of trees. Grass production is reduced where too many trees are retained. However, tree clearing often can cause unforeseen problems (e.g. erosion and salting).

Fires are needed with the woodland method of retention to knock back and control suckers. However, fires at the wrong time and fires that are too hot, can germinate seeds (e.g. wattle) and cause regrowth problems.

Grasses amongst trees in a woodland situation provide balance with grasses in open areas. Grass in woodlands are favoured by cattle in some seasons when grasses in the open areas deteriorate due to frosting or rank growth.



Landholders should leave trees in steep gullies.

Usually, it is difficult to know what is the optimum way of retaining trees because of the unforeseen long term effects. However, it was agreed that the preferred method was an open woodland where regrowth was treated as required. It also would be helpful in the future to leave more trees in some areas than in the past. In general, producers increase the number of trees retained as the slope of the land increases.

Participants recommend a maximum of 10 trees per hectare. Forty to fifty trees per hectare were considered too many except for steep forest country (a tree was defined as having a trunk 15 cm (6 inches) or more in diameter).

#### **Clumps**

Some participants retain narrow-leaved ironbark trees in clumps and in association with other species. Single narrow-leaved ironbark trees left in the open often do not survive. Participants also keep trees along creeks.

Soil erosion can be reduced on poplar and gum-topped box country by clearing and increasing grass cover. Clumps of box trees should be retained for shade and shelter.

#### **Strips**

This method of retaining trees in strips across the slope was not considered generally desirable because:

- seedlings drift from the edges of strips
- strips tended to concentrate cattle in some areas and on some soils this can lead to erosion.

However, strips may be suited to country which is suitable for clearing and stick raking, and which produces good grass cover and is relatively free of regrowth (e.g. some broad-leaved ironbark country). Strips also are suitable for retaining trees along and beside roads and laneways.

#### ***Slope limit on clearing***

Participants disagreed with slope limits on 'thinning' trees because trees can establish to an extent where grass cover disappears and causes sheet erosion. Therefore, chemical

control of trees which leaves scattered trees, is favoured for most forest country in the area. Bulldozers are not recommended for clearing steep forest country.

#### ***Timber quality***

The quantity of grass and the intensity of a fire can affect timber quality. Participants considered that hot fires could cause timber to split along the rings, called 'ringing'. However, participants have noted timber quality varies with soil type and from one ridge to another.

#### **Moreton Bay ash**

Producers clear most of these trees and after clearing there is often considerable regrowth of dogwood (corkwood) wattle. Some participants considered this wattle to be a pest while others considered it to be an asset. Some consider it provides favoured sites for grazing and drought fodder.

#### **Poplar box**

Sucker regrowth is minimal. Producers leave clumps of trees for cattle camps.

#### **Spotted gum**

Clearing trees on poor quality areas of this country can cause serious regrowth problems from wattle and eucalypts. Therefore, clearing or 'thinning' is not recommended for poor quality areas.

#### **Broad-leaved ironbark**

When this country is cleared some areas produce large sucker problems while others do not.

#### **Blue gum**

Fires and cattle easily control regrowth.

#### **Supplejack (brushbox)**

These trees often grow on slopes facing the south and on shaly, gravelly country. This country is only cleared to provide ease of management such as to allow cattle access through the area.

#### **Fire**

Fire is used to improve the quality of available feed and to control woody weeds. A minimum of 75% of a paddock is burnt to prevent excessive grazing of the burnt area. In recent years, pastures have been burnt about once every three years. They may

need to be burnt more frequently but this depends on the amount of fuel (dead grass) available.

Participants usually burn native pastures in spring when fuel is available and after 50-100 mm (2-4 inches) or more of rain. They recommend that burning should occur following rain so the fire is of low intensity and does not damage the crowns of the grasses. Producers usually burn from September to November. If conditions are suitable, a burn in December will provide good quality pasture for winter. However burning at this time is not done if the season is dry. It is not generally practiced because burning late in the season limits the time for speargrass to grow (speargrass matures in March or April).

Erosion can be caused by intense (hot) fires that reduce grass cover. Intense fires are especially harmful on steep range country.

## Fences and water

Most landholders inherit fences and consider them costly to change. Average paddock sizes on properties varies from 240-400 ha (600-1000 acres) and properties often have several small holding paddocks. Large properties usually have a bullock paddock. Producers normally fence to include different types of country.

About 60% of paddocks are watered from creeks and rivers, and 40% from dams and bores.

## Soil quality

### *Water infiltration*

Participants agreed that good grass cover helps water to infiltrate the soil. In addition, shade and shelter provided by trees aid in protecting soil from drying winds and helps moisture to remain in the soil.

### *Effects of fire*

Unburnt country provides a humus build-up and stays moist longer, but this strategy also carries a high fire risk. However, most cattle producers regularly burn to produce a green pick to fatten bullocks. The long term effects of regular burning are of concern to some

producers. There was some disagreement on whether fire decreased soil quality. However, all agreed that cool (low intensity) patch burning every 3-4 years, after spring rains, is favoured.

All participants agreed that the absence of fire and/or slashing produces a mulch layer causing an increase in humus and soil quality. However, producers fear wild fires in dry times. A mulch layer could cause a very hot burn after which the country takes a long time to recover.

### *Role of legumes*

Participants agreed that natural and introduced legumes are of great value in adding nitrogen to the soil and building soil quality.

## Erosion

In general the land is protected by a substantial body of grass and there is little soil erosion.

The most common causes of erosion are:

- poorly located runoff drains from main roads
- poorly located tracks on properties
- disturbance caused by heavy machinery (e.g. dozers and equipment used for the construction of powerlines and pipelines)
- cattle tracks
- over-stocking.

### *Gully erosion*

Gully erosion is of most concern where it produces deep gullies that cut through good quality (productive) river flats. Often, the best solution is to divert the flow to another stable gully.

### *Natural erosion*

Low levels of erosion occur in many areas and is considered natural. Producers considered erosion was acceptable and sustainable where there was broad shallow gully erosion and where grass re-establishes in previously eroded areas in the gully below.

### Silting of dams

Participants did not consider silting of dams to be a problem although some dams need to be de-silted periodically. Dams that are fenced off will last longer before needing desilting.

### Water quality

Water was considered to be of high to satisfactory quality. Water quality was considered to be higher in the coastal area (Calliope shire) compared with areas west of the Calliope range. Higher rainfall and shorter river systems cause increased flushing, resulting in high water quality.

### Pests

Problem plants include:

- lantana
- rubber vine (increasing)
- poison peach
- parthenium
- giant rat's tail grass (potential)
- zamia.

The worst plant pest in the area is lantana. Producers use several control methods, including burning, dozing and spraying with 2,4-D. Burning was considered to be the most effective method. It is particularly effective when a hot fire can be achieved, for example after frost.

Rubber vine needs to be controlled by continuous and regular chemical application.

Tordon® or AF Rubber Vine Spray is applied by basal bark and cut stump methods and by knapsack spraying and overall spraying with a helicopter. Poison peach is killed by pulling plants out or ring-barking. Zamia plants are treated by applying Tordon®. Thornapple is treated with 'burr spray'.

Wild dogs and dingoes can be a problem. They are usually baited when required.

## Integrated Catchment Management (ICM)

The problems of the Murray-Darling Catchment showed the need for some aspects of Integrated Catchment Management (ICM). However, there was great concern about federal and state government control through such a program. An ICM program should address local problems and be initiated and controlled by local people (e.g. a rubber vine control program should be coordinated by the local authority).

### Trends

Increased grazing pressure and a reduced number of intense fires are changing these pastures. For example, native pastures are being replaced by paspalum on river flats. Native pastures deteriorate from late autumn to spring, causing a protein drought.

Participants agreed there has been a general decline in the productivity of grass in the area. The contributing factors are overstocking, hot wild fires and tree regrowth. A change in cattle husbandry that uses supplementary feeding, adapted cattle and improved disease control has led to greater pressure on country during dry seasons.

Graziers have seen a decline in the more palatable pasture species and are concerned about the introduction of weeds, especially grass species. The infestation by weeds has been mainly caused by increased mobility of cattle and fodder.

### Fauna and flora conservation

Producers consider there are sufficient trees left along roadways, in cattle camps and scattered throughout paddocks. The trees accommodate and support native plants and animals. Producers did not see a need for special areas to be set aside for wildlife conservation.

A major concern for native plants and animals is introduced pests. Participants have observed a marked decrease in cane toad numbers in recent years, coinciding with an increase in native animals (e.g. kookaburras and green frogs).

Several participants reported recent sightings of koalas, platypus, sugar gliders, bandicoots and kangaroos.

## Current and recommended property sizes

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Property sizes vary from 1200-19 400 ha (3000-48 000 acres) and the average property size is between 4050-6070 ha (10 000-15 000 acres) (Table 2).

The herd size and the area required to raise a family with school age children is 1100 adult equivalent cattle on 4050 ha (10 000 acres) (Table 2). This property would be debt free and have improvements described for a typical property.

## Acknowledgments

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The following producers are thanked for giving generously of their time in documenting their experiences for sustainable beef production in the Calliope River Catchment and adjacent ranges area.

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## Further information

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Further information may be obtained from:

The Calliope Soil Conservation Association  
P O Box 80  
CALLIOPE Q 4680

The Department of Primary Industries in Gladstone, Biloela, and Rockhampton.

**Table 1.** Land-types and their management in the Calliope River Catchment and adjacent ranges area.

Land-type % of area	Enterprises	Recommended stocking rate	Improvements	Constraints
River Flat 20%	Breeding/fattening	1 AE/2 ha (5 acres)	Cleared	Thatch grass infesting pastures
	Breeding/fattening	1 AE/2 ha (5 acres)	Improved pasture	-
Undulating 50%	Breeding	1 AE/10 ha (25 acres)	Uncleared	Woody regrowth (eucalypts, corkwood wattle and black wattle)
	Breeding	1 AE/4 ha (10 acres)	Cleared	-
	Breeding/fattening	1 AE/2.5-3 ha (6-8 acres)	Improved pastures	-
Range 30%	Stores/bullocks	1 AE/10-12 ha (25-30 acres)	Uncleared	Woody regrowth, rubber vine, poison peach
	Stores/bullocks	1 AE/4-6 ha (10-15 acres)	Cleared	-

\* AE = Adult equivalent

**Table 2.** Property and animal management data for the Calliope River Catchment and adjacent ranges

Category	Data
Breeds	$\frac{1}{2}$ - $\frac{5}{8}$ <i>Bos indicus</i> (Brahman type blood)
Bull%	2-3% small paddocks 3-4% large paddocks
Cull bull age	7-9 years
Cull cow age	10 years
Mating system	Controlled
Reproduction rates	
Range	65-90%
Average	75%
Weaning age	8 months
Turn-off weight/age	Bullocks 300-400 kg carcass weight (Jap Ox) at 3 years, 240-280 kg carcass weight (Korean Ox) 2½ years, Stores 400 kg liveweight at 2-2½ years, Cull breeders 240 kg carcass weight at 10 years.
Health procedures	
Drenching	Weaners
'5 in 1' and tick fever blood vaccine	Weaners
Three day sickness vaccine	Bulls
Leptospirosis ('Lepto') vaccine	Females
Vibriosis 'Vibrio' vaccine	Bulls, introduced cattle
Death rates	
Range	2-3%
Breeders	2%
Growing cattle	1%
Weaners	1%
Supplements	
Routine feeding (every season)	Not generally recommended
Urea and molasses	Recommended for weaners
Urea and molasses	For most stock during a drought
Actual property sizes	
Range	1200-19 400 ha (3000-48 000 acres)
Average	4050-6070 ha (10 000-15 000 acres)
Recommended living area/herd size	
Area	4050 ha (10 000 acres)
Animals	1100 AE

## Addendum 1. Plant names

Common names	Botanical names
Bambatsi .....	<i>Panicum coloratum var bambatsi</i>
Black speargrass .....	<i>Heteropogon contortus</i>
Black wattle .....	<i>Acacia</i> spp.
Bloodwood .....	<i>Eucalyptus</i> spp.
Blue gum.....	<i>Eucalyptus tereticornis</i>
Broad-leaved ironbark.....	<i>Eucalyptus melanophloia</i>
Brush box.....	<i>Lophostemon confertus</i>
Callide Rhodes grass.....	<i>Chloris gayana</i> cv. <i>Callide</i>
Corkwood wattle.....	<i>Acacia bidwillii</i>
Creeping blue grass.....	<i>Bothriochloa inculpta</i>
Dogwood .....	<i>Acacia bidwillii</i>
Forage sorghum.....	<i>Sorghum</i> spp.
Forest bluegrass .....	<i>Bothriochloa bladhii</i>
Giant rat's tail grass .....	<i>Sporobolus pyramidalis</i>
Green panic .....	<i>Panicum maximum</i> var. <i>trichoglume</i>
Gum-topped box .....	<i>Eucalyptus moluccana</i>
Hamil grass .....	<i>Panicum maximum</i> cv. <i>Hamil</i>
Lantana .....	<i>Lantana camara</i>
Lemon scented gum or spotted gum.....	<i>Eucalyptus citriodora</i>
Lucerne .....	<i>Medicago sativa</i>
Mahogany.....	<i>Lophostemon suaveolens</i>
Moreton Bay ash.....	<i>Eucalyptus tessellaris</i>
Narrow-leaved ironbark.....	<i>Eucalyptus crebra</i>
Parthenium .....	<i>Parthenium hysterophorus</i>
Paspalum .....	<i>Paspalum dilatatum</i>
Poison peach .....	<i>Trema tomentosa</i>
Poplar box.....	<i>Eucalyptus populnea</i>
Rubber vine .....	<i>Cryptostegia grandiflora</i>
Seca stylo .....	<i>Stylosanthes scabra</i> cv. <i>Seca</i>
Speargrass.....	<i>Heteropogon contortus</i>
Spotted gum .....	<i>Eucalyptus citriodora</i>
Supplejack .....	<i>Lophostemon confertus</i>
Thatch grass .....	<i>Hyparrhenia rufa</i>
Thornapple .....	<i>Datura stramonium</i>
Wattle .....	<i>Acacia</i> spp.
Wynn cassia.....	<i>Cassia rotundifolia</i> cv. <i>Wynn</i>
Zamia .....	<i>Cycas media</i>

Addendum 2. Native Pasture Communities map















QUEENSLAND  
DEPARTMENT OF PRIMARY INDUSTRIES

**NATIVE PASTURE COMMUNITIES**

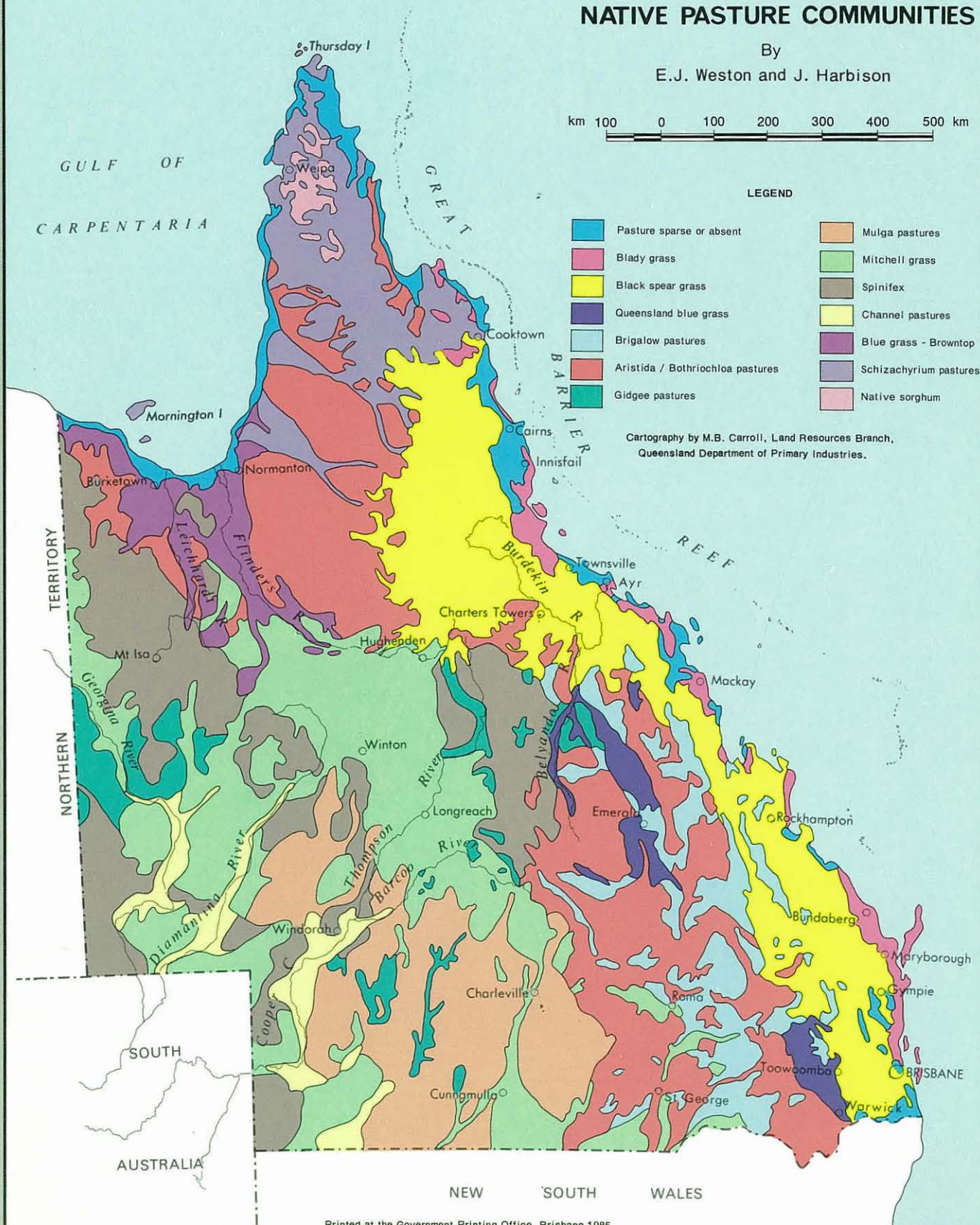
By  
E.J. Weston and J. Harbison

km 100 0 100 200 300 400 500 km

LEGEND

- |                                                                                   |                                  |                                                                                     |                        |
|-----------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|------------------------|
|  | Pasture sparse or absent         |  | Mulga pastures         |
|  | Blady grass                      |  | Mitchell grass         |
|  | Black spear grass                |  | Spinifex               |
|  | Queensland blue grass            |  | Channel pastures       |
|  | Brigalow pastures                |  | Blue grass - Browntop  |
|  | Aristida / Bothriochloa pastures |  | Schizachyrium pastures |
|  | Gidgee pastures                  |  | Native sorghum         |

Cartography by M.B. Carroll, Land Resources Branch,  
Queensland Department of Primary Industries.



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