



SKM ECONOMICS

Economics and Management Consultants

**Department of Natural Resources
December 1998**

**Corporation and Aggregation
Restrictions in the Land Act PBT
Review.**

**On-Farm Economic Analysis -
Working Paper**

For discussion purposes only

SKM Economics

369 Ann Street

Brisbane QLD 4000

PO Box 246

Spring Hill QLD 4004

Australia

Telephone: +61 7 3244 7100

Facsimile: +61 7 3244 7306

<http://www.skm.com.au>

Contents

1. Purpose and Scope	3
2. Method and Approach	4
3. Analysis	7
3.1 Background	7
3.2 Geographic Distribution of Restricted Licenses	8
3.3 Enterprise Size and Restricted Leases	10
3.4 Farm Viability Indicators	12
3.5 Off-Farm Opportunities	13
3.6 Location of Broadacre Industries in Regions	14
3.7 Land turnover	14
4. Major Findings	16
5. References	18
Appendix A - Maps	19

Document History and Status

Issue	Rev.	Issued To	Qty	Date	Reviewed	Approved

Printed: 16 December 1998 1:48 PM
Last Saved: 16 December 1998 1:43 PM
File Name: \\SKM-BRIS1\VOL1\Plan\WP\Reed\ECON Jobs\RE02002\reports\Econ1.doc
Project Manager: Alain Pillay
Name of Organisation: Department of Natural Resources
Name of Project: Corporation and Aggregation Restrictions in the Land Act 1994
Name of Document: Background Scoping Paper
Document Version: Working Paper: for discussion purposes only
Job Number: RE02002

1. Purpose and Scope

The purpose of this Working Paper is to identify the "Base Case" position for farm economic performance. In particular, the performance of farms in the pastoral zone areas of Queensland is subject to leases under the Land Act 1994.

In determining the on-farm "Base Case", a range of statistical / data investigations have been undertaken focussing primarily on economic / financial performance parameters for geographic regions of Queensland, namely:

- the Mitchell Plains area of Central / Western Queensland
- the Mugla areas of far South West / Western Queensland; and
- the South West floodplain area of Queensland.

This Working Paper, along with the Social Assessment Report and the Environmental "Base Case" Working Paper, will form the key inputs into development of the Base Case for comparison with the 3 enunciated Options associated with the review of the Corporation and Aggregation Restrictions in the Land Act 1994.

This paper is for 'internal' discussion purposes only and is intended to be a source of information for the project Steering Committee. Furthermore, it is provided to inform the Steering Committee on the progress of the Public Benefit Test. The determination of the Base Case forms a key building block in the Public Benefit Test process.

2. Method and Approach

This Working Paper has been prepared based on a 'desk top' study approach, drawing upon the following information sources:

- ABARE Aspire database (DPI version);
- literature review; and
- ABS, IRDB '98.

The following key investigations were envisaged in the proposal to DNR:

- assessment of changes in land ownership;
- assessments of on-farm performance;
- assessment of size / scale aspects;
- assessment of off-farm opportunities; and
- other factors influencing change.

In the analysis, focus (where practical) has been on the following broad approaches:

- trends in Australian broadacre farming (in general);
- inter-regional / intra-Queensland comparisons; and
- interstate comparisons.

Present in this Working Paper is information on the following issues used in the development of the on-farm "Base Case":

- geographical distribution of leases;
- enterprise size;
- rates of return;
- off-farm opportunities;
- location of broadacre industries; and
- lease transfer.

For the purposes of this project, the widely-understood ABARE broadacre industry classifications, zones and regions have been adopted. However, access to the DPI "tailor-made" version of ABARE's Aspire database has also enabled some reporting of data at sub-regional level.

Map A identifies the three Australian broadacre zones (Pastoral, Wheat-sheep and High rainfall zone) and regions reported in this Working Paper. Map B illustrates the regions and sub-regions of Queensland.

MAP A - Australian Broadacre zones and regions.

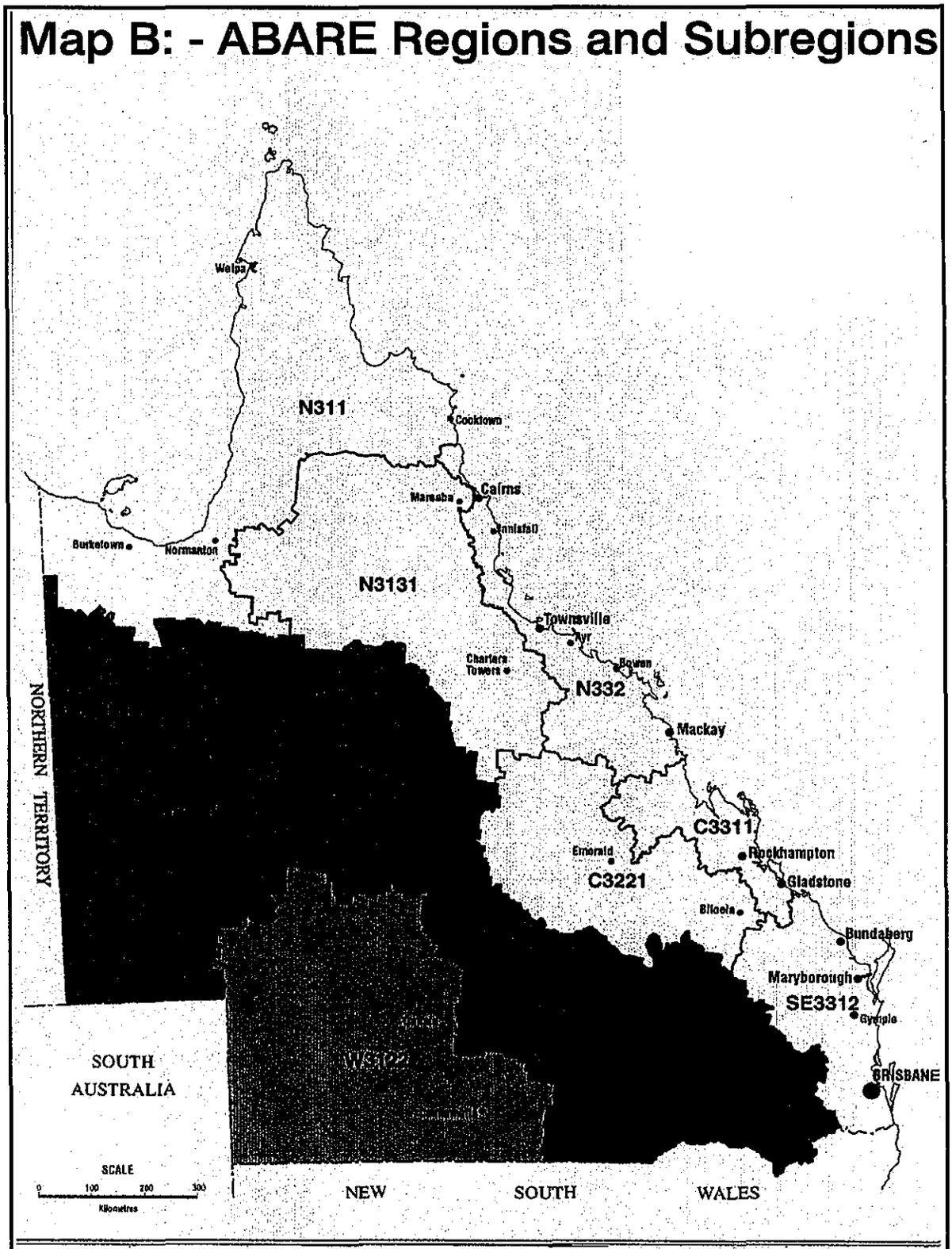


Source: ABARE Farm Surveys Report 1998

The leases subject to the current Land Act Public Benefit Test are mostly within the pastoral zone, with some in the wheat-sheep zone. Furthermore, the leases are predominantly within the following regions:

- 312 pastoral zone;
- 314 pastoral zone; and
- 322 wheat-sheepzone.

Map B: - ABARE Regions and Subregions



Source: Department of Natural Resources, 1997

3. Analysis

3.1 Background

The following information points are provided in order to put into context the areas / economic activities subject to this Working Paper:

- the predominate land use in the regions under investigation is beef and sheep grazing.
- approximately 60% of Australia's land can be categorised as used for rangeland grazing.
- Australian farms (in general) are operating in an economic environment of a declining margin between real farm receipts and real farm costs (ie declining terms of trade).
- there has been a decline of more than 20% in the number of persons employed in the agricultural sector in Australia from 1955/56 to 1992/93.
- over recent years, there has been considerable variability in farm business incomes at the farm unit, industry and regional level across Australia.
- broadacre and dairy industries account for nearly three-quarters of farm businesses of commercial size in Australia (with broadacre industries dominating this category).
- average farm size in Australia has risen by approximately 50% over the past 25 years.
- the average age of owner managers on broadacre farms has increased from 49 years in 1980/81 to 52 years in 1993/94.
- average income from on-farm and off-farm sources for owner-manager families in broadacre farming was estimated at \$26,800 in 1994/95 - of which only \$9,000 was from farm business (noting this was a period of severe drought in many areas).
- an estimated 83% of owner-manager households and other farm households on-farm are associated with broadacre farming in Australia.
- in 1994/95, for broadacre farms, an estimated 45% of farm families received some Commonwealth social support payment, at an average of \$5,100 per family.
- it is increasingly becoming obvious that to consider the farm as the main source of income for a large number of farm households is misleading.

-
- off-farm income sources have been developed to meet family financial demands as farm incomes have declined and as market opportunities, transport, social attitudes and other factors have changed.
 - the majority of broadacre businesses surveyed by ABARE in 1994/95 were run as two-person partnerships - rising from 51% in 1988/89 to 56% in 1995/96.
 - The areas in Queensland under investigation in this study are predominantly grasslands supporting the following native vegetation types:
 - mitchell grass;
 - mulga;
 - channel pastures;
 - wire grass / blue grass;
 - gidgee; and
 - spinifex.

(Maps C, D and E in Appendix A provide an illustration of bio-geographic regions of Queensland and native pastures of Queensland and Northern Australia, respectively).

- The predominate soil types in the study area are cracking clays, massive earths and shallow stony soils, as illustrated in Appendix A - Map F.

3.2 Geographic Distribution of Restricted Licenses

In total, there are approximately 3,500 restricted leases (GHPL and GHFL) in Queensland. These leases occur in 67 of the state's 109 local government areas and cover a total area of 33.195 million hectares, which is 19% of the total area of Queensland.

Restricted leases occur in all the major agricultural zones of the state as. The pastoral zone contains the greatest number and area of leases. The wheat-sheep zone ranks next and the high-rainfall zone contains the smallest number of leases as measured by size and number.

Some regions have very high concentrations of properties with restricted leases. However, the concentrations vary significantly within zones. Region 314 (Mulga/Mitchell) contains proportionally the greatest area of restricted leases, with 53% of the land area of the region covered by leases. For Local Government Areas in Region 314, the density of lease coverage varies from a minimum of 25% to a maximum of 67%. Regions 3221 and 3222 (Central Highlands and Western Downs) also have a large proportion of restricted leases. The lowest proportion of restricted leases occurs in Region 321 in the south of the state (Eastern Downs) and in the far north - Region 311 (Cape/Gulf).

Table 2. Restricted Leases by Sub-region

DPI Region	Agricultural Zone	Restricted Leases as a Proportion of Total Land Area/ in a DPI/DNR region and LGA (%)		
		Within each Region	Minimum LGA %	Maximum LGA %
314	Pastoral	53.1%	25%	67%
3221	Wheat-Sheep	30.4%	20%	44%
3222	Wheat-Sheep	29.3%	7%	46%
313	Pastoral	21.9%	4%	48%
332	High-Rainfall	22.1%	1%	30%
3122	Pastoral	21.9%	2%	60%
3121	Pastoral	7.1%	3%	37%
331	High-Rainfall	7.8%	0%	39%
311	Pastoral	2.6%	1%	8%
321	Wheat-Sheep	1.1%	1%	4%
State Average		19.2%		

Note: proportion of land area affected by restricted leases
 Source: DFYCC 1998 and ABS 1998

3.3 Enterprise Size and Restricted Leases

A study of the economics of the farm 'living area' standard (QDPI, 1997) concluded that in order to achieve economic viability there is a need to increase the size of farm enterprises in many regions of Queensland. Estimates of the required increase (decrease) in enterprise size from the study are re-produced in Table 3.

Table 3. Estimates of Required increase/decrease in enterprise size.

Broadacre Industry	Required increase/decrease in enterprise size (% of current size)
Wheat & other crops	5% to 48%
Mixed Livestock	28% to 120%
Sheep Only	27% to 132%
Sheep beef	30% to 190%
Beef only	-58% to 217%

Note: assuming constant returns to scale
 Source: Hardman and Reynolds, 1997

As a general rule, larger broadacre farms perform better than smaller broadacre farms when measured as an investment. ABARE has found that this typically holds true across all states and all broadacre enterprises. Larger farms allow farmers to optimise their equipment and labour resources and reduce unit production costs.

However, the ability of farmers to expand their enterprises is limited by their ability to generate farm profits and to obtain funding through borrowing. For most of the 1990s, the majority of broadacre farms in Queensland generated negative rates of return and levels of farm business profit.

With major industries facing difficult economic conditions enterprise expansion is unlikely to occur, unless it comes about through increased unit stocking rates. Environmental and resource factors limit the applicability of this option. In consideration of the economic conditions prevailing on smaller farms in Queensland, Hardman and Reynolds concluded "... mechanisms need to be implemented that foster the build up of properties especially in western Queensland" and "there is likely to exist a significant backlog in rural adjustment in Queensland".

The average size of restricted leases in Queensland is 6,202 hectares. In the high rainfall zone the average size of restricted leases is 4,880 hectares and the average farm size is 7,334 hectares. Thus, restricted leases in this high-rainfall zone are marginally smaller than the average regional farm. A similar pattern is evident in the wheat-sheep zone. In contrast, restricted leases in the pastoral zone are a quarter of the size of average farms in the region.

Table 4. Land size holdings

Agricultural Zone	Average size of restricted leases <i>hectares</i>	Average Size of Farm Holdings * <i>hectares</i>
QLD Pastoral	7,336	44,485
QLD Wheat-Sheep	4,433	6,886
QLD High Rainfall	4,880	7,334
NSW Pastoral (111)	na	27,748

Notes : For QLD farm holdings mean size in hectares of GPHL and GHPL leases and mean size of agricultural holdings.

Source ABS 1998

3.4 Farm Viability Indicators

Rates of return and other measures of farm financial performance for broadacre farm business over the period 1990 - 97 are shown in Table 5. By a wide margin, the wheat-and-other-crop industry was the best performing broadacre industry in this period, averaging an annual rate of return in Queensland of 1.4 per cent. In New South Wales, the rate of return for the same industry was considerably higher, in part reflecting better seasonal conditions over the period measured.

"Sheep-only", "sheep-beef" and "beef-only" farming performed poorly in both states. Based on these average figures none of the Queensland enterprises in the broadacre industry produced a sustainable rate of economic return (where 3 per cent is considered to be a sustainable level of farm return).

Interestingly, the equity ratio for New South Wales pastoral zone farms in the "beef only", "sheep only" and "sheep-beef" categories is significantly better than that for Queensland counter-parts, particularly in the "sheep-beef" industry. Farm profit is generally equally as poor in the pastoral zone activities in both states.

In general, broadacre enterprises in Queensland and New South Wales, particularly those confined to pastoral zone activities, have performed poorly over the period 1990 to 1997.

Table 5. Broadacre enterprises performance, 1990-1997

Broadacre Industry	Real rates of return (%)		Farm Profit (\$ '000)		Equity Ratio (% - equity/capital)		Of-Farm Income (\$ '000)	
	QLD	NSW	QLD	NSW	QLD	NSW	QLD	NSW
wheat and other crops	1.4	9.7	10.75	57.5	82.5	81.5	15.5	18
mixed livestock	-4.4	2.5	-8.75	1.75	81	86	21.5	19
cropping								
sheep only	-6.1	-2	-28	-9.75	80.5	87	16	21
beef only	-6.9	-7.6	-16.5	-23	88.5	93.5	22	19.5
sheep-beef	-5.0	-2.1	-15.5	-15.25	82.5	91	15.5	19

Note : average per farm

Source: ABARE Australian Farm Survey Report (various editions)

When measured by conventional investment measures such as the real rate of return, broadacre farm industries generate negative returns. Most businesses would be wound-up if they generated negative returns like those sustained by farm business. Farmers most commonly cite life style reasons and lack opportunities for staying on the land despite continued poor economic performance. Some farmers cope by earning income off - farm or by taking advantage of rising property values (particularly for farms near population centres). Others, that are less well situated, have cut costs by utilising more family labour and running down farm and resource capital.

3.5 Off-Farm Opportunities

Off-farm income is a major factor (and an increasingly important factor) in sustaining the economics of family farming in much of Australia. In the Central-West and South-West regions of Queensland, where the major concentration of leases occur, agricultural production represents a very significant proportion of total economic output, as detailed in Table 6. This finding suggests that the opportunities to earn off-farm income in these regions are limited.

Table 6. Agricultural Output as a Proportion of Total Industry Output

Statistical Division	Regions	Agricultural Output as a Proportion of Total Industry Output
Central West	3122,314 & 3121	67%
South West	3122 & 314	48%
Darling Downs	3222	18%
North West	311,3121 & 313	7%
Wide Bay-Burnett	331	9%
Mackay	332	5%
Far North	311 & 313	5%
Fitzroy	331 & 3221	4%
Northern	313 & 332	4%
Moreton	331	3%
Brisbane	331	0%
NSW Region 111		21%

Source: ORANI Industry Output Estimates - Census 1991, ABS 1998

3.6 Location of Broadacre Industries in Regions

Table 7 identifies the location of broadacre industry within Queensland's major regions. Location is measured as the number of farms by industry type within each of the major regions, expressed as a percentage of the total.

Notably, the poorer performing industries are centred in the regions with the highest concentration of restricted leases. The Central West region, for example, which includes local government areas with up to 60% restricted leases, contains mostly livestock industries, with a particular emphasis on wool (sheep specialists) which constitutes the worst performing major agriculture Australian commodity over the last decade.

Table 7. Distribution (%) of Farm Industry Type by Region

Statistical Division	Regions	Distribution (%) of Farm Industry Type by Region							
		Mixed Livestock	Sheep - Beef	Sheep	Beef	Dairy	Wheat and other Crops	Other	Total
Central West	3122,314 & 3121	0.1%	41.0%	29.6%	27.2%	0.3%	0.0%	1.7%	100%
South West	3122 & 314	12.4%	23.2%	16.8%	37.9%	0.2%	2.5%	6.9%	100%
Darling Downs	3222	15.7%	3.2%	3.1%	31.2%	8.3%	15.6%	22.9%	100%
North West	311,3121 & 313	0.0%	17.5%	7.5%	71.5%	0.0%	0.0%	3.5%	100%
Wide Bay-Burnett	331	3.0%	0.0%	0.0%	46.4%	7.1%	4.3%	39.1%	100%
Mackay	332	2.4%	0.0%	0.0%	29.2%	1.6%	1.9%	64.8%	100%
Far North	311 & 313	0.4%	0.0%	0.0%	19.3%	6.9%	2.4%	71.2%	100%
Fitzroy	331 & 3221	8.2%	0.1%	0.1%	63.0%	1.9%	5.7%	21.1%	100%
Northern	313 & 332	0.0%	0.0%	0.0%	22.8%	0.2%	0.0%	76.9%	100%
Moreton	331	1.3%	0.0%	0.0%	37.8%	10.5%	1.5%	49.0%	100%

Source: ABS, 1998

3.7 Land turnover

An indicator of economic activity is the rate at which land is transferred or titles exchanged. For the period, ending October, 1995 to 19 November 1998, a total of 1407 transactions have been recorded involving GHPL and GHFL leases. This activity level is summarised below:

- 1998 (to 19 Nov) 338 transactions (210 GHPL)
- 1997 318 transactions (214 GHPL)
- 1996 313 transactions (169 GHPL)

From this limited data, no firm conclusions can be drawn other than that transactions do take place at a rate equivalent to slightly less than 1 in 10 of the total leases subject to the restrictions and aggregations limitations. However, the data may also indicate that because transactions are taking place there may be a move within the pastoral sector to seek scale economies. Also, it would appear that some producers are being able to exit the sector.

4. Major Findings

From the analysis of farm economic performance in the pastoral zone of Queensland (and NSW where appropriate), the following conclusions can be drawn in framing the "Base Case":

- The key structural 'trends' in broadacre farming in Australia - declining participation, declining terms of trade / economic performance, and increasing farm size - are observable in the areas in which the majority GHPL and GHFL leases are operative.
- Over recent years, there has been considerable variability in farm business incomes at the farm unit, industry and regional levels across Australia.
- Restricted leases occur in all regions of the state, but are most concentrated in the Central and South West pastoral and wheat-sheep zones. In some local government areas, land affected by restrictions represents up to 66% of the farmed area.
- The data does not show a causal link between restricted leases and farm financial performance. However, there is evidence that many restricted leases may be relatively small in comparison to the size they would need to be in order to generate a minimum investment rate of return (particularly in the pastoral zone of Queensland).
- In the Central-West and South-West agricultural zones, where the major concentration of restricted leases occur, agricultural production represents a very large proportion of total economic output. This result suggests that, for many farmers affected by restricted leases, the opportunities to earn off-farm income are limited.
- Rates-of-return generated by broadacre farm businesses have generally been poor since 1990. By a wide margin, "Wheat and other Crops" was the best performing broadacre industry in this period. "Sheep", "Sheep-Beef" and "Beef" farming all performed poorly. Notably, the poorer performing industries are centred in the regions with the highest concentration of restricted leases.
- In general, broadacre enterprises in both Queensland and New South Wales, particularly those confined to the pastoral zone, have performed poorly over the past decade (based on analysis of a variety of indicators).
- There appears to exist a reasonable level of transfer activity of leases (ie. 30% 'turnover' in the past 3 years). This appears to indicate that a

move to increasing scale and industry exists (declining participation rates).

5. References

ABARE (1995), *Productivity Growth*, Australian Commodities Report, vol. 2, no. 4.

ABARE (1998), *Australian Farm Surveys Report 1998*

ABS (1998), *Integrated Regional Database IDR98*

QDPI (1997), *Review of Living Area Standards*, Internal document

RIRDC (1993), *Coping with Change: Australian Farmers in the 1990s*

Tropical Grassland Society of Australia (1992), *The pasture lands of northern Australia*

Appendix A - Maps

Map C: DNR / DOE Biogeographic Regions of Queensland

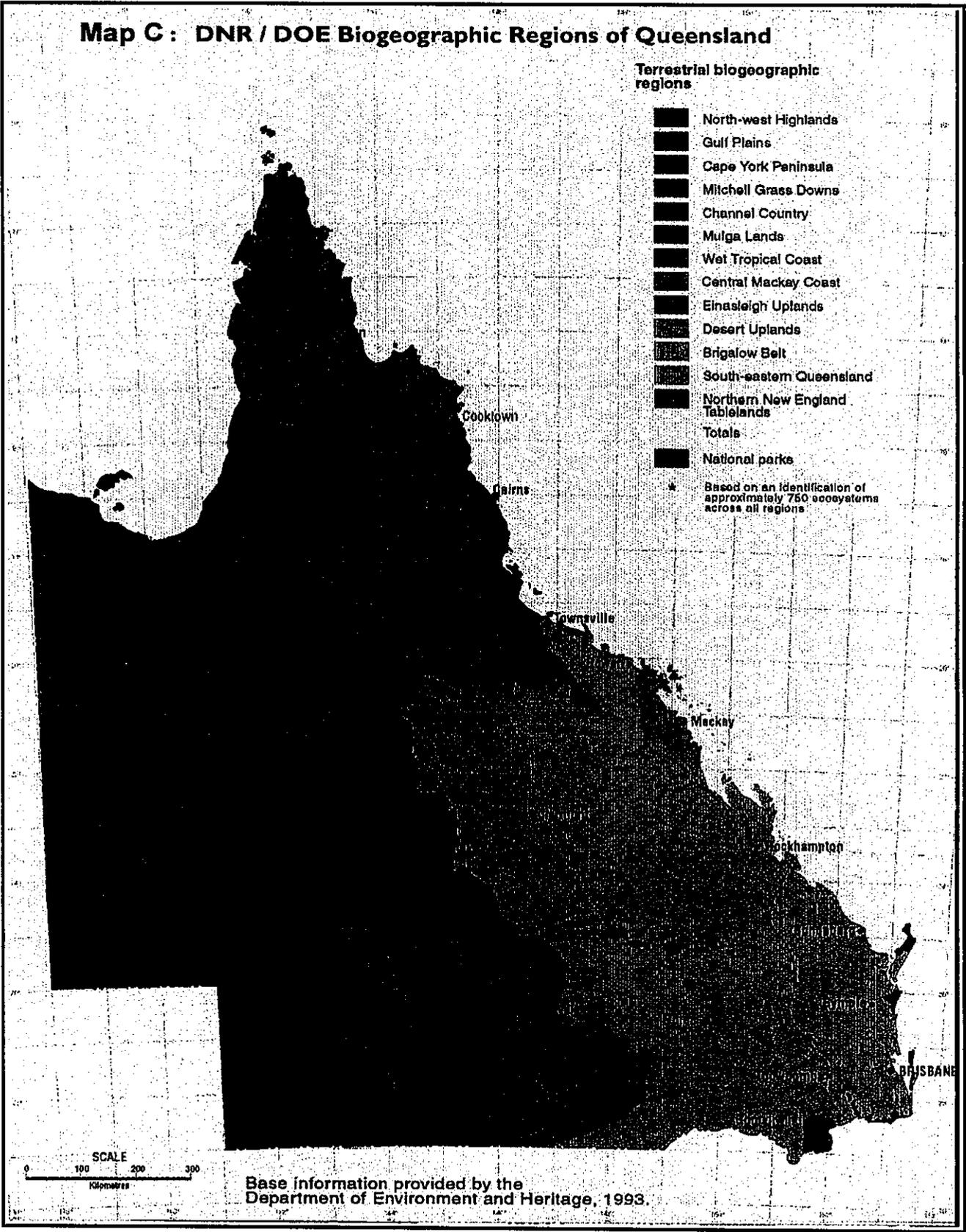
Terrestrial biogeographic regions

- North-west Highlands
- Gulf Plains
- Cape York Peninsula
- Mitchell Grass Downs
- Channel Country
- Mulga Lands
- Wet Tropical Coast
- Central Mackay Coast
- Einaleigh Uplands
- Desert Uplands
- Brigalow Belt
- South-eastern Queensland
- Northern New England Tablelands

Totals

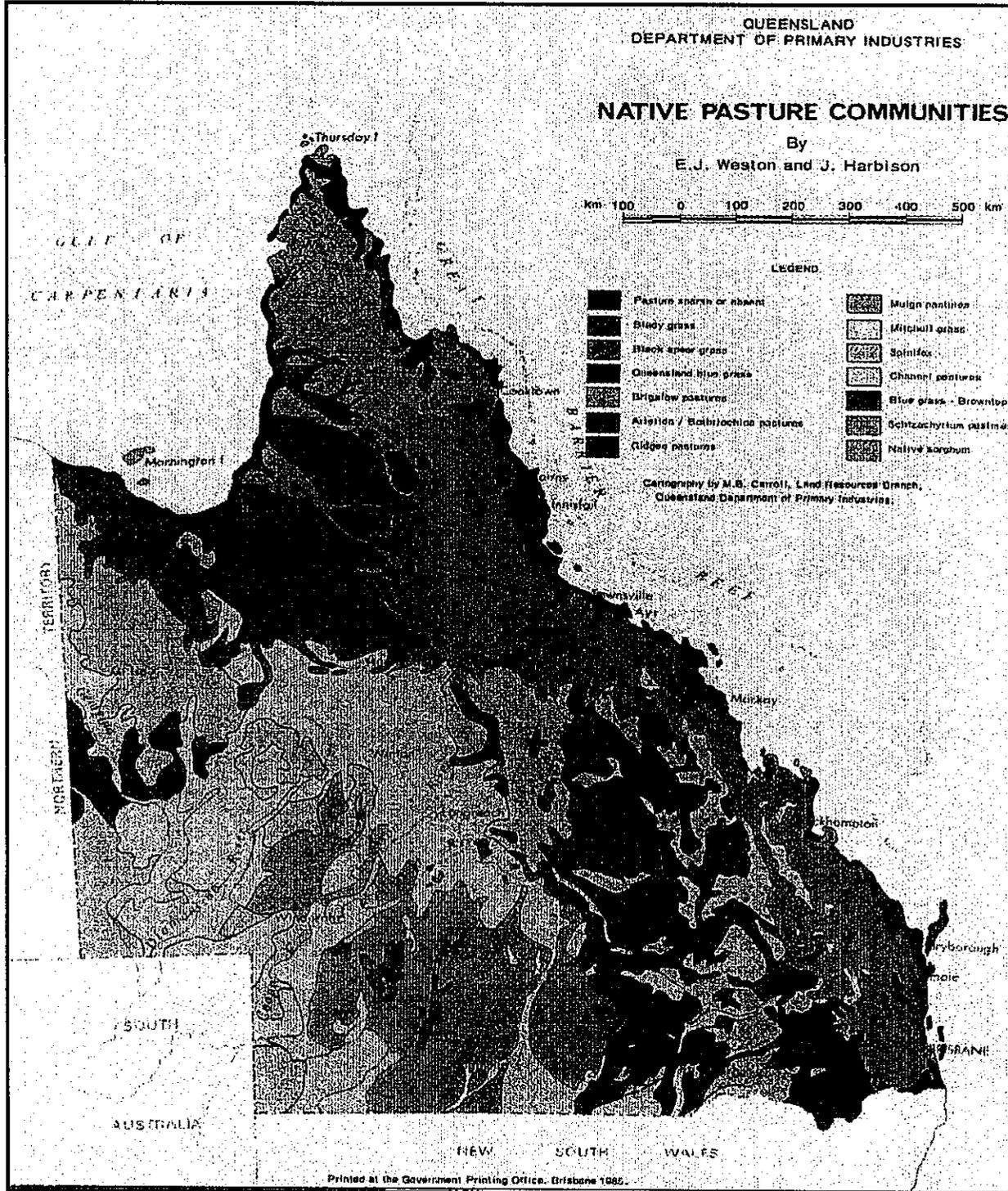
National parks

* Based on an identification of approximately 750 ecosystems across all regions

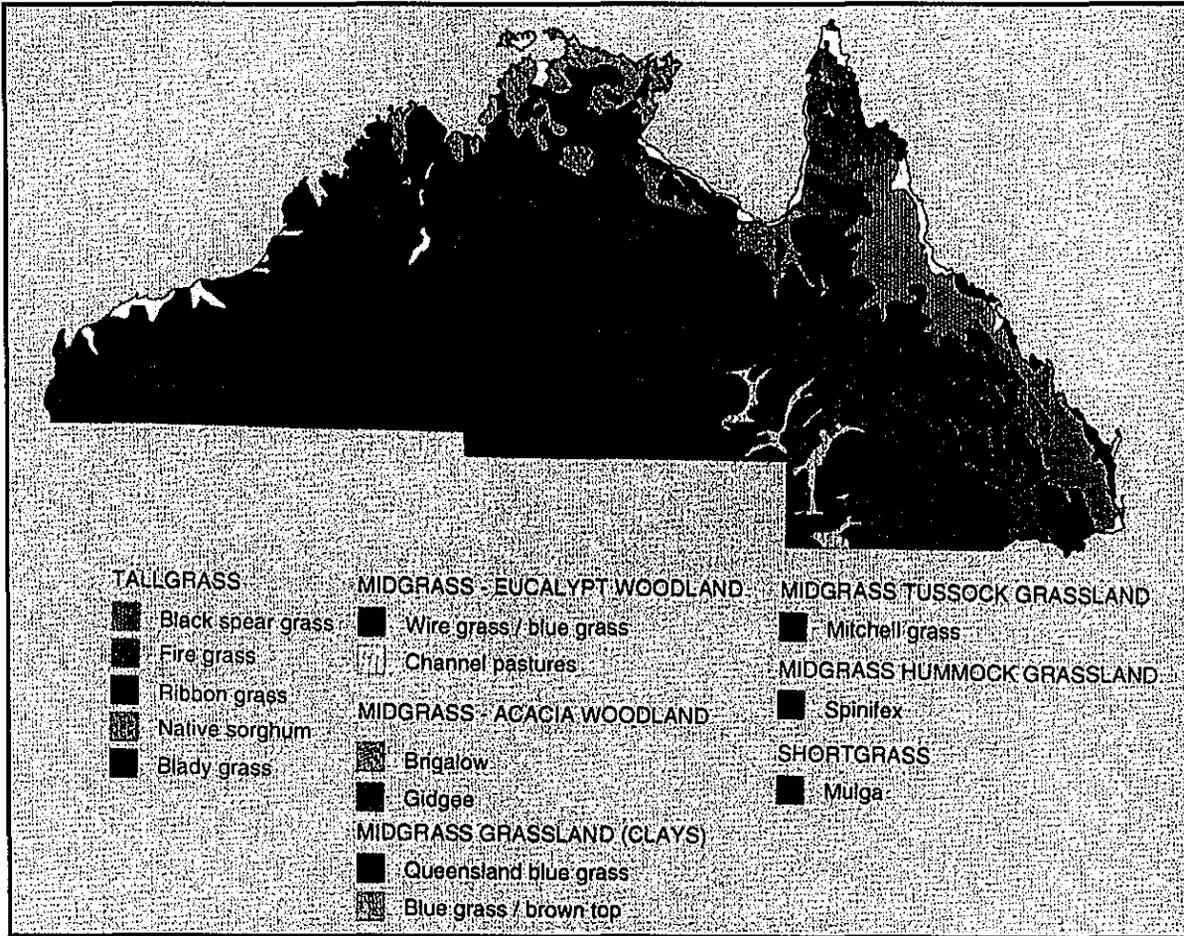


Base information provided by the Department of Environment and Heritage, 1993.

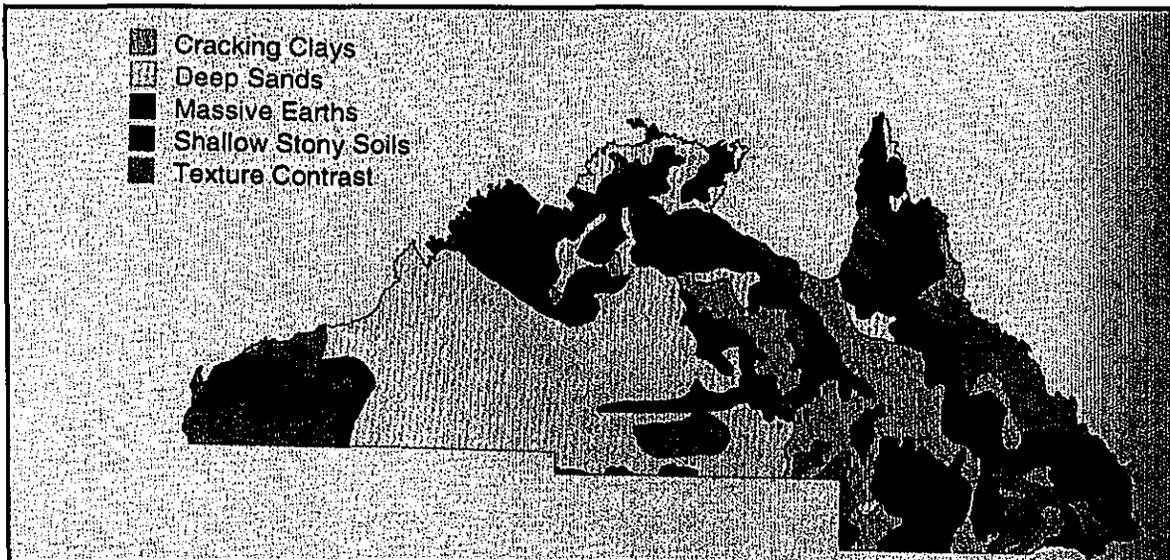
MAP D: Native Pasture Communities



MAP E: Native Grasses of Northern Australia



MAP F: Soils of Northern Australia



Source: QDPI, "Grazing the north", 1993