

QNRMO1026

Land Resources Bulletin



Land Resources of the Burnett Region Queensland Part 2: Central Burnett

D J Kent

Land Resources Bulletin

Land Resources of the Burnett Region Part 2: Central Burnett

D J Kent

Department of Natural Resources and Mines
Brisbane 2002

QNRM01026
ISSN 1327-5763

This publication was prepared by Department of Natural Resources and Mines officers. It may be distributed to other interested individuals and organizations.

This report is intended to provide information only on the subject under review. There are limitations inherent in land resource studies, such as accuracy in relation to map scale and assumptions regarding socio-economic factors for land evaluation. Before acting on the information conveyed in this report, readers should ensure that they have received adequate professional information and advice specific to their enquiry.

While all care has been taken in the preparation of this report neither the Department of Natural Resources and Mines nor its officers or staff accepts any responsibility for any loss or damage than may result in any inaccuracy or omission in the information contained herein.

© State of Queensland, Department of Natural Resources and Mines 2002

Department of Natural Resources and Mines
Locked Bag 40
Coorparoo DC QLD 4151

soils@qld.gov.au

Table of Contents

	Page
List of figures	iv
List of tables	iv
Maps	iv
Summary	v
1. Introduction	1
1.1 Objectives	1
1.2 Area features	1
1.3 Methodology	3
2. Resources of the survey area	5
2.1 Climate	5
2.2 Geology	6
2.3 Landform and drainage	11
2.4 Mapping units	12
2.5 Vegetation	17
2.6 Soils	25
2.7 Land capability – land suitability	45
3. Land use	48
3.1 Present land use	48
4. Land degradation	53
4.1 Extent and cause	53
4.2 Recommended correction and/or prevention methods	54
Acknowledgements	56
References	57
Appendices	61
I Mapping units	61
II Land units	98
III Common names of native plant species	132
IV Land capability classification	134
V Soil chemical ratings	137
VI Data recorded for each map unit and land unit	139
VII Natural resource assessment studies in the Burnett Region	140

List of Figures

Figure 1. Locality map	2
------------------------	---

List of Tables

Table 1. Median rainfall (mm)	5
Table 2. Climatic data for Gayndah	5
Table 3. Rock units of Central Burnett (Ellis 1968, Whitaker <i>et al.</i> 1974)	8
Tabel 4. Vegetation associations	18
Table 5. Great soil group or equivalent, soil family, summary descriptions, principal profile forms and land units in which soil family predominates	31
Table 6. Sites analysed and analytical ratings for varying parent materials for each Great Soil Group	40
Table 7. A description of the eight land capability classes used in classifying land in the Central Burnett area	45
Table 8. Area and percentage of total area of each land capability class	46
Table 9. Capability class, land use limitations and management needs	46
Table 10. Area statistics for 1977/8, 1987/89 and 1988/9	48
Table 11. Area planted to specific crops: 1977/8, 1987/9, 1988/9	49
Table 12. Other agriculture statistics: 1977/8, 1987/8, 1988/9	49
Table 13. Animal production statistics: 1977/8, 1987/8, 1988/9	50

Maps

In back pocket of report

Mapping units of Central Burnett; Scale 1: 250 000
NR&M Ref No: ABC-B-A0 3217

Land capability of Central Burnett; Scale 1: 250 000
NR&M Ref No: ABC-B-A0 5346

Summary

The Burnett Region of Queensland occupies some three million hectares. It is essentially an agricultural area based on a mix of irrigation and dryland enterprises as opportunity presents. However although the economic returns from irrigated lands are driving a degree of change in land use, not all areas are able to sustain or support intensive usage. In these circumstances it is vital that the natural resources be determined and the land capability assessed.

Earlier studies (Vandersee and Kent 1983 and Donnollan and Searle 2000) considered those portions of the Burnett region to the south (1 064 000 ha) and to the north (1 145 000 ha) of this study. This report is essentially a companion study using the same presentation format and mapping the resources at the same scale (1:250 000), but considering the area between these two earlier studies and comprising approximately 820 000 ha.

The resources of the area documented in this report include climate, geology, landform, drainage, vegetation and soils. The relationships between these have been organised as 74 mapping units composed of various land units. Each mapping unit is described in terms of the land units and the broad management requirements.

The land use patterns are described in terms of the statistics available as at 1987/88, which means that if information on current land use is required, then this needs to be updated by a user. However of more importance is the assessment of the land capability, so that any changes can be evaluated in terms of sustainability. This has implications for management, for the potential for various enterprises and for any land degradation induced by inappropriate land use.

Land use constraints related to the natural resources have been measured using 14 limiting factors, ranging from climate to depth of soil to susceptibility to flooding. Using this system, only 9% of the study area is classed as severely restricted (to be used only for nature reserves and perhaps limited grazing on the footslopes) but less than 37% is capable of supporting horticulture or cropping enterprises. This assessment quite clearly focuses attention on the use of appropriate management of areas.

Land degradation is not considered likely to become a major problem. Erosion and salinity were the main hazards identified while tree or shrub regrowth and pasture degradation also occur. Probable causes are discussed and reclamation at the time of the study and/or preventive measures recommended. Gully erosion, pasture degradation and tree or shrub regrowth were then the most common forms of degradation in the grazing lands.

Approximately 80% of the cultivation lands requiring soil conservation measures are now protected. Conservation cropping techniques are also gaining acceptance. Current management and land use practices appear to perform satisfactorily on the main cultivation soils.

Attempts to improve the carrying capacity for cattle by introducing legumes such as fine stem style to native pastures and establishing a managed grazing system are justified to maintain long-term productivity.

1. Introduction

The Burnett region of south-east Queensland encompasses an area of approximately 3 000 000 ha. Although portions of the area are intensively used for agriculture or livestock, at the time of the commencement of this study, approximately 80% was extensive dryland grazing or state forestry. Landuse changes in the area tend to be opportunistic — in response to irrigation water availability or market demand. The problem at that time, early 1980s, was that the capability of the land was largely unassessed so that changes in landuse had a degree of uncertainty built into the decision-making process.

Since that time, the Land resource assessment officers of the Department of Primary Industries and then of the Department of Natural Resources and Mines have addressed this lack of information. There are three major studies of the Burnett:

- | | |
|---------------------------------|-----------------------------|
| 1. South Burnett (1 064 000 ha) | Vandersee and Kent (1983) |
| 2. Central Burnett (820 000 ha) | Kent (2002) |
| 3. North Burnett (1 145 000 ha) | Donnollan and Searle (1999) |

These are companion volumes and present maps covering the entire area at a scale of 1: 250 000. This information is supplemented by other studies undertaken for a variety of reasons and usually mapped at a more intensive scale (see Appendix VII). The importance of the three major studies is that they present an inventory of natural resources using a consistent scale of reference ie. 1:250 000. This facilitates assessment of the capability of the land.

1.1 Objectives

The objectives of the study were to:

- (a) prepare mapping compiled at 1: 100 000 and published at 1:250 000, and describe the mapping units defined;
- (b) prepare a land capability map;
- (c) consider management requirements for mapping units defined.

1.2 Area features

This study includes the Shires of Mundubbera, Gayndah and Biggenden with the total area assessed as 819 872 ha. The extent of the area, selected physical features and the Shire boundaries are shown in Figure 1.

The Burnett Highway provides the main access into and through the area, with the Isis Highway through Coalstoun Lakes and the Mundubbera–Dulong Road also providing major road links. The majority of secondary roads are unsealed but provide all weather access except in times of major flood.

Mundubbera, Gayndah and Biggenden are linked by rail which joins the coastal rail line at Murgan south of Maryborough. To the west, the line loops north through Monto on its way to Gladstone.

Minor aerodromes are located at Gayndah and Mundubbera while a landing field is located at Biggenden.

The total population of the Central Burnett is approximately 6990 based on the 1996 census (Australian Bureau of Statistics 1996). Gayndah is the largest town with Mundubbera and Biggenden being the only other centres of significant population.

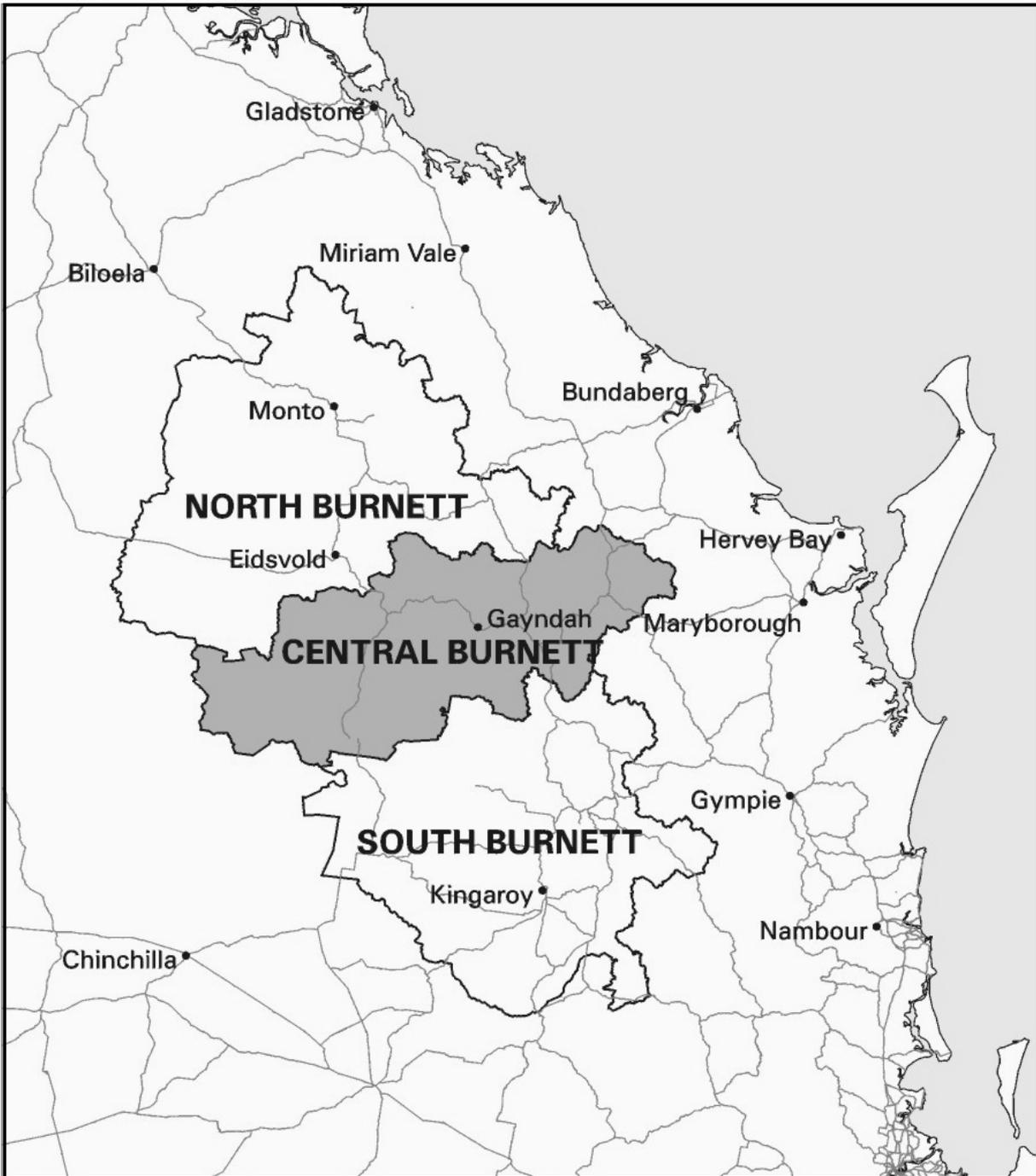


Figure 1. Locality map

1.3 Methodology

The approach used to undertake this survey is similar to that used for the South Burnett study (Vandersee and Kent 1983). Relevant literature and articles were reviewed. This was followed by the data collection phase and recording of resource data in a computer-compatible form suitable for retrieval and manipulation.

1.3.1 Data collection and presentation

Initial reconnaissance of the area was followed by air photo interpretation using 1:83 000 (approximate scale) black and white photographs taken between 1962 and 1969.

Mapping was based on geological units as mapped by Ellis (1968), Whitaker *et al.* (1974) and Reiser (1971). Much of the mapping on the Maryborough 1:250 000 sheet was based on the compilation sheets for the unpublished revised mapping of geology undertaken by the Geological Survey of Queensland. These units were subdivided into mapping units, defined as discrete areas of land with or without a recurring pattern of soils, vegetation and topography. Within each mapping unit the component land units, ie. areas with similar soils, vegetation and landform, were recognised and described but not mapped. One or more land units may occur within each mapping unit, usually in varying combinations.

Following delineation of preliminary mapping unit boundaries, the field survey was carried out to verify the mapping and collect detailed resource information.

Detailed resource information was collected at 543 sites and the data recorded in computer-compatible form similar to the fill-in site description format described by McDonald *et al.* (1984). Many other sites were examined in less detail but not recorded. Of the sites described, 66 soil profiles were sampled at standard depths for chemical analysis and bulk surface samples (0–10 cm) were collected for an additional 120 profiles for soil fertility analysis. The analytical methods and soil analysis interpretation are described in Baker and Eldershaw (1993).

Vegetation communities were classified using the same system adopted for the South Burnett Study. This used a modification of the system proposed by Specht (1970) with structural formation determined as the predominant stratum, not necessarily the tallest stratum.

Landform was recorded using the relief-modal slope system proposed by Speight (1984).

Descriptions of mapping units and land units are presented in Appendices I and II respectively. Diagrammatic cross-sections are included for each mapping unit.

A map showing the mapping units at a scale of 1:250 000 is enclosed. This map was produced by computer plotter using computer aided drafting techniques. Boundaries for each occurrence of a mapping unit or unique map area (UMA) were digitised and stored on a computer file. Each unique map area was assigned a unique number. The term UMA used here is equivalent to the map unit of Vandersee and Kent (1983).

Care has been taken to ensure mapping units correspond across the boundary between this study area and the adjoining studies to the north and south. However, some variation in geological unit designation does occur as explained in Section 2.2.2. UMA boundaries may align with the study area boundary in some areas.

Although all the land resources of the area have been mapped and described, the level of investigation in State Forests, Reserves and very rough terrain is very limited. More detailed examination of these areas may be warranted in the future to satisfy specific interests but were outside the scope of this project.

A land capability map at a scale of 1:250 000 was prepared by considering the land use limitations associated with the land units for each unique map area. UMAs assessed as having similar land capability and suitability were combined to form land use groups.

1.3.2 Data storage and retrieval

Information collected for sites, land units and UMAs is recorded in a computer data file. The types of data recorded for each land unit and UMA are listed in Appendix VI and includes both resource and digitised boundary information. The data format allows specific information to be retrieved such as the location, area and distribution of particular land attributes. Data can be manipulated and extracted in any combination and presented as either tables or plotted maps.

Site information is stored as a separate computer file and linked to the land unit data by site numbers. It includes chemical and physical analytical information where available.

The information stored on computer files may be accessed by contacting The Department of Natural Resources and Mines, Meiers Road, Indooroopilly.

2. Resources of the survey area

2.1 Climate

The area is classed as subtropical, with long hot summers and mild winters (Bureau of Meteorology 1979). The rainfall decreases from about 900 mm per annum at Biggenden in the east to less than 700 mm per annum at Durong South in the western portion of the study area (Table 1). Rainfall is summer dominant and frequently of high intensity.

Rainfall data is only available for two centres (Biggenden and Gayndah), however additional data from nearby centres outside the study area is presented in Table 1. Annual rainfall is quite variable in the area so that the median values used here, are preferable to mean values. The median values also provide a quick reference since the median rainfalls registered either monthly or annually represent the values which will not be exceeded on half the occasions.

Table 1. Median monthly rainfall (mm)

	J	F	M	A	M	J	J	A	S	O	N	D	Total
Childers	140	121	95	55	49	36	33	27	29	57	77	113	1044
Biggenden	116	90	75	41	37	35	27	24	26	60	65	114	897
Gayndah	112	82	57	31	29	29	29	23	26	61	63	104	796
Winderah Ck	98	73	53	39	25	37	21	17	24	50	62	74	665
Eidsvold	98	70	57	35	31	32	31	23	22	51	63	84	727
Durong Sth	81	78	60	18	27	23	23	25	28	61	62	91	674

Source: Willcocks and Young (1991)

The daily evaporation rates (Table 2) usually exceed average rainfall except in winter. In years of low rainfall, this can create problems for the productivity of native pastures. Periods of extended drought (>8 months) can be expected, with consequences for grazing on unimproved pasture.

Climatic records for Gayndah (Table 2) show that summers are hot with mean daily maximum temperatures exceeding 30°C from November to March. Winters are mild with July mean daily maximum and minimum of 22.2°C and 5.15°C respectively. Frosts can be expected over the period of June to September. Generally, the incidence and severity of frosts is influenced by position in the landscape (Wilson and Sorby 1991). Hill tops receive fewer and less severe frosts and are suitable for sensitive crops such as avocados and mangoes. The low lying channel benches and depressions along the rivers in the western portion of the area can receive a large number (>20) of severe frosts per year, limiting crops to deciduous plants such as pecans, low chill stone fruits, grapes, adaptable small crops and field crops (Wilson and Sorby 1991).

Table 2. Climatic data for Gayndah

	J	F	M	A	M	J	J	A	S	O	N	D	Average
Gayndah													
Tmax °C	32.7	32.0	30.7	28.6	25.3	22.6	22.2	23.9	26.9	29.8	31.8	32.6	28.2
Tmin °C	19.4	19.1	17.0	13.4	9.3	7.0	5.5	6.0	9.3	13.4	16.5	18.4	12.8
Pan evap. ¹	6.9	6.2	5.4	4.2	3.1	2.6	2.8	3.5	4.7	6.0	6.9	7.1	4.9
Rainfall ¹	6.1	5.2	4.4	3.8	3.1	2.8	3.0	3.6	4.5	5.5	6.5	6.7	4.6

¹ mm/day Source: Willcocks and Young (1991)

2.2 Geology

A detailed description of the geological formations, including distribution and history, is contained in the reports and accompanying maps compiled by Ellis (1968), Whitaker *et al.* (1974), Reiser (1971), Geological Survey of Queensland (1979) and Day *et al.* (1983). More detailed commentaries on defined localities include those by Stevens (1961) and Driscoll (1960).

At the time of the land system mapping, the revised mapping of the geology for the Maryborough 1:250 000 sheet area was being prepared by the Geological Survey of Queensland and has since been published (Cranfield 1994). Updated information from the working map sheets for this report was used where possible during mapping. Where appropriate, proposed names for new formations mapped during the revision are included in parenthesis after the existing names.

2.2.1 Geological history

This geologically complex region is developed on a basement formed by predominantly marine volcanoclastic deposition. These Palaeozoic and early Triassic rocks are now exposed in several north to north-northwest trending structural blocks.

The oldest exposed rocks probably occur in the narrow Philpott Block to the east of Munduberra (Geological Survey of Queensland 1979) and comprise early to Middle Devonian undifferentiated pyroclastics and sediments, and the Pumpkin Hut Mudstone. These strata of predominantly intermediate volcanics were folded at the end of the Middle Devonian and the block is now entirely fault bounded.

The Yarrol Block to the west, through Munduberra, was the site of shallow deposition on a marine continental shelf during Late Devonian and Carboniferous time. It comprises the Derrarabungy Beds, Caswell Creek Group and Crana Beds. These beds were subjected to broad folding and reverse faulting in the mid to late Permian. The Yarrol Block is faulted against the Philpott block.

The Palaeozoic deep water marine sediments of The Curtis Island Group occur in small exposures of the basement rocks in the Yarraman and Coastal Blocks (Whitaker *et al.* 1974). These rocks are probably the same age as the shallow water deposits of the Yarrol Block and include the Wandilla and Doonside Formations and a small area north of Gayndah previously mapped as Mount Perry Complex (Ellis 1968). Metamorphism and folding occurred in the Lower Permian. During faulting of the Yarrol Block, both the Yarrol and Philpott Blocks were upthrust along the Yarrol, Philpott, Mimosa and Munduberra Faults (Whitaker *et al.* 1974). Granites and related rocks (Wigton Adamellite, Toondahra Granite and Mount Perry Complex (Mingo Granite)) intruded the Yarraman Block during the Late Permian to Triassic.

Permian and Early Triassic deep water marine deposits of the Biggenden Block were folded and locally metamorphosed at the end of the Early Triassic. Formations include the Biggenden Beds (Gympie Group, Good Night Beds) and the Brooweena Formation. The intrusive Broomfield Granite, Degilbo and Tawah Granodiorite, Chowey Granite and Mungore Complex were emplaced mainly during the Early Triassic.

At much the same time, the Gogango Overfolded Zone to the west of the Yarrol Block was the site of a narrow, deep marine trough between the emerging Yarrol Block and a subsiding basin further west. During the Late Permian, these sediments were folded and thrust westwards over the adjoining block. The only rocks preserved are the thermally metamorphosed volcanics and sediments of the Nogo and Narayen Beds which have been intruded by members of the Permo-Triassic Rawbelle Batholith and by the Mount Saul Adamellite.

In Early Triassic time, the Esk Trough developed as a rift zone or fault trough between the Yarraman and Biggenden Blocks. Thick sequences of continental andesitic volcanics and volcanoclastic sediments accumulated in the trough in the early to middle Triassic. Thinner sheets of andesitic to rhyolitic volcanics were deposited onto the stable adjacent blocks. The Abercorn Trough formed along the Yarrol Block in a similar manner during the same period. Folding of the strata of the Esk Trough marked the stabilisation of the continental crust in this region. The Aranbanga Beds (including Abernethy Basalt) and

Gayndah Beds are the major formations represented which have been intruded by the Wigton Adamellite. The Cynthia Beds west of Mundubbera mark the extent of the Abercorn Trough in this area.

Sediments of the Surat Basin west of the area (sandstone, siltstone, mudstone etc.) lapped onto the Gogango Overfolded Zone and were covered by lacustrine and floodplain deposits of the Evergreen Formation during the late Jurassic. A marine transgression into the basin occurred in the Early Cretaceous.

A period of extensive erosion and weathering extended into the Early Tertiary producing a subdued topography and removed most of the cover. During the Early Tertiary, probably Oligocene to early Miocene, several areas of basalt were erupted. An extended period of deep weathering or lateritisation followed during which all material exposed was chemically altered. Ferruginous surface horizons formed an indurated protective capping over much of the area.

Several cycles of uplift and erosion since late Miocene time (Watkins 1967) have resulted in the dissection and stripping of much of the weathered surface to re-expose many of the original formations in their relatively unweathered state. Remnants of this surface remain as plateau ridges and mesas throughout the district. Some areas of duricrusted sediments represent reworked material from the original weathered surface.

Limited volcanic activity during the Pleistocene produced the more recent Barambah Basalt (0.6 Ma) (Ellis 1968, Wellman 1978) near Coalstoun Lakes.

Recent alluvial sediments have been deposited along major creeks and rivers. Areas of slightly older, higher lying alluvium are often associated with the lower lying more recent floodplains.

2.2.2 Geological units

A summary of the major rock units of the Central Burnett area in terms of age, lithology, distribution, thickness and mode of formation is given in Table 3. For convenience, formation names and codes which were provisional at the time of mapping are in parenthesis.

The boundary between the Neara Volcanics as mapped on the Gympie sheet (Murphy *et al.* 1976) and the Aranbanga Beds of the Maryborough Sheet cannot be distinguished readily. For the purpose of this study, these are considered as equivalent units in this area and, as such, have been mapped as Aranbanga Beds.

Table 3. Rock units of the Central Burnett (Ellis 1968, Whitaker *et al.* 1974)

Age	Rock unit and letter symbol ¹	Lithology	Distribution	Thickness (m)	Depositional Environment
Quaternary	Qa	Alluvial sand, gravel, silt and clay	Mainly along Burnett and Boyne Rivers and major tributary streams.	Up to 30	Fluviatile
	Barambah Basalt Czub (Qph)	Olivine basalt	Coalstoun Lakes to Barambah Creek with flows along Burnett River and Degilbo Creek.	Up to 30	Valley flows
Cainozoic	Cza	Alluvial gravel and sand, partly consolidated in parts.	Several areas along Boyne and Burnett Rivers.	Unknown	Fluviatile
	Czua (Ts)	Poorly consolidated sandstone, conglomerate and siltstone.	Small area north east of Byrnestown.	Unknown	Fluviatile
	Czs, Cz	Duricrusted claystone, sandstone and siltstone; some ferricrete.	Scattered plateau remnants mainly over western half of area.	Up to 15	Period of deep weathering.
Tertiary	Tb, Tmb	Olivine basalt	Mainly Binjour - Gurgeena Plateau, Mt Redhead and south of Gayndah.	Up to 75 on Binjour Plateau	Continental
Early Jurassic	Evergreen Formation Jle	Labile to sublabile sandstone, oolitic ironstone, shale, siltstone.	Major area west and south west of Mundubbera.	150 to 250	Fluviatile and lacustrine, possible minor marine incursion.
Middle Triassic	Toondahara Granite Rmt	Granite	South of Munbooree		Intrusive
	Mount Saul Adamellite Rms	Adamellite	North west trending outcrop south west of Hawkwood.		Intrusive
	R	Welded tuff, agglomerate, rhyolite.	Small area south-west of Hawkwood.	Unknown	Continental
	Cynthia Beds Rmc	Boulder conglomerate, arenite, rhyolitic lava and tuff, siltstone, shale.	Between Dykehead and O'Bil Bil west of Mundubbera	1500	Paludal or lacustrine, fluvial and terrestrial.
Early Triassic	Broomfield Granite Rlgb, (Rf)	Biotite granite, rapakivi granite, granodiorite.	North-northwest trending belt east of Biggenden.		Intrusive
	Mungore Complex Rlgr, (Rm)	Biotite granite, granophyre, tonalite, rhyolite pendants.	Several areas near the south-eastern boundary.		Intrusive
	Tawah Granodiorite/ (Granite) Rlgt, (Rt)	Muscovite-biotite granite, hornblende tonalite, granodiorite.	Small area on north -eastern boundary, north of Dallarnil.		Intrusive
	Degilbo Grandiorite/ (Adamellite) Rlgd, (Rd)	Biotite granite, granophyre adamellite, granodiorite.	West of Biggenden in area of Mt Biggenden.		Intrusive
	Brooweena Formation Rib, (Rb)	Sandstone, siltstone, mudstone, shale, conglomerate, tuff.	Small area on eastern boundary.	Up to 3500	Mainly lacustrine; at least one marine incursion.
	Aranbanga Beds Ra, Rma	Rhyolitic, trachytic and andesitic flows, minor tuffaceous sediments and basalt.	Broad north west trending belt across centre of the area through Gayndah.	Unknown	Continental, sub-aerial, minor lacustrine.
	(Abernethy Basalt) (Raw)	Fine to coarse platy olivine basalt.	Mainly along Reid Creek, around Gayndah, and in a narrow belt along Hivesville Road.	Unknown	Continental, associated with Aranbanga Beds
	Gayndah Beds/ (Formation) Rg	Lithic labile sandstone, quartzose sandstone, conglomerate, siltstone, shale.	Small areas east and north of Gayndah along Reid Creek.	40	Lacustrine; some torrential deposition

Table 3 (continued)

Age	Rock unit and letter symbol ¹	Lithology	Distribution	Thickness (m)	Depositional Environment
Permo-Triassic	Chowey Granite Rlgo (Pc)	Hornblende - biotite granite.	Small area north west of Didcot.		Intrusive
	P-Rg	Granodiorite, granite, adamellite, diorite, gabbro.	Small area south of Munbooree.		Intrusive
	Rawbelle Batholith:- ♦ P-Rr	Granodiorite, granite, adamellite, amphibolite.	Narrow belts along western boundary west of Hawkwood and north of Auburn River Falls.		Intrusive
	♦ Cheltenham Creek Adamellite P-Rt	Adamellite	Small area along western boundary north east of Hawkwood.		Intrusive
	♦ Delubra Quartz Gabbro P-Rd	Quartz gabbro	Small area east of Hawkwood.		Intrusive
	♦ Cadarga Creek Granodiorite P-Ra	Granodiorite, adamellite	Small area to the west near Auburn River Falls.		Intrusive
♦ Hawkwood Gabbro P-Rh	Gabbro, diorite, monzonite, pyroxenite, anorthosite.	Small areas south east of Hawkwood.		Intrusive	
	Wateranga Gabbro Pgt, (PRw)	Layered olivine gabbro, norite, anorthosite.	Very small area on northern boundary on Burnett River north-east of Byrnestown.		Intrusive
Late Permian	Pg	Mainly granite, granodiorite.	Minor area north of Ban Ban Springs.		Intrusive
	Mount Perry Complex/ (Mingo Granite) Pgp (Pm)	Biotite granodiorite, muscovite - biotite granite.	North of Byrnestown to the Burnett River.		Intrusive
	Wigton Adamellite/ (Granite) Pgw, Puw (Pw)	Biotite granite, adamellite, tonalite.	Extends from the Burnett River west of Gaydah south-eastwards to the boundary.		Intrusive
Early Permian	Narayen Beds Pla	Hornfelsed intermediate to basic volcanics, tuffaceous arenite, conglomerate.	East and south of Hawkwood.	Unknown	Intrusive
	Nogo Beds Plo	Intermediate to basic volcanics, labile arenite, chert, slate, conglomerate.	Several smaller areas along and west of St. John Creek.	Unknown	Shallow marine to continental
Permo-Carboniferous	Biggenden Beds Plb				
	♦ (Gympie Group) (Pg)	Sandstone, shale, mudstone, conglomerate, andesitic to basaltic volcanics, chert, some limestone.	Eastern part of the area from Barambah Creek and south-eastern boundary through to northern boundary.	Over 3000	Shallow marine
	♦ (Good Night Beds) (CPo)	Slate, phyllite, argillite, chert, arenite, basic metavolcanics, minor limestone.	Extends north from Ban Ban Springs to the boundary then east along the Burnett River.	Over 3000	Shallow marine
Carboniferous	C	Conglomerate, arenite, siltstone, mudstone, greywacke.	Scattered areas north of Monogorilby to Cadarga Creek	Unknown	Marine, continental in part
	Derrarabungy Beds Cld	Lithic and felspathic arenite, siltstone, mudstone, conglomerate, oolitic limestone.	In a belt south from Mundubbera	Unknown	Marine

Table 3 (continued)

Age	Rock unit and letter symbol ¹	Lithology	Distribution	Thickness (m)	Depositional Environment
	Caswell Creek Group Clc	Felspathic and lithic arenite, conglomerate, mudstone, siltstone, oolitic limestone.	Narrow belt between the Boyne River and northern boundary through Mundubbera.	Over 2400	Marine
	Crana Beds Clr	Lithic sandstone, mudstone, siltstone, rare andesite.	Small scattered areas north-northeast of Mundubbera.	1500 to 3000	Marine
Devonian to Carboniferous	(Curtis Island Group) Pz (DCc)	Sandstone, mudstone, siltstone, quartzite, slate, phyllite, schist.	Small area on the boundary north of Gayndah.	Several thousand metres	Deep water marine
Devonian	D	Andesitic to dacitic pyroclastics and minor lava, mudstone, lithic sandstone.	Narrow belt extending from Mundubbera to Munbooree and near Branch Creek.	Over 3000	Marine
	Pumpkin Hut Mudstone Dh	Felspatholithic sandstone, siltstone, mudstone, minor basic to intermediate pyroclastics.	Narrow north trending belt east of Mundubbera.	1000	Marine
	Philpott Limestone Dp	Intermediate to basic volcanics, lithic sandstone, limestone.	Very small area near Philpott Creek.	Over 600	Marine
	Munbooree Beds Dm	Siltstone, sandstone, conglomerate, minor limestone.	Very small area north east of Munbooree.	Over 700	Marine
Undifferentiated Palaeozoic	Doonside Formation Pzd	Chert, mudstone, sandstone and limestone.	Very narrow north-north easterly trending belt north of Burnett River through Gurgeena Plateau.	1200 to 1800	Marine
	Wandilla Formation	Mudstone, sandstone, chert.	Northerly trending belt from Cooranga on the Boyne River to northern boundary.	Several thousand metres	Marine

¹ Provisional rock unit and symbol from revised geology mapping (Cranfield 1994) in brackets, eg. (Qph)

Other changes proposed by the revised geology mapping (Cranfield 1994) are largely subdivisions of the units mapped by Ellis (1968). Examples include the division of the Biggenden Beds into the component Gympie Group and Good Night Beds and the revision of the previously mapped Mount Perry Complex. Mapping unit boundaries are based on those of the most appropriate, recognisable geological units.

Although basalt units have been differentiated north of Ban Ban Springs, it was not possible within the scope of this study to adequately define these units. More detailed observations may be required in these areas.

2.2.3 Economic Geology

Numerous mineralisations have been detected in the region but only those of economic value are considered here. A more detailed summary has been compiled by the Geological Survey of Queensland (1979, 1981).

Magnetite. Mount Biggenden, eight kilometres west-southwest of Biggenden, is the largest magnetite deposit in the area. Smaller deposits occur in close proximity at Mount Hastings to the south and Don Jaun/Mount Havilah to the north. Magnetite is used for coal washing plants, but the life of the mine is dependant on proving further resources. Deposits are also associated with gabbro intrusions in the Hawkwood area but they are unsuitable for coal washing purposes because of their titaniferous nature (Geological Survey of Queensland 1981).

Bismuth. A comparatively rare metal, bismuth was previously mined in the Mount Biggenden area until 1976. It has since been recovered as a by-product of magnetite extraction along with small quantities of copper and gold, but sales of concentrate have fallen because of low values and arsenic contamination.

Gold. Gold mining no longer occurs in the area apart from some activity in the Mount Biggenden area. Gold has been mined previously near Mount Shamrock, 15 km northwest of Biggenden. Low grade mineralisation is still present in this area. Mining has also occurred in other parts of Biggenden district and near Hawkwood, St Johns Creek and Brovinia.

Copper. Apart from the copper produced from the Mount Biggenden mine, minor mineralisations have been detected in the Brovinia and Coalstoun Lakes districts.

Zinc. The only deposit of potential importance is the Ban Ban zinc lode, 30 km south of Biggenden. Although development is dependant on the price of zinc, moves have been considered more recently to establish a mine.

Tin. Sporadic mining of small, low grade alluvial deposits has occurred about 20 km east of Monogorilby.

Lime and dolomite. Limestone quarrying has been confined to relatively small, high grade deposits, with small-scale operations at Degilbo and at Paradise, 22 km northwest of Biggenden. High grade deposits also occur at Philpott Creek and a substantial deposit of white saccharoidal marble is located in a lens near Mount Biggenden mine.

Earthy limestone is currently quarried from a deposit three kilometres south-southeast of Didcot and is used for agricultural purposes in the Burnett region. Other deposits in the region are either too small or of marginal commercial grade and therefore unlikely to be mined.

Gemstones. Small deposits are found throughout this area but there is no commercial extraction.

2.3 Landform and drainage

2.3.1 Landform

Landforms are dominated by the alluvial land adjacent to the rivers, plateau remnants (such as the Binjour-Gurgeena Plateau) and low hills associated with intrusive volcanic activity. Landform within the mapping units is described in Section 2.4.

2.3.2 Drainage

The area is centrally drained by the Burnett River and Barambah Creek. The western portion also contains the lower reaches of the Boyne River, Cadarga Creek and the Auburn River. The eastern portion is mainly characterised by minor and ephemeral drainage lines except for the upper reaches of the Gregory River, despite the higher rainfall levels. Major flows occur in all surface drainage systems, but they show marked variation both seasonally and from year to year. Flooding of all drainage systems occurs (Kent *et al.* 1989, Reid *et al.* 1986), but tends to affect only the lower terraces.

Drainage water enters the area from the north both via the surface water (Burnett and Nogo Rivers) and groundwater aquifers in unconsolidated sediments (Water Resources Council 1975). The water so entering can be poorer quality (Kent *et al.* 1989) depending on seasonal factors, however this is regulated for surface water by the Waruma Dam on the Burnett River.

The Quaternary alluvium of the Boyne River Valley forms a strip 64 km long and 1–5 km wide. It is terraced throughout and provides groundwater bores with transmissivity levels depending on the terrace involved. All groundwater is suitable for irrigation. The Boondooma Dam on the Boyne River supplies good quality water for irrigation.

Groundwater bores are capable of supporting irrigation along the Nangur, Barker and Barambah Creeks. Because the aquifers are overlain by clay and sandy clay with low hydraulic conductivity, they tend to respond slowly to rainfall and streamflow. The groundwater is of poor quality (Water Resources Council 1975), although the surface water is good quality and regulated by a series of weirs.

2.4 Mapping units

Mapping units as defined in Section 1.3.1 form the basis for this study. Seventy-four mapping units have been differentiated on the basis of geology, topography, vegetation and soils and subsequently organised into nine groups based on related geological parent material. The extent and distribution of the mapping units is shown on the enclosed 1:250 000 scale map.

Each mapping unit is composed of a number of land units. These land units are described but not mapped. The description of mapping units (Appendix I) shows diagrammatically the relationship of the land units within each mapping unit and the estimated average percentage area of each land unit recognised. Data for each unique map area (UMA) have subsequently been recorded as part of a computer data file.

Due to mapping scale and the fact that land types are generally a continuum, boundaries between many UMAs are gradual rather than sharp as mapped. Where land types are mixed or merge over large distances, they are mapped as a complex. The mapping unit contributing most to the complex is indicated first.

Major mapping units within each of the nine groups and their main distinguishing factors and distribution are discussed below.

2.4.1 Alluvials

Mapping units on alluvium comprise 6.4% of the area. Four mapping units have been defined in this land zone, two on predominantly recent alluvia (Qa1, Qa2) and two on older alluvia (Ca1, Ca2).

The recent alluvia are associated with the present creeks and rivers. The most recent (Qa1) includes the backplains and associated levees and terraces of the major streams. Soils vary from earthy sands and siliceous sands on levees to prairie soils on terraces and black earth and texture contrast soils on the floodplains. Most of the levee soils are extensively cropped with intensive horticulture. Original vegetation was predominantly Queensland blue gum and Moreton Bay ash grassy woodland to open forest with areas of poplar box and narrow-leaved ironbark.

Other areas of recent alluvia (Qa2) comprise the level to gently undulating floodplains of smaller streams. Soils are predominantly grey and brown clays with areas of solodized solonetz and solodic soils supporting poplar box and Queensland blue gum open woodland to open forest and small areas of ironbark communities. These plains are extensively cleared but only comparatively small areas have been regularly cropped.

Older alluvia occur as relict plains mainly along the Burnett River near Mundubbera and the lower reaches of the Boyne River. Level to gently undulating plains with predominantly grey and brown clays (Ca1) often occur as smaller areas close to streams. These are largely cleared of their original brigalow open forest and poplar box communities with cropping on parts of the larger units.

The level to more undulating plains and rises on older alluvia (Ca2) occur as larger areas along the Boyne River. Major soils are red earths, black earths and brown clays with clay soils prominent in low-lying areas. The red earths represent relict channel infills and levees and have been extensively cleared of their silver-leaved and narrow-leaved ironbark vegetation.

Irrigated horticultural cropping is expanding on these soils. Poplar box and Queensland blue gum woodlands to open forest have been extensively cleared and used for grazing.

2.4.2 Residual soil, sheet wash

Areas of residual soil and colluvium occur north and south of Gayndah and near Ban Ban Springs and occupy 0.9% of the study area.

Gently undulating rises on basaltic colluvium (Qr1) occur along the western side of Reid Creek. Soils are deep dark cracking clays with minor red and brown clays. The mapping unit is predominantly cleared to rainfed cropping. Remnant vegetation is mainly Queensland blue gum and silver-leaved ironbark.

Tertiary colluvial clays on gently undulating rises are largely derived from Triassic andesites and sedimentary rocks. Soils are predominantly gilgaied deep grey and brown cracking clays supporting brigalow vegetation communities. Areas are mostly cleared for grazing.

2.4.3 Laterite, duricrust

Twelve mapping units have been defined, three associated with the tertiary basalt, one with duricrusted Cainozoic sediments, four with the lateritised Jurassic Evergreen sediments, three with lateritised Gabbro and granites, and one with sedimentary rocks of the Derrarabungy Beds. They occupy 24.6% of the study area.

The lateritised basalts have been subdivided into plateaus (Lt1), scarps (Lt3) and rolling rises on colluvial slopes (Lt2). The plateaus are predominantly krasnozems, the colluvial slopes with areas of fresh basalt are predominantly krasnozems/euchrozems on upper slopes and with cracking clays on lower slopes. Scarps have predominantly shallow gravelly soils.

Gympie messmate and bloodwoods are characteristic of the plateaus with spotted gum, ironbarks and bloodwoods on upper scarps and softwood scrubs on slopes.

The lower plateaus are cleared for pasture and some cropping, while the gentle lower slopes are also cleared for pastures and cropping.

The duricrusted Cainozoic sediments (Cz1) predominantly occur as level to undulating rises capping other geologies. Soils are mainly red earths and krasnozems/xanthozems. Waterworn gravel is prominent in some areas. Spotted gum and narrow-leaved ironbark predominates with scattered other tree species.

The lateritised Evergreen Formation has been subdivided into steep low hills and plateaus (Lj1) with shallow to moderately deep lithosols and red earths; undulating low hills (Lj2) with deep krasnozems/xanthozems and red earths with spotted gum and narrow-leaved ironbark; undulating rises and low hills (Lj3) with various soils including krasnozems, euchrozems and red earths supporting softwood scrub with some brigalow and eucalypts; undulating to steeper sloping rises and low hills (Lj4) with deep krasnozems and red earths supporting softwood scrub. All these units are mainly undeveloped.

The lateritised gabbro (Lp1) occurs as undulating rises and low hills with predominantly krasnozems and euchrozems supporting softwood scrub and silver-leaved ironbark and gum-topped barked bloodwood.

The undulating rises on lateritised granite (Lp2) and Wigton Adamellite (Lp3) have been separated mainly on vegetation. Soils are predominantly yellow and brown texture contrast soils. The granite supports mainly narrow-leaved ironbark, pink bloodwood and rusty gum while the adamellite has

mainly spotted gum, narrow-leaved ironbark and bullock with an understorey of quinine bush. Most areas are undeveloped.

The undulating to rolling low hills on Derrarabungy beds (Lc1) have shallow to moderately deep red earths. Vegetation is mainly spotted gum, broad-leaf ironbark and brown bloodwood.

2.4.4 Basalt, gabbro

Nine mapping units occupying 5.4% of the area have been distinguished comprising three Quaternary Barambah Basalt, one Tertiary basalt, two Triassic Abernethy basalts, two Delubra gabbro units and one Wateranga gabbro.

The Barambah Basalt represents Quaternary flows from volcanic vents at Coalstoun Lakes. The gently undulating rises around Coalstoun Lakes (Qb1) have moderately deep to deep eucrozems and frequently rocky krasnozems. These are mostly cleared for cropping. Adjacent to and including the volcanic vents (Qb2) black and brown clays occur with rocky soils on steep slopes. The lower ends of the basalt flows around Ban Ban Springs and Barambah Creek (Qb3) have predominantly rocky dark cracking clays or brown prairie soils. Vegetation is mainly narrow-leaved ironbark, gum-topped bloodwood and silver-leaved ironbark.

The elevated Tertiary basalt cappings (Tb1) overlying other geologies have shallow to moderate deep dark cracking clays supporting narrow-leaved ironbark and gum-topped bloodwood. Most areas are undeveloped.

The Triassic Abernethy basalts have been subdivided into gently undulating rises (Rw1) with moderately deep self mulching dark clays and undulating low hills (Rw2) with shallow stony dark and brown clays. Vegetation is silver-leaved ironbark and gum-topped bloodwood. The deeper soils on gentle slopes are cropped.

The Delubra Gabbro have undulating rises (Pd1) with shallow to moderately deep non calcic brown soils and red brown earths, while the rolling to steep hills (Pd2) have shallow gravelly lithosols. The deeper soils have silver-leaved ironbark and gum-topped bloodwood while the shallow soils have predominantly narrow-leaved ironbark.

The undulating to rolling Wateranga Gabbro low hills (Pw1) have shallow to moderately deep dark and brown cracking clays. Vegetation is dominated by narrow-leaved and silver-leaved ironbark and gum-topped bloodwood. The unit is mostly cleared for grazing of native pastures.

2.4.5 Andesites, rhyolites

The andesites and rhyolites of the Triassic Aranbanga Beds have been subdivided into six mapping units and occupy 18.5% of the area. The Narayen Beds have one unit. The undulating rises to steep hills (Ra1 to Ra6) of the Aranbanga beds have moderately deep to deep dark and brown cracking clays or sodic textured soils on lower slopes. The rhyolites have texture contrast soils on lower slopes. Shallow, rocky dark or brown clays or texture contrast soils occur on upper slopes and crests.

Vegetation on steeper slopes is dominantly spotted gum and narrow-leaved ironbark while gentle upper slopes have silver-leaved and narrow-leaved ironbark. Lower slopes have predominantly brigalow and softwood scrubs which have been extensively cleared for grazing of native pasture and some intermittent cropping.

The undulating rises of the andesites of the Narayen Beds (Pa1) have moderately deep to deep brown cracking and non cracking clays. Vegetation is dominantly silver-leaved and narrow-leaved ironbark with gum-topped bloodwood.

2.4.6 Sandstone, siltstone, shale, mudstone

Thirteen mapping units on sediments of the Tertiary Sediments, Jurassic Evergreen Formation, Broweena Formation, Gayndah Beds, Derrarabungy Beds, Caswell Creek Group and Pumpkin Hut Mudstones comprise 13.8% of the area.

The undulating rises to gently undulating plains of the Tertiary Sediments (Ts1) have sodic texture contrast soils supporting mainly narrow-leaved ironbark and pink bloodwood with areas of gum-topped box.

The undulating rises to low hills in the Evergreen Formation (Je1 to Je3) and Brooweena Formation (Rb1, Rb2) have deep sodic texture contrast soils on lower slopes to moderately deep sodic texture contrast soils on upper slopes. Vegetation is mainly narrow-leaved ironbark and pink bloodwood on lower slopes while spotted gum predominates on upper slopes.

The undulating rises to low hills of the Gayndah Beds (Rg1), Derrarabungy Beds (Cd1, Cd2) and Caswell Creek Group (Cd3, Cd4) have predominantly brown sodic texture contrast soils and some brown prairie soils on upper slopes. Vegetation is dominated by narrow-leaved and silver-leaved ironbark with some softwood scrub on the Caswell Creek units. Spotted gum occasionally occurs on steep shallow soils.

The undulating rises to low hills of the Pumpkin Hut Mudstones (Dh1, Dh2) and associated undifferentiated Devonian beds (Dh3, Dh4) have predominantly brown prairie soils with some brown and dark cracking clays on lower slopes and minor sodic texture contrast soils. Vegetation is characteristically silver-leaved and narrow-leaved ironbark and gum-topped bloodwood on mid to upper slopes with brigalow and poplar box on lower slopes. Some softwood scrub occurs on upper slopes.

2.4.7 Granite, granodiorites, adamellites, tonalites

Fifteen mapping units covering 15.5% of the area occur on Toondahra Granite, undifferentiated Triassic granodiorite, Tawah granodiorite, Mt Saul Adamellite, Chowey Granite, Mungore Complex, Degilbo granodiorite, Broomfield Granite, Cheltenham Creek Adamellite, Coonambula granodiorite, Cadarga Creek granodiorite, Mt Perry Complex and Wigton Adamellite.

The undulating rises to low hills on granite and adamellites (Rs1, Rf1, Pt1, Pm1, Pu1) have moderately deep to deep sandy surfaced texture contrast soils. Vegetation is predominately narrow-leaved and silver-leaved ironbark and pink bloodwood.

The steep rises and hills of the granites and adamellites (Pg1, Ro1, Rd1, Rd2, Pm2, Pu2) have predominantly shallow sands with rock outcrop and minor texture contrast soils. Vegetation is mainly spotted gum, narrow-leaved ironbark, pink bloodwood with scattered rusty gums.

Lower slopes are frequently cleared for grazing of native pastures.

The undulating rises to rolling low hills on granodiorites (Pg2, Rt1, Pc1, Pr1) have moderately deep to deep brown to reddish brown texture contrast soils frequently becoming sodic on lower slopes. Rock outcrop and shallow soils often occur on ridge crests. Vegetation is narrow-leaved and silver-leaved ironbark with gum-topped bloodwood, but silver-leaved ironbark is more conspicuous than on the granites. These lands are mostly used for grazing of native pastures.

2.4.8 Sandstone, whale, mudstone, conglomerate, andesitic to basaltic volcanics

Interbedded sediments and intermediate to basic volcanics occupy 8.7% of the area. This interbedding results in a complex distribution of soils and vegetation which generally correspond to the other mapping unit groups on andesites (Section 2.4.5) and sediments (Section 2.4.6).

The undulating rises to low hills on Cynthia Beds (Rc1) have moderately deep dark to brown cracking clays with prairie soils and non calcic brown soils on upper slopes. Vegetation is silver-leaved and narrow-leaved ironbark on mid to upper slopes with poplar box and some brigalow on lower slopes. Large areas have been cleared for grazing of native pastures.

The undulating rises to rolling low hills and steep hills on the Biggenden Beds (Pb1 to Pb5) have moderately deep to deep dark and brown prairie soils with minor areas of cracking clays and sodic texture contrast soils on lower slopes. Shallow gravelly soils frequently occur on steep slopes and ridge crests. Vegetation is predominantly narrow-leaved and silver-leaved ironbark with gum-topped bloodwood. Softwood scrub occasionally occurs on mid to upper slopes with minor areas of brigalow on lower slopes. Steep slopes have spotted gum and narrow-leaved ironbark communities. The gentler slopes are extensively cleared for grazing of native pastures.

The gently undulating rises to undulating rises on Nogo Beds (Po1) have moderately deep to deep dark to brown cracking clays with generally shallow non cracking clays on upper slopes. Vegetation is narrow-leaved ironbark, poplar box and silver-leaved ironbark with poplar box becoming more prominent on lower slopes. Some areas of brigalow also occur on lower slopes. Lower slopes are extensively cleared for grazing of native pastures.

2.4.9 Phyllites, arenite, siltstone, slate, quartzite, basic metavolcanics

Four mapping units on metamorphic rocks of the Good Night Beds and Wandilla Formation cover 6.2% of the area.

The undulating low hills on the Good Night Beds (Cp1) have shallow to moderately deep gravelly textured soils while the rolling to steep low hills (Cp2) have shallow gravelly lithosols and rock outcrops. Vegetation is spotted gum, narrow-leaved ironbark, pink bloodwood and Queensland peppermint.

Shallow to moderately deep texture contrast soils predominate on the undulating to rolling low hills of the Wandilla Formation (Pz1) while shallow, stony lithosols occur on steep hills (Pz2). Narrow-leaved ironbark, silver-leaved ironbark and pink bloodwood is the dominant vegetation on the undulating landscape. Spotted gum and narrow-leaved ironbark occur on steep slopes.

2.5 Vegetation

Little published information is available on the vegetation of the area. Communities have been documented in small portions of the area in separate studies conducted by Isbell (1962), Stanton (1979), Young (1979), Neldner and Paton (1986), and Reid *et al.* (1986). Studies by Ridley (1962), Coaldrake *et al.* (1972) and Vandersee and Kent (1983) cover adjacent areas at varying intensities.

Clearing has essentially been restricted to the more productive soil types and lowland areas with the better cropping soils almost completely cleared. In such areas, descriptions are based on remnants of the original vegetation. Less productive areas have undergone only partial clearing or sporadic timber harvesting.

Approximately 98 745 ha or 3.3% of the area is retained as State Forests and Timber Reserves producing timbers from both native and plantation forests.

The plant associations described have been arranged into four major groups for ease of discussion (Table 4). Transitions between communities are common, particularly between those within a group.

Communities and formations associated with each mapping unit are indicated in Appendix I while the species and formations of each land unit are presented in more detail in Appendix II. The common names of native plant species recorded in the area are listed in Appendix III. Only the dominant trees and shrubs have been identified, but the species listing of Neldner and Paton (1986) indicates the species diversity existing in the area.

Several species can be regarded as indicators of soil or rock types. Such species are identified in the following community descriptions and are generally consistent with those recorded by Ridley (1962). The most prominent are *E. melanophloia* and *C. erythrophloia* in association which are nearly restricted to soils derived from basic and sub-basic rocks.

2.5.1 Description of plant associations

Group (a): Eucalypt open woodland to open forests

Eucalypt dominant communities account for a majority of the vegetation associations in the region. These form open woodland to open forests; twenty distinct communities were recognised.

Several trends were observed in the distribution of some tree species in the region, but these may not be uniformly true. On duricrusted areas and areas of partly lateritised (Evergreen) sandstones, Gympie messmate (*Eucalyptus cloeziana*), yellowjacket (*E. bloxsomei* and *E. watsoniana*) and broad-leaved ironbark (*E. siderophloia*) become prominent towards the south of the area. Large-fruited yellowjacket (*E. watsoniana*), gum-topped ironbark (*E. decorticans*) and long-fruited grey gum (*E. punctata* var. *longirostrata*) become prominent on these land types in the most southern areas.

1. Narrow-leaved ironbark woodland to open forest.

Narrow-leaved ironbark (*E. crebra*) frequently occurs as pure stands on a range of soil types, usually on the mid and upper slope positions of the following mapping units Qr1, Lj1–3, Pd2, Ra3–4, Ts1, Je1, Rg1, Cd1–2, Dh1, Rs1, Pt1, Pm1–2, Pu1, Cp1, Pz2.

More often narrow-leaved ironbark grades into similar mixed communities with varying associated species. Soil types vary from texture contrast soils and shallow stony sands and loams on upper slopes to deeper texture contrast soils and clays on lower slope positions. Narrow-leaved ironbark dominant communities have been recorded as significant areas in the following mapping units: Qr1, Lp2–3, Lc1, Qb3, Rw1, Pw1, Je2, Rb1–2, Pg1, Rt1, Ro1, Rd2, Rf1, Pc1, Pr1, Pm1, Pu1–2, Pb1–3, Po1, Cp1, Pz1–2 as well as smaller areas in many of the remaining mapping units.

Table 4. Vegetation associations

Association	
(a)	<p><i>Eucalypt open woodland to open forest</i></p> <ol style="list-style-type: none"> 1. Narrow-leaved ironbark woodland to open forest 2. Poplar box woodland to open forest 3. Poplar box, Queensland blue gum open woodland to open forest 4. Queensland blue gum, Moreton Bay ash woodland to open forest 5. Queensland blue gum, brown bloodwood, rusty gum open forest 6. Moreton Bay ash, Queensland blue gum woodland to open forest 7. Rusty gum open forest 8. Spotted gum, narrow-leaved ironbark open forest 9. Silver-leaved ironbark open woodland to open forest 10. Silver-leaved ironbark, narrow-leaved ironbark, gum-topped bloodwood open woodland to open forest 11. Gympie messmate, brown bloodwood, long-fruited grey gum open forest 12. Broad leaved ironbark open forest 13. Gum-topped ironbark open forest 14. Long-fruited grey gum, spotted gum open forest 15. Small-fruited grey gum, narrow-leaved ironbark, broad leaved ironbark open forest 16. Gum-topped box open forest 17. Brown bloodwood open forest 18. White mahogany, bloodwood open forest 19. New England blackbutt, red bloodwood, white mahogany woodland to open forest 20. Queensland peppermint woodland to low open forests
(b)	<p><i>Closed scrubs</i></p> <ol style="list-style-type: none"> 1. Closed to open scrubs 2. "Softwood scrub" species, brigalow closed scrub to low open forest
(c)	<p><i>Brigalow and associated communities</i></p> <ol style="list-style-type: none"> 1. Brigalow, belah open forest 2. Brigalow open forest 3. Brigalow, "softwood scrub" species open forest to low open forest 4. Black tea-tree low open forest to open scrub
(d)	<p><i>Miscellaneous communities</i></p> <ol style="list-style-type: none"> 1. Fringing forests 2. Lancewood low open forest 3. Budgeroo open forest 4. Paper barked tea-tree low open woodlands

Species commonly associated with this community vary considerably and include: silver-leaved ironbark (*E. melanophloia*), Moreton Bay ash (*C. tessellaris*), pink bloodwood (*C. intermedia*), Queensland blue gum (*E. tereticornis*), rusty gum (*Angophora costata*) and kurrajong (*Brachychiton populneum*). Smaller areas of poplar box (*E. populnea*) and gum-topped box (*E. moluccana*) occur on the lower slopes. Spotted gum (*C. citriodora*), brown bloodwood (*C. trachyphloia*) and Queensland peppermint (*E. exserta*) are associated to form scattered communities on the upper slopes and ridges. Spotted gum is also associated on some lower slope positions.

An understory frequently occurs and includes one or more of the following: wattles (*Acacia* spp.), including pretty (*A. decora*) and corkwood wattle (*A. bidwillii*), quinine berry (*Petalostigma pubescens*), red ash (*Alphitonia excelsa*), bull oak (*Allocasuarina luehmannii*), beefwood (*Grevillea striata*), false sandalwood (*Eremophila mitchellii*), myrtle tree (*Canthium oleifolium*), black she-oak (*Allocasuarina littoralis*) and wilga (*Geijera parviflora*).

Species which are infrequently associated with this community include: long-fruited grey gum (*E. punctata* var. *longirostrata*), brush box (*Lophostemon confertus*), white cypress pine (*Callitris columellaris*), gum-topped bloodwood (*C. erythrophloia*), dogwood (*Jacksonia scoparia*), whitewood (*Atalaya hemiglauca*), long-fruited bloodwood (*C. polycarpa*), coast banksia (*Banksia integrifolia*), bat's-wing coral tree (*Erythrina vespertilio*) and bitterbark (*Alstonia constricta*). White mahogany (*E. acmenoides*), swamp mahogany (*L. suaveolens*), grass trees (*Xanthorrhoea* spp.), coast banksia and wild orange (*Capparis canescens*) are associated in specific areas on granite derived soils. Lemon scented gum (*C. citriodora*) was recorded as an associate species only in mapping unit Pb4.

These communities often grade into one or several of the following eucalypt communities.

2. Poplar box woodland to open forest

This community occurs throughout the area and is usually associated with lower colluvial slope positions and alluvial valley floors or drainage areas. Texture contrast soils, dark, grey or brown cracking clay soils or occasionally brown non cracking clay soils are found in association with this community. It has been recorded as significant areas in alluvial mapping units Qa1–2 and Ca1–2 and others including: Lp1, Je1, Dh1 & 3–4, Pd1, Ra1 & 3, Pa1, Pr1, Rc1, and Po1 but with smaller areas in many other mapping units.

Although dominated by poplar box (*E. populnea*), it frequently has other species associated, including Queensland blue gum, Moreton Bay ash, silver-leaved ironbark, narrow-leaved ironbark, false sandalwood and wilga. Species which are infrequently associated with this community include: gum-topped box, pink bloodwood, broad leaved apple (*Angophora subvelutina*), whitewood, beefwood, kurrajong, myrtle tree, wattles including doolan (*Acacia salicina*) and occasionally black she-oak and white cypress pine.

Small patches of brigalow (*A. harpophylla*) or brigalow and belah (*C. cristata*) open forest may be associated with this community on some mapping units and occasionally forms mixed communities. False sandalwood regrowth occasionally becomes prominent where this community has been disturbed.

3. Poplar box, Queensland blue gum open woodland to open forest

This community frequently occurs in drainage areas and adjoining lower slopes on predominantly sodic texture contrast and dark and brown cracking clay soils. Sizable areas have been recorded in mapping units Qa1–2, Ra1 & 3, Rg1, Dh1 and Rs1 as well as smaller areas in many other mapping units.

Species frequently associated include: Moreton Bay ash, silver-leaved ironbark, narrow-leaved ironbark and less commonly, gum-topped box. False sandalwood, beefwood and wattles frequently comprise the understorey species.

4. Queensland blue gum, Moreton Bay ash woodland to open forest

Queensland blue gum communities are commonly associated with the lower slopes, drainage lines or broad drainage depressions of many mapping units. It is more prominent in the following mapping units: Qa1–2, Ca2, Qr1, Qb3, Ra3–4, Je1–2, Pt1, Pc1. Soil types are predominantly texture contrast soils, deep sandy soils, and areas of cracking clays.

Moreton Bay ash is the species most frequently associated with Queensland blue gum, particularly on the sandier soils. Tree species commonly associated with this community include: poplar box, gum-topped box, silver-leaved ironbark, narrow-leaved ironbark, broad leaved apple, rusty gum and swamp mahogany. Less frequently associated species include: rough barked apple (*Angophora floribunda*), kurrajong, pink bloodwood, wattles including doolan, and corkwood wattle. Occasional patches of brigalow, belah open forest and black tea-tree (*Melaleuca bracteata*) may also occur.

An understorey of one or more species such as false sandalwood, wilga, wattles, quinine berry, myrtle tree, beefwood or flaxleaf tea-tree (*M. linariifolia*) occasionally occurs.

5. *Queensland blue gum, brown bloodwood, rusty gum open forest*

Only very small areas of this community were recorded in mid to lower slope positions in mapping unit Rb1. Deep, sandy texture contrast soils predominate. Associated species include brush box, Queensland peppermint and narrow-leaved ironbark.

6. *Moreton Bay ash, Queensland blue gum woodland to open forest*

Moreton Bay ash occurs as pure stands only in small areas. More commonly it occurs in mixed communities in mapping units Ca2, Qb1, Ro1, Pu1, Pz1 and forms a minor component in several other units. This community is usually associated with toeslope positions or alluvial valley floors with deep sandy or loamy soils, or deep surfaced, texture contrast soils.

Frequently associated species include: Queensland blue gum, narrow-leaved ironbark, silver-leaved ironbark, swamp mahogany, bull oak and pink bloodwood. Species which are less frequently associated with this community include: myrtle tree, ironwood (*A. excelsa*), poplar box, kurrajong, quinine berry and red ash.

7. *Rusty gum open forest*

Pure stands of rusty gum occur as small areas on mid and lower slope positions or low rises on predominantly sandy, colluvial soils including deep sands and some deep, sandy surfaced texture contrast soils. More frequently, it occurs in mixed communities with narrow-leaved ironbark, pink bloodwood, long-fruited bloodwood, and Queensland blue gum, Moreton Bay ash, gum-topped box, rough barked apple as common associates. This community has been recorded in the following mapping units: Lj1, Lc1, Ts1, Je2, Rs1, Ro1, Rf1, Pt1.

Species less frequently associated include: silver-leaved ironbark, kurrajong, Gympie messmate, spotted gum, Queensland peppermint, budgeroo (*Lysicarpus angustifolius*), brown bloodwood, swamp mahogany, Bailey's stringybark (*E. baileyana*), lancewood (*A. shirleyi*), bull oak, quinine berry, dogwood and wattles, including late flowering black wattle (*A. concurrans*). Black she-oak, *Grevillea* species, wild may (*Leptospermum attenuatum*) and paper barked tea-tree (*M. nervosa*) occur in some granite-derived mapping units. Woody pear (*Xylomelum pyriforme*) is occasionally associated with this community.

8. *Spotted gum, narrow-leaved ironbark open forest*

This community commonly occurs on steep upper slopes, ridge crests and rock outcrops in many mapping units including Lt1–3, Cz1, Lj1–4, Lp2–3, Lc1, Ra4 & 6, Je2, Rb1–2, Cd1–3, Pg1–2, Ro1, Rd1–2, Pu2, Pb4–5, Cp1–2 and Pz1–2. It also occurs in mid to lower slope positions. Associated soil types are commonly shallow, stony loams and sands and texture contrast soils, with occasional areas of deeper red loams and clays.

Although pure stands of spotted gum are common, narrow-leaved ironbark is frequently associated and occasionally becomes dominant. Other commonly associated species include rusty gum, pink bloodwood, brown bloodwood, Queensland peppermint, white mahogany, Queensland white stringybark (*E. phaeotricha*) and brush box. Queensland blue gum is more common on lower slopes. Red ash, forest she-oak (*Allocasuarina torulosa*), wild rosemary (*Cassinia laevis*), currant bush (*Carissa ovata*), dogwood, quinine berry, *Grevillea* species and wattles (*Acacia* spp., *A. blakei*) are frequently associated as understory species.

Long-fruited grey gum, grey gum, Gympie messmate, gum-topped ironbark and broad leaved ironbark become more frequently associated on deep red loams and clay soils, and minor texture contrast soils. These areas primarily occur on plateau surfaces and flat ridges in mapping units Lt1, Cz1, Lj1–3.

Species less frequently associated with this community include: kurrajong, Moreton Bay ash, silver-leaved ironbark, small-fruited grey gum (*E. propinqua*), grass trees, corkwood wattle, rosewood (*A. rhodoxylon*), black she-oak, black cypress pine (*Callitris endlicheri*) and bull oak. Some of these species become more common on lower slopes and in some western areas. Species occasionally associated on lower slope positions include gum-topped box, poplar box and swamp mahogany.

On upper slopes and plateau margins of duricrusted sediments (Cz1, Lj1), species frequently associated with this community include broad leaved ironbark, yellowjacket (*E. bloxsomei*), large-fruited yellowjacket, long-fruited bloodwood, gum-topped ironbark, white mahogany and lancewood. The usual understory species also occur. Queensland peppermint, thready bark she-oak (*A. inophloia*), bull oak, budgeroo and black cypress pine are less commonly associated.

Lancewood is often a prominent associate of this community on scarp areas and eroded plateau fringes and may form areas of lancewood low open forest.

9. Silver-leaved ironbark open woodland to open forest

Small areas of pure stands of silver-leaved ironbark have been recorded in mapping units Dh1 and Pt1. More commonly this community occurs with narrow-leaved ironbark, Morton Bay ash, pink bloodwood or Queensland blue gum as associated species. Kurrajong, poplar box, red ash, wilga, "softwood scrub" species, bull oak, beefwood and wattles are infrequently associated. Mapping units where major areas of mixed communities occur include: Ca2, Lj3, Qb1, Pa1, Je1, Pr1, Rc1. The composition of "softwood scrub" is explained under Group b: closed scrubs.

Soil types associated with these communities include red and brown loams and clays, and texture contrast soils on varying slope positions.

10. Silver-leaved ironbark, narrow-leaved ironbark, gum-topped bloodwood open woodland to open forest.

Either ironbark species may become dominant in this community or gum-topped bloodwood may occasionally form small pure stands. Silver-leaved ironbark tends to become dominant in association with gum-topped bloodwood on dark and red clay soils derived from basic (basaltic) and sub-basic (diorite, andesite) rock types.

This community occurs throughout the area and is often associated with soils derived from basic to intermediate rock types on mid and upper slope positions and broad hill crests. Soil types are most commonly dark, red or brown cracking and non cracking clays, texture contrast soils and minor loams. It has been recorded as significant areas in the following mapping units: Qr1, Lt3, Lp1, Qb3, Tb1, Rw1–2, Pd1–2, Pw1, Ra1 & 3–5, Pa1, Cd3–4, Dh1–3, Pg2, Pc1, Pm1, Pu2, Pb1–5, Po1, Cp2, Pz1.

Species commonly associated with this community include Moreton Bay ash, pink bloodwood and Queensland blue gum. Long-fruited bloodwood, kurrajong, bat's-wing coral tree, red ash, wattles including corkwood and pretty wattle, grass trees, quinine berry, myrtle tree, wilga and emu apple (*Owenia acidula*) are less frequently associated. Spotted gum, poplar box, "softwood scrub" species and beefwood are associated in areas intergrading into other communities.

11. Gympie messmate, brown bloodwood, long-fruited grey gum open forest

This community or variations of it was recorded in mapping unit Lt1. It occurs on the surfaces and marginal slopes of lateritised plateau remnants on deep red loams and clay soils. Gympie messmate frequently dominates with brown bloodwood and long-fruited grey gum commonly prominent. Frequently associated species include pink bloodwood, spotted gum, narrow-leaved ironbark, forest she-oak and red ash. Brush box and Queensland white mahogany are also associated in some areas.

An understorey of lantana (*Lantana camara*) and wattles, including fine stemmed wattle (*A. complanata*), often occurs near disturbed areas.

12. Broad-leaved ironbark open forest

Small areas of communities dominated by broad leaved ironbark are associated with upper slopes and ridges of eroded, duricrusted or lateritised surfaces. These were recorded in mapping units Cz1, Lj1, Lc1,

Ra6, Rb2. Soils are predominantly red and yellow loams with areas of texture contrast soils and gravelly loams.

Species often associated with this community include: budgeroo, narrow-leaved ironbark, brown bloodwood, spotted gum, Gympie messmate, white mahogany, spotted gum and gum-topped ironbark. Forest she-oak, thready bark she-oak and wattles frequently comprise the understory. Less frequently associated species include: rusty gum, pink bloodwood, Queensland blue gum, Queensland peppermint, yellowjacket, large-fruited yellowjacket and black she-oak.

Minor areas of Coochin Hills grevillea (*Grevillea* spp. Coochin Hills) and native olive (*Notelaea microcarpa*) may be associated with this community.

13. Gum-topped ironbark open forest

Gum-topped ironbark dominant communities were recorded only in mapping unit Lj4 but small areas of this community occur in several other mapping units. This community occurs on fringing slopes and surfaces of plateau remnants on gravelly loams and clay soils. Species frequently associated with this community include spotted gum, Gympie messmate, red ash and wattles.

14. Long-fruited grey gum, spotted gum open forest

This community occurs on mid and upper slope positions below plateau remnants in mapping units Lj3 and Lj4 as well as minor areas in other units. Soils are predominantly deep red loams. Gum-topped ironbark is frequently associated with this community together with wattles and red ash as understorey species.

15. Small-fruited grey gum, narrow-leaved ironbark, broad leaved ironbark open forest

This community was recorded only in mapping unit Rb2. It occurs in upper slope positions and on ridge crests. Soil types are shallow, gravelly loams, sands and texture contrast soils.

Species frequently associated with this community include pink bloodwood, brush box and "softwood scrub" species.

16. Gum-topped box open forest

Although gum-topped box frequently occurs as pure stands on lower colluvial slopes and valley floors of many mapping units, its total area is not large. It frequently occurs as an associated species with many other communities. This community commonly occurs on sodic texture contrast soils and has been recorded as a significant community in the following mapping units: Ra6, Ts1, Cd1, with smaller areas in Lj2, Lp3, Ra3, Je1–2, and Cd3.

Species frequently associated with this community include narrow-leaved ironbark, Queensland blue gum, poplar box and silver-leaved ironbark with black she-oak, bull oak, myrtle tree and wattles as understory species. Pink bloodwood, Moreton Bay ash, spotted gum, wilga and red ash are infrequently associated.

17. Brown bloodwood open forest

Communities dominated by brown bloodwood were recorded on upper slopes and ridge crests in mapping units Lj1, Ra5–6, and Pb2. The predominant soil types are texture contrast soils.

Species frequently associated with this community include lancewood, rusty gum, Queensland peppermint, small-fruited grey gum, brush box and pink bloodwood with large-fruited yellowjacket more prominent in southern areas. Species less frequently associated with this community include white mahogany, spotted gum, narrow-leaved ironbark, forest she-oak and Queensland blue gum. Wattles, quinine berry, red ash and grass trees often occur as understorey species.

18. *White mahogany, bloodwood open forest.*

Communities of white mahogany, brown bloodwood and pink bloodwood were recorded on sandy soils on upper slopes and ridge crests, and some lower slope positions in mapping units Ro1 and Rd1–2. Frequently associated species include rusty gum, Queensland blue gum, swamp mahogany, forest she-oak, brush box and narrow-leaved ironbark. Small-fruited grey gum, long-fruited grey gum, grey gum and brown bloodwood are associated on upper slopes and quinine berry, coast banksia and wattles on lower slopes.

19. *New England blackbutt, red bloodwood, white mahogany woodland to open forest*

Only small areas of communities of New England blackbutt (*E. andrewsii*), red bloodwood (*C. gummifera*), white mahogany occur on upper slopes and undulating ridge crests in mapping unit Rd2. Soil types are characteristically shallow stony sands. Associated species include black she-oak and wattles. Golden candlesticks banksia (*Banksia spinulosa* var. *collina*), Coochin Hills grevillea, and species of *Hakea* and *Leptospermum* also occur and form areas of low shrubland.

20. *Queensland peppermint woodland to low open forests*

Queensland peppermint is frequently associated with communities on rocky or eroded lateritised areas. It occasionally forms communities on shallow texture contrast soils in small areas of mapping units Je2 and Rb1. Species often associated with this community include narrow-leaved ironbark, pink bloodwood, spotted gum, red ash and wattles.

Group (b): Closed scrubs

These communities tend to occur in higher positions in the landscape, often on broad crests of rises and ridges, and areas of steeper slopes.

1. *Closed to open scrubs*

This community is referred to as "softwood scrub" in the context of this report. It occurs throughout the region associated with many geological formations, particularly those comprising basic to intermediate volcanic rock types and lateritised areas. Soil types commonly represented are red and brown loams and clays, and gravelly loams, mainly on mid to upper slope positions and broad ridges. It frequently merges with many of the eucalypt and brigalow communities. Closed and open scrubs have been recorded in the following mapping units: Qr1–2, Lt1–3, Cz1, Lj2–4, Lp1,3, Qb1–2, Rw2, Ra1–2 & 5, Rb2, Cb4, Rd1–2, Pm2, Rc1, Pb3 & 5, Po1, Cp2, Pz2.

Although individual species have not been identified, the following are commonly recorded in the more vigorous stands, often as emergents: crow's ash (*Flindersia australis*), yellow wood (*F. xanthoxyla*), bottle tree (*Brachychiton rupestre*), broad leaved bottle tree (*B. australis*), red ash (*Alphitonia excelsa*), leichhardt bean (*Cassia brewsteri*), bitterbark, water bush (*Myoporum montanum*) and *Pleurostyla opposita*. Kurrajong, Moreton Bay ash and Queensland blue gum may be associated where this community grades into adjoining eucalypt communities.

Associated species which may occur include hoop pine (*Araucaria cunninghamii*), brigalow, kurrajong and currant bush. Lantana and wattles, including hickory wattle (*A. aulacocarpa*) and *A. tenuinervis*, may occur as understorey species and occasionally predominate following clearing. Most larger occurrences of this community on suitable land types have been cleared. Tree pear (*Opuntia* sp.) is also evident in cleared areas.

2. *"Softwood scrub" species, brigalow closed scrub to low open forest*

"Softwood scrub" species usually dominate this community which occurs on gentle lower slope positions and on low rises. It occurs on reddish brown loams to brown non cracking and cracking clays and has been recorded in mapping units Lt2, Lp1, Pa1 and Pb3. Brigalow commonly occurs as scattered emergents and wilga is frequently associated. Understorey species may include currant bush.

Group (c): Brigalow and associated communities

These communities have been extensively cleared for cropping and pasture development. Many smaller isolated occurrences are scattered throughout the region.

1. *Brigalow, belah open forest*

Significant areas of this community occur in lower slope positions and on valley floors in mapping units Ca1, Qr2, Lt2. Smaller areas are associated with many other mapping units including Qb2, Cd4, and Dh4. Soil types are predominantly gilgaied, cracking clays with minor areas of texture contrast soils.

Brigalow is the dominant tree species although wilga and belah are commonly associated together with currant bush, poplar box, Queensland blue gum and black tea-tree. Small areas of pure stands of belah occur throughout these areas. Less frequently associated species include gum-topped box, false sandalwood and "softwood scrub" species in some areas.

Small areas of black tea-tree low open forest are occasionally associated near drainage areas and depressions.

2. *Brigalow open forest*

This community occurs on lower slope positions and low rises predominantly on cracking clay soils with weak or little gilgai development and areas of red and brown loams and texture contrast soils. It is associated with mapping units Ca1, Lj3, Qr2, Lt2–3, Qb2, Pa1, Ra2, Cd1 & 3–4, Dh2–4, Rc1, Po1.

Associated species frequently include wilga, scrub wilga (*G. salicifolia*), belah, Queensland blue gum, poplar box, silver-leaved ironbark, scattered wattles and small areas of "softwood scrub" species. Kurrajong, gum-topped box and false sandalwood are species infrequently associated with this community. Areas of black tea-tree may be associated near drainage areas.

3. *Brigalow, "softwood scrub" species open forest to low open forest*

This mixed community occurs on gentle mid to lower slope positions and footslopes in mapping units Lt2, Lp1, Pd1, Cd2, 4, Dh2, and includes intergrade areas between pure stands of brigalow and "softwood scrub" species. Soils are predominantly brown, cracking and non cracking clays.

Brigalow is dominant and frequently forms the tallest stratum. Bottle trees frequently occur and black tea-tree, kurrajong, scrub wilga and wilga are commonly associated. Species infrequently associated include silver-leaved ironbark, poplar box and belah.

4. *Black tea-tree low open forest to open scrub*

This community commonly occurs on low sloping positions and often poorly drained areas of similar mapping units to the brigalow, belah open forests. Mapping units in which it occurs include Qr2 and Qb3. It merges into the brigalow and brigalow/belah communities, and often occurs with poplar box or gum-topped box emergents.

Black tea-tree often occurs more prolifically after clearing or disturbance of this community.

Group (d): Miscellaneous communities

Miscellaneous communities occur scattered throughout the area. The more obvious and frequently occurring communities include the following.

1. Fringing forests

These communities are common along major water courses throughout the area and they vary structurally from low open to low closed forests. Characteristic species include weeping bottle brush (*Callistemon viminalis*), river she-oak (*Casurina cunninghamiana*) and black tea-tree with associated Queensland blue gum and Moreton Bay ash. Broad leaved apple, swamp mahogany and rough barked apple are often associated, the latter particularly in more western areas. Flaxleaf tea-tree (*M. linariifolia*) and less commonly broad leaf paper barked tea-tree (*M. quinquinervia*) are also variously associated, particularly on sandy soil types. Small communities of black tea-tree may also occur. Dominance of any one species varies with the permanency of the water in the stream.

2. Lancewood low open forest

Small areas of lancewood communities were recorded in mapping unit Cz1 on scarp areas and eroded plateau fringes. Frequently it grades into the surrounding eucalypt communities, mainly spotted gum, and occurs as an associated or understory species.

3. Budgeroo open forest

Small areas of budgeroo dominant communities occur on scarps and dissected plateau margins in mapping units Lj1 and Ra6. Species frequently associated include spotted gum, brown bloodwood, lancewood, narrow-leaved ironbark, thready bark she-oak and rusty gum. Quinine berry, red ash, wattles, dogwood, *Notelaea microcarpa* and wild may can occur as understorey species.

4. Paper barked tea-tree low open woodlands

Small communities of paper barked tea-tree occur in mapping units Rb1, Ro1, Rf1 and Cp1. The principal species comprising these communities are broad leaf paper barked tea-tree and *M. nervosa*. Paper barked tea-tree occasionally occurs as an understorey species of some eucalypt communities.

2.6 Soils

Soils of the area have been documented by the broadscale mapping of Isbell and Hubble (1967), Isbell *et al* (1967), and the more specific studies of de Mooy *et al* (1977) and Reid *et al* (1986).

2.6.1 Soil groupings

The soil types recognised have been assigned to 16 major soil groups based on Great Soil Groups or nearest equivalent group. Each group is identified by an alphabetical symbol which represents the Great Soil Group eg. lithosols (L). Soil families have been recognised within each group and these have been designated a number for ease of description. Table 5 summarises the characteristic features of the soil families, those principal profile forms of (Northcote 1979) included and those land units in which the soil family is dominant. Table 6 summarises the analytical ratings for the soil families analysed. Since the soil descriptions are intended to be read in conjunction with the South Burnett study (Vandersee and Kent 1983), no attempt has been made to utilise the more modern classification system (Isbell 1996).

Lithosols (L)

These soils are shallow, frequently gravelly or stony, sands, loams and clay loams overlying weathered parent material. They occur on upper slope positions and ridge crests, frequently in association with rock and boulder outcrops.

Two soil families were recognised based mainly on texture and soil reaction trend. Sandy textured soils (L2) are restricted to the granites and adamellites and consistently have an acid soil reaction trend. The loamy lithosols (L1) occur on a range of parent materials including granodiorites, sediments and metamorphics.

Soils in this group generally have very low fertility levels and plant available soil water storage capacity. Some areas have been cleared for grazing of native pastures but existing vegetation has been retained on most units. Clearing on these areas is not recommended.

Siliceous sands (S)

These soils have uniform, coarse textured profiles. They are located on upper slopes of granites (S1) and on low slope gradients usually on mid and lower slope positions on granite (S2). Small areas of very deep soils occur on levees and levee backslopes of major floodplains (S3).

These soils occupy only small areas. The three soil families recorded were determined mainly by depth, texture and soil reaction trend.

Soils on granite (S2) typically have low nitrogen, very low to low phosphorus and low to very fair potassium. The sands on alluvial levees (S3) are relatively fertile with low to fair nitrogen, very fair to high phosphorus and very fair to high potassium. Profiles are non sodic, non saline and because of the sand textures, have low soil moisture capacity.

Grey, brown and red clays (C)

Soils in this group have uniform textured profiles and are cracking clays with varying colour and depth. They are primarily located on lower slopes and plains, with upslope occurrences on residual clay plains and low ridges.

Five soil families have been recognised, one in the red clays and two in each of the brown and grey clays. Soil families were determined mainly by colour, depth and degree of gilgai development.

The red clays (C1) occur on basaltic colluvium, gabbro and some andesite. The brown clays occur on a range of parent material including mid to lower slopes on intermediate to basic rocks (C2) and lower slopes of intermediate and basic rocks or on alluvium (C3). The grey clays occur on mid to upper slopes on sediments (C4) and on old alluvial and Tertiary plains or occasionally on lower slopes (C5). Variants of grey clays occur with poorly structured surfaces as noted by de Mooy *et al* (1977).

The clays are relatively fertile compared to other soils. They have predominantly very fair to high nitrogen. Phosphorus is variable ranging from very low to high with the clays on basic rocks being generally higher, ranging from very fair to high. Potassium is typically very fair to high for all soils.

The red clays (C1) which generally occur in well drained landscapes are non sodic with non saline subsoils. The brown clays on mid to lower slopes (C2) are non sodic to sodic and saline in the subsoil. Soils lower in the landscape become more sodic corresponding to subsoil salinity. The deep brown clays on lower slopes (C3) have sodic to strongly sodic subsoils with subsoil salinity.

The grey clays (C4, C5) are generally sodic with subsoil salinity. Soil moisture is typically medium to very high, however, rooting depth can be limited by high salts in the subsoil.

These soils have generally been cleared due to good soil fertility and soil moisture.

Black earths (B)

These soils have uniform texture profiles and are dark cracking clays varying in depth, colour and soil reaction trend. They are usually located on mid and lower slope positions, and on colluvial and alluvial areas. Shallow soils often occur on low stony rises and ridge crests.

Soils occur on mid to upper slopes on intermediate to basic parent material (B1) and lower slopes of intermediate to basic rocks, or colluvium/alluvium derived from these parent materials (B2). Differentiation of the two soil families was largely based on profile depth and soil reaction trend.

Soils in this group are moderately to highly fertile as a result of their development on weathering basic volcanic rocks, particularly basalt. They also have a high available soil water storage capacity. Consequently, many areas have been cleared and cultivated for cropping. Suitability for cultivation and cropping is determined by land slope, stoniness and soil depth. Soils are generally non-saline but are often sodic in alluvial situations.

Erosion on these soils can be moderate to severe, particularly where cultivated on sloping land and soils are unprotected by soil conservation methods.

Chernozems (Z)

These soils usually have uniform texture profiles and are non cracking clays varying in depth and colour. Most are dark brown with occasional dark reddish brown soils included. Soil reaction trend is alkaline with soft or nodular calcium carbonate usually occurring at depth.

These soils usually occur on mid slope (Z1) and lower slope positions (Z2) of gentle sloping landforms developed on intermediate volcanic rock types.

The two soil families were differentiated mainly on soil depth, with deeper soils generally occurring on lower slopes. These soils generally occur in association with the prairie soils and cracking clays.

Soils in this group are predominantly low to high for nitrogen, high for phosphorus and very fair to high for potassium. These soils are non sodic and non saline corresponding to their moderately well drained profiles in upper landscape positions.

Due to the clay textures, soil moisture is medium to high, however, rock usually occurs at shallow depths.

Prairie soils (F)

These soils have uniform to gradational texture profiles with dark surface soils and dark brown to dark reddish brown clay subsoils. Shallow soils (F1) occur on steep slopes and crests while shallow to moderately deep soils (F2) occur on mid to upper slopes. Moderately deep to deep soils (F3) occur on lower slopes and basaltic plains while deep soils (F4) mainly occur on alluvium. Soil colour is associated with position in the landscape. Intermediate to basic volcanic rock types are common parent materials for these soils. Soil reaction trend is neutral with some profiles slightly alkaline.

The distinction between these soils and some chernozems, euchrozems and non calcic brown soils is often unclear, with some soils grading towards these other groups. Reddish variants are considered a separate family.

Four soil families were recognised based mainly on texture, colour and profile depth. The deep soils are of alluvial or colluvial origin. Prairie soils often occur in association with cracking clays.

The prairie soils have fair to very fair nitrogen and very fair to high potassium. Phosphorus is variable ranging from very low to very high with soils on basic rocks such as basalt having higher levels.

Soils are typically non sodic and non saline with medium to high soil moisture. However, shallow soil depth will restrict rooting depth in some soils.

Non calcic brown soils (N)

These soils have predominantly texture contrast profiles with brown, reddish brown or yellowish brown subsoils. The shallow to moderately deep soils (N1) are located in mid to upper slopes and ridge crests while moderately deep to deep soils (N2) are usually located on mid to upper slope positions. Parent material is intermediate to basic sediments, volcanic and intrusive rocks.

Two soil families were recognised mainly on soil depth, texture and soil reaction trend.

Only small areas of these soils were recorded, usually in association with other soil types and scattered throughout the area.

Nitrogen is low to fair, phosphorus in very low to low and potassium is fair to high. Profiles are typically non sodic and non saline with medium soil moisture.

Red brown earths (R)

These soils have texture contrast profiles with brown to reddish brown clay subsoils. They mainly occur as moderately deep to deep soils (R1) in mid to lower slope positions of basic to intermediate rocks and alluvium, or as shallow to moderately deep soils (R2) on mid to upper slopes on basic to intermediate rock. Soil reaction trend is alkaline with soft and nodular calcium carbonate often occurring at depth.

Two soil families have been recognised based mainly on profile depth. These soils only occupy a small proportion of the area, are commonly associated with a range of other soils, and vary considerably in their morphology. These soils generally occur in higher landscape positions to the solodic soil group.

This soil group generally has low to fair nitrogen, very low to fair phosphorus and high potassium. The deeper soils, except alluvial red brown earths, are strongly sodic with subsoil salinity. Soil moisture capacity is medium to high.

Earths (E)

These soils have gradational and occasionally uniform textured profiles usually with an acid soil reaction trend. They occur throughout the area often as red hardsetting (E1) or snuffy (E2) soils on upper slopes or lateritised/duricrusted on plateau areas. Lower outwash slopes associated with plateau areas, and minor red soils on old alluvial areas (E3) also occur. Yellow soils (E4) are associated with variations in landscape position resulting in poorer drained soils.

Four soil families were recognised based mainly on colour, texture, profile depth and soil reaction trend.

The earths are generally infertile with low to very fair nitrogen, very low phosphorus but very fair to high potassium. These soils usually show strong surface accumulation of nutrients due to surface organic matter. Profiles are non sodic and non saline with low to very low soil moisture.

The alluvial earths adjacent to reliable water supplies are used for horticulture mainly because of good profile drainage.

Krasnozems (K)

These soils are red, gradational and uniform fine textured profiles with weak horizon differentiation, variable (weak to strong) structure development in the upper profile and acid soil reaction trend. They

occur in varying slope positions on the undulating plateau and plateau remnants, and on lower colluvial slopes fringing these areas.

Three soil families were recognised based mainly on profile depth and surface characteristics. These moderately deep to deep, firm to hardsetting soils (K1) occur on upper slopes, ridge crests and plateau margins while the deep soils (K2) occur on lower slopes and level areas. The snuffy soils (K3) are associated with the other two soils.

This group of soils, except the soils on Tertiary basalts, have low to very fair nitrogen, very low phosphorus and low to very fair potassium. The soils on Tertiary basalt have very fair to high nitrogen and very fair to high potassium. All soils are typically non sodic and non saline. Soil moisture is very low to medium.

These soils are extensively developed due mainly to their good physical properties.

Euchrozems (U)

These soils are red, gradational and uniform fine textured profiles with weak horizon differentiation, moderate structure development and neutral to occasionally weakly alkaline soil reaction trend. They are found in various slope positions, especially mid to upper slopes (U1) of gently sloping land forms and lower slopes of undulating areas (U2). The two soil families recognised were based mainly on profile depth and colour. Parent material is basic volcanics or intrusives, or lateritised formations.

The shallower soils are considered as variants of the more developed euchrozems.

The euchrozems have similar physical properties to the krasnozems but have higher soil fertility which is reflected in the soil pH. This group of soils have very fair to high nitrogen, low to high phosphorus and very fair to very high potassium. The fertility of these euchrozems generally corresponds to the krasnozems on Tertiary basalt. The euchrozems are typically well drained with non sodic and non saline profiles. However, lower landscape positions may be subject to salinity. Soil moisture is low to medium and occasionally high.

Xanthozems (X)

These soils are yellowish brown, gradational textured profiles with moderate horizon differentiation, moderate to strong structure development and acid to neutral soil reaction trend. They usually occur in lower slope positions, mostly associated with plateau remnants of lateritised sediments (X1).

Only one soil family was recognised for these less common soils.

Soils have fair to very fair nitrogen, variable phosphorus ranging from very low to high, and high potassium. Soils are non sodic and non saline. Soil fertility of the xanthozems generally reflects the fertility of the krasnozems/euchrozems upslope.

Podzolised sands (O)

These soils are brown to dull yellowish brown, uniform coarse textured profiles usually with a conspicuous bleached layer. They occur mainly as moderately deep to deep soils (O1) in lower colluvial slope positions and on narrow valley floors. Shallower soils may occur on upper slope positions. Soils are mainly developed on coarse grained granitic rocks.

Only a very small area of these soils occurs and only one soil family has been recognised.

Due to the sandy highly leached profiles, nitrogen, phosphorus and potassium are very low.

Podzolic soils (P)

These soils are mainly texture contrast, or occasionally gradational profiles with brown (P1), red (P2, P3), or yellow (P4, P5) clay subsoils with an acid soil reaction trend. Occasional weakly neutral non sodic soils are included in this group. They are located on a range of slope positions but predominantly on mid and upper slopes of various parent material including lateritised and fresh sediments, metamorphics and granites. Gravelly shallow podzolic lithosol intergrades (P6) occur on steep slopes and ridge crests.

Six soil families have been recognised based mainly on colour of the B horizon, as well as profile depth, development and type, and depth of the surface horizon.

The soil fertility of this group has very low to low nitrogen generally reflecting the open eucalypt vegetation. The alluvial podzolics (P3) have high phosphorus and potassium reflecting sediment deposition from the catchment. The remaining podzolics have very low phosphorus while potassium is very low to fair.

Soils are typically non sodic and non saline but may be sodic in the lower profile. Subsoil salinity may occur in soils in lower landscape positions. Soil moisture is low to very low.

Soloths (T)

These soils have texture contrast profiles with brown, reddish brown, greyish brown and yellowish brown clay subsoils and an acid soil reaction trend. They occupy a substantial proportion of the area and occur in various slope positions, but more commonly on mid and lower slopes.

Four soil families were recorded based mainly on profile depth, subsoil colour and surface characteristics including texture, structure and depth.

The moderately deep to deep hardsetting soils with red and brown clay subsoils (T1) generally occur on gentle sloping mid to upper landscape positions while gravelly shallow to moderately deep soils (T3) occur on steeper slopes and ridge crests. Moderately deep to deep, hardsetting soils with mottled yellow and grey clay subsoils (T2) occur on mid to lower landscape positions with gentle slopes.

These three soils occur on a broad range of geological formations generally comprising acidic rocks including sublabile sandstones and other sediments, granites and some rhyolite. Rocks can be lateritised or fresh.

The non hardsetting surfaced soloths (T4) generally have mottled yellow clay subsoils. This soil family has developed on mid to lower slopes of granites and quartz sandstones, and downslope of Cainozoic sandy sediments.

The fertility of this group is variable reflecting the diverse parent materials. Nitrogen is generally very low to very fair, phosphorus is very low to low and potassium is fair to high. Profiles are strongly sodic with subsoil salinity.

The soloths have similar physical properties to the solodic group.

Solodised solonetz and solodic soils (D)

These soils have texture contrast profiles with brown, yellowish brown or reddish brown clay subsoils and an alkaline soil reaction trend. They occupy an extensive area and are found in almost all slope positions but more commonly on mid and lower slope positions and some plains.

Four soil families were recognised based mainly on profile depth, colour of the subsoil and surface characteristics including texture and depth. The moderately deep soils (D1) occur in various landscape positions on sandy Tertiary sediments, sandstones, some granites and back slopes of sandy levees.

The shallow to moderately deep hardsetting soils (D2) occur on mid to upper slopes or steeper lower slopes. Subsoil colour is predominantly yellow or brown. Moderately deep to deep brown and dark subsoils (D3) or mottled yellow subsoils (D4) occur on lower slopes and plains. Soil colour reflects changes in soil drainage. These soils occur on a diverse range of parent materials including alluvium, sediments, metamorphics, granodiorites, and some andesites and granites.

The solodic group of soils have low to very fair nitrogen, very low to fair and occasionally high phosphorus, and very fair to high potassium. Like the soloths, subsoils are strongly sodic with salinity. Soil moisture is medium to high with lower available soil moisture corresponding to higher salinity and sodicity at shallower depths.

The solodic soils generally have on average slightly higher nitrogen, phosphorus and potassium levels than soloths, together with higher subsoil cation exchange capacity.

Table 5. Great soil group or equivalent, soil family, summary description, principal profile forms and land units in which soil family predominates

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Lithosols (L)	L1	Very shallow to shallow soils. Frequent surface stone and occasional rock outcrops. Brownish black to dark reddish brown to dull brown gravelly loams, sandy clay loams and loams over decomposing rock. Acid to neutral soil reaction trend.	Um1.21, 1.23, 1.31, 1.41, 1.42, 1.43, 1.44, 2.12, 6.41, Uf1.43	47, 51, 59, 96, 100, 107, 108, 162, 199, 200, 201, 202, 222, 253, 301, 303, 315, 324, 344, 357
	L2	Very shallow to shallow soils. Frequent rock outcrops and surface stone. Brownish black to dark brown and dark reddish brown loamy coarse sand and sandy loam over decomposing rock. Acid soil reaction trend.	Uc1.21, 1.23, 1.43, 4.12, 4.13	57, 136, 138, 154, 164, 167, 171
Siliceous Sands (S)	S1	Shallow to moderately deep soils. Some rock outcrops. Brownish black coarse sandy loams to loamy sands grading into brown to dull yellowish brown or orange clayey coarse sands. Acid to neutral soil reaction trend.	Uc1.23, 2.21, 4.11	151, 152, 153, 168, 169, 170, 298
	S2	Moderately deep to deep soils. Brownish black (or very dark brown) coarse sandy loams to loamy sands grading into brown, reddish brown or dull yellow orange clayey coarse sands and coarse sandy loams. Acid to neutral soil reaction trend.	Uc1.21, 1.22, 1.23, 2.21	150, 156, 293, 363
	S3	Very deep soils. Brownish black to brown sandy loams or light sandy clay loams grading to bright brown to dull reddish brown sandy loams. Neutral soil reaction trend.	Uc5.11, 5.22	3

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates	
Grey, Brown and Red Clays (C)	<i>Red Clays</i>	C1	Moderately deep to deep soils. Brownish black to very dark reddish brown light to medium clays grading into dark reddish brown medium to heavy clays. Neutral to alkaline soil reaction trend.	Ug5.32, 5.37, 5.38, 5.39	61, 181, 250, 256
	<i>Brown Clays</i>	C2	Moderately deep to deep soils. Brownish black to dark brown, light to medium clays becoming brown, very dark reddish brown, or dull yellowish brown with depth. Occasional minor gilgai development. Neutral to alkaline soil reaction trend.	Ug5.32, 5.34, 5.15, 3.1 Uf6.31	41, 43, 74, 91, 92, 185, 207, 216, 225, 238, 241, 249, 263, 355
		C3	Deep soils. Brownish black to dark brown (occasionally self mulching), light to medium clays grading into brown, dull yellowish brown, or dark reddish brown medium to heavy clays. Weak to moderate gilgai frequently occur. Calcium carbonate frequently occurs at depth. Alkaline soil reaction trend.	Ug5.34, 5.35, 3.3	11, 12, 62, 123, 126, 178, 212, 217, 218, 220, 228, 244, 260, 266
	<i>Grey Clays</i>	C4	Moderately deep to deep soils. Brownish black to dark brown, weakly self mulching, light to medium clays grading into brownish grey to greyish yellow brown medium to heavy clays. Calcium carbonate occurs at depth. Alkaline soil reaction trend. Acid subsoils may occur	Ug 5.13, 5.22, 5.31	210
		C5	Deep to very deep soils. Brownish black to greyish yellow brown light to medium clays, self mulching in minor areas, grading into brownish grey to yellowish brown medium to heavy clays. Moderate gilgai frequently occur. Calcium carbonate occurs at surface in puff and at depth in depression. Alkaline soil reaction trends. Acid subsoils occasionally occur.	Ug5.16, 5.21, 5.22, 5.24, 5.25, 5.28, 3.2, 3.3	16, 9, 13, 19, 65, 67, 257
Black Earths (B)		B1	Shallow to moderately deep soils. Brownish black, self-mulching, cracking clays becoming browner or occasionally reddish brown with depth, over decomposing basic rocks. Neutral to alkaline soil reaction trend.	Ug5.12, 5.13, 5.14	27, 73, 79, 80, 81, 83, 85, 86, 90, 93, 159, 183

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Black Earths (B) (cont)	B2	Deep soils. Brownish black to black, self-mulching, cracking clays becoming brown or greyish brown with depth. Calcium carbonate frequently occurs at depth. Alkaline soil reaction trend.	Ug5.13, 5.14, 5.15, 5.16	4, 16, 29, 42, 60, 63, 64, 75, 89, 180, 243, 258
Chernozems (Z)	Z1	Shallow soils. Brownish black to occasionally dark reddish brown light clays to medium clays grading into dark brown to yellowish brown light to medium clays. Calcium carbonate occurs at depth. Alkaline soil reaction trend.	Uf6.31, 6.32 Gn3.23 Dd1.13	55, 122, 209, 265
	Z2	Moderately deep to deep soils. Brownish black to dark brown light to medium clays, and occasional clay loams, grading to brown or dark reddish brown medium to heavy clays. Calcium carbonate often occurs at depth. Alkaline soil reaction trend.	Uf6.31, 6.32 Gn3.13 Dd1.13	25, 26, 127, 179, 207, 252, 254
Prairie Soils (F)	F1	Shallow soils. Brownish black to very dark brown clay loams to light clays grading to dark brown to yellowish brown light to medium clays, frequently gravelly, over decomposing rock. Neutral soil reaction trend.	Uf6.31, 6.32 Gn3.12, 3.22, 3.42	36, 37, 45, 49, 78, 87, 111, 124, 142, 160, 195, 206, 215, 262, 336
	F2	Shallow to moderately deep soils. Very dark brown to dark reddish brown clays loams to light clays grading to dark reddish brown light to medium clay over decomposing rock. Neutral soil reaction trend.	Uf6.31 Gn3.12	44, 203, 204, 211, 237, 254
	F3	Moderately deep to deep soils. Brownish black clay loams to light clays grading to brown to yellowish brown light to medium and occasionally heavy clays. Neutral to occasionally alkaline soil reaction trend.	Uf6.31 Gn3.21, 3.22	48, 77, 82, 128, 213, 239
	F4	Deep soils. Brownish black to dark brown fine sandy loams to silty clay loams grading to brown or reddish brown light to medium clays. Neutral soil reaction trend.	Gn3.13, 3.22, 3.52	1, 163

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Non calcic Brown Soils (N)	N1	Shallow to moderately deep texture contrast soils. Brownish black to dark brown sandy loam to clay loam overlying brown to reddish brown or yellowish brown light to heavy clays grading into decomposing rock. Acid to neutral soil reaction.	Db1.12, 2.22 Dr2.22, 2.12, 3.11, 3.12 Gn3.12, 3.15, 3.22	58, 99, 139, 230, 240, 245, 360
	N2	Moderately deep to deep texture contrast soils. Brownish black to dark reddish brown sandy loam to sandy clay loam overlying dark red to brown medium to heavy clays. Neutral soil reaction trend.	Db1.22, 2.22 Dr2.12 Gn3.21	52, 242, 320, 340, 361
Red-Brown Earths (R)	R1	Moderately deep to deep texture contrast soils. Brownish black to dark greyish brown sandy clay loams to clay loams overlying brown or dark reddish brown medium to heavy clays. Calcium carbonate frequently occurs at depth. Alkaline soil reaction trend.	Db2.13, 2.23 Dr2.23	2, 7, 132, 247, 255, 362
	R2	Shallow to moderately deep texture contrast soils. Brownish black to brown sandy clay loams to clay loams overlying brown to dark brown medium to heavy clays. Calcium carbonate may occur at depth. Alkaline soil reaction trend.	Db1.33, 2.13, 2.23	34, 119, 131, 268
Earths (E) <i>Red Earth</i>	E1	Moderately deep to deep soils. Occasional shallow areas and rock outcrops. Very dark reddish brown to dark brown fine sandy loams to clay loams grading into dark red to dull reddish brown light to medium clays. Acid soil reaction trend.	Gn2.11, 2.12, 2.14 Uf1.43	186, 283, 284, 346, 351
	E2	Moderately deep to deep soils. Very dark reddish brown to dark reddish brown fine sandy loams to clay loams, usually snuffy, grading into dark reddish brown to reddish brown clay loams and light to medium clays. Laterite or quartz gravel often present in profile. Acid soil reaction trend.	Gn2.11, 2.12	188, 349, 353
	E3	Deep soils. Dark reddish brown clay loams grading to dark red light clays. Neutral soil reaction trend.	Gn2.12	17

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Earths (E) (cont) <i>Yellow Earth</i>	E4	Shallow to moderately deep soils. Dark brown loamy coarse sand to sandy clay loam grading into brown and bright yellowish brown clay loams to medium clays. Acid soil reaction trend.	Gn2.21, 2.41, 2.64, 2.81	291, 345
Krasnozems (K)	K1	Hardsetting, moderately deep to deep soils. Very dark reddish brown to dark brown sandy loams, sandy clay loams to clay loams grading into dark reddish brown light to medium clays. Lateritic or ironstone gravel often occurs. Acid soil reaction trend.	Gn3.11	72, 146, 192, 276, 282, 358
	K2	Deep soils. Very dark reddish brown to dark reddish brown clay loams to light clays grading into dark reddish brown, reddish brown or dark red light to medium clays. Ferruginous concretions and lateritic and ironstone gravel may occur. Acid soil reaction trend.	Uf6.31 Gn3.11	88, 172, 176, 270, 271, 347, 350
	K3	Moderately deep to deep soils. Shallow areas also occur. Brownish black to dark reddish brown sandy loams to light clays, often earthy or snuffy, grading into dark reddish brown and reddish brown light to medium clays. Acid soil reaction trend.	Uf6.31 Gn3.11	175, 285, 334
Euchrozems (U)	U1	Shallow to moderately deep soils. Stony areas occur. Very dark reddish brown to dark brown clay loams to light clays grading to dark reddish brown, reddish brown or dark red light to medium clays. Stone or ironstone gravel may occur throughout. Neutral to alkaline soil reaction trend.	Uf6.31 Gn3.12, 3.13	38, 69, 70, 71, 184, 214, 248, 352
	U2	Deep soils. Very dark reddish brown to reddish brown clay loams to light clays grading to dark reddish brown or dark red light to medium clays. Ironstone gravel may occur at depth. Neutral soil reaction trend.	Uf6.31 Gn3.12, 3.13	173, 174, 177, 226, 227, 272, 354

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Xanthozems (X)	X1	Deep soils. Brownish black to dark reddish brown sandy loams to clay loams grading into brown, yellowish brown or reddish brown light to heavy clays. Ferro manganiferous concretions often occur at depth. Acid to neutral soil reaction trend.	Gn3.54, 3.71, 3.75	348
Podzolised Sands (O)	O1	Moderately deep to deep soils. Brownish black to dark brown coarse sands, loamy sands or sandy loams, bleached A ₂ , grading to brown, bright yellowish brown or dull yellowish orange loamy or clayey coarse sands, sands or loamy sands. Acid soil reaction trend.	Uc2.21, 2.31	155, 158, 161, 343
Podzolic Soils (P)				
<i>Grey Brown Podzolics</i>	P1	Shallow to moderately deep texture contrast soils. Brownish black to greyish brown loamy sands to sandy loams and clay loams overlying dark brown to yellowish brown light to medium clays. Usually gravelly at depth. Acid to neutral soil reaction trend.	Db2.11, 2.12, 2.22, 3.22 Gn3.24	193, 290, 311, 323
<i>Red Podzolics</i>	P2	Shallow to moderately deep texture contrast soils. Brownish black, dark brown or brown loamy coarse sands, sandy loams to gritty clay loams, occasionally bleached A ₂ , overlying dark reddish brown, dark red to dull reddish brown light to heavy clays. Often gravelly at depth. Acid soil reaction trend, occasionally neutral.	Dr2.11, 2.21, 2.22, 2.41, 3.21, 3.32, 3.41, 3.42, 4.51	33, 143, 187, 189, 232, 246, 286, 327
	P3	Moderately deep to deep soils. Brownish black to dark brown sandy clay loam to clay loams grading into dark reddish brown to dull reddish brown light to medium clays and sandy clays. Acid to neutral soil reaction trend.	Gn3.15, 3.51, 3.62	10, 98, 229

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Podzolic Soils (P) (cont) <i>Yellow Podzolics</i>	P4	Shallow to moderately deep texture contrast soils. Brownish black to greyish yellow brown or bright brown loamy coarse sands, sandy loams or clay loams, frequently bleached A ₂ , overlying brown, bright brown to yellowish brown sandy clays to light to medium clays. Fine gravel often occurs throughout. Acid to occasionally neutral soil reaction trend.	Dy2.21, 2.41, 2.81, 3.21, 3.22, 3.41, 5.41 Gn3.74, 3.84	46, 50, 109, 115, 118, 140, 274, 277, 296, 300, 306, 318, 341
	P5	Moderately deep to deep texture contrast soils. Deep brownish black to brown loamy coarse sands to sandy loams, occasionally bleached A ₂ , overlying bright brown to dull yellowish brown sandy clay loams, sandy clays or gritty medium clays. Acid to occasionally neutral soil reaction trend.	Dy4.81, 4.82, 5.21, 5.22	20, 53, 287, 337
	P6	Shallow to moderately deep soils, some texture contrast. Rock outcrops frequently occur. Brownish black, dark reddish brown to greyish brown fine sandy loams to clay loams or light clays overlying brown, yellowish brown to dull reddish brown sandy clays to light or medium clays. Frequently gravelly throughout. Acid to neutral soil reaction trend.	Uf4.1 Gn2.15, 2.21, 2.41, 2.54, 3.12, 3.14, 3.21, 3.22, 3.42, 3.51, 3.94 Dy2.22, 2.51 Dr2.11 Db1.21	56, 63, 97, 116, 137, 149, 182, 190, 191, 196, 197, 342, 356
Soloths (T) <i>Hardsetting</i>	T1	Moderately deep to deep texture contrast soils. Brownish black, dark reddish brown to greyish brown loamy coarse sands to sandy clay loams or clay loams, bleached A ₂ , overlying brown, reddish brown to greyish yellow brown sandy clays or medium to heavy clays. Acid soil reaction trend, occasionally neutral.	Dr2.41, 3.31, 3.41 Db1.41, 1.42, 2.31, 2.41, 3.41	22, 101, 144, 233, 278, 280, 308, 316, 319, 321, 332
	T2	Moderately deep to deep texture contrast soils. Occasional areas of rock outcrop may occur. Brownish black, dark brown to greyish yellow brown loamy coarse sand, sandy loam to clay loam, bleached A ₂ , overlying brownish grey, yellowish brown to dull yellow orange light sandy clay to heavy clays, often gritty. Acid soil reaction trend, occasionally neutral	Dy2.32, 2.41, 3.31, 3.32, 3.41, 3.42 Dg2.31	94, 110, 117, 157, 281, 288, 295, 305, 322, 328, 333, 335, 339

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Soloths (T) (cont) <i>Non hardsetting</i>	T3	Shallow to moderately deep texture contrast soils. Scattered areas of rock outcrops occur. Brownish black to greyish yellow brown loamy sands, sandy loams to silty clay loams, bleached A ₂ , overlying greyish, brown bright yellowish brown to dull yellow orange light sandy clays, medium to heavy clays, often gritty to gravelly throughout. Acid soil reaction trend.	Dy2.41, 3.31, 3.32, 3.41 Db2.31, 2.41	30, 39, 101, 103, 104, 112, 144, 145, 165, 302, 336, 338
	T4	Moderately deep to deep texture contrast soils. Brownish black to greyish yellow brown loamy sands, coarse sandy loams to sandy loams, bleached A ₂ , overlying dark brown, greyish yellow brown to dull yellow orange sandy clays to medium or heavy clays, often gritty. Acid soil reaction trend, occasionally neutral	Dy5.41, 5.42	113, 273, 304, 307, 317
Solodized Solonetz and Solodic Soils (D) <i>Non hardsetting</i>	D1	Moderately deep to deep texture contrast soils. Brownish black to greyish brown loamy sand to fine sandy loams and sandy clay loams, bleached A ₂ , overlying reddish brown to bright or dull yellowish brown sandy clay or medium to heavy clays. Alkaline to neutral soil reaction trend.	Dy5.42, 5.43, 5.82 Db3.13, 3.42, 4.22	18, 23, 224, 314
	<i>Hardsetting</i> D2	Shallow to moderately deep texture contrast soils. Occasional rock outcrops. Brownish black to greyish yellow brown loamy sand, fine sandy loam to clay loam, bleached A ₂ , overlying brown, greyish yellow brown to dull yellow orange sandy clay or medium to heavy clays. Occasional calcium carbonate concretions at depth. Alkaline to neutral soil reaction trend.	Dy3.42, 3.43 Db1.22, 1.43, 2.33, 2.42, 2.43	31, 106, 129, 130, 134, 194, 205, 269, 275, 299, 309, 326

Table 5 (continued)

Great Soil Group or equivalent group	Soil family	Summary description	Principal profile forms	Land units in which soil family predominates
Solodized Solonetz and Solodic Soils (D) <i>Hardsetting (cont)</i>	D3	Moderately deep to deep texture contrast soils. Brownish black, dark brown to greyish yellow brown sandy loam, fine sandy clay loam to clay loam, bleached A ₂ , overlying dark brown, reddish brown to yellowish brown, and minor brownish black, medium to heavy clays and sandy clays. Calcium carbonate and ferromanganese concretions often occur at depth. Alkaline to neutral soil reaction trend.	Db1.32, 1.43, 2.22, 2.33, 2.42, 2.43 Dr3.42 Dd1.43, 1.33	8, 14, 15, 24, 95, 121, 125, 135, 147, 148, 198, 219, 261, 267, 279, 310, 312
	D4	Moderately deep to deep texture contrast soils. Brownish black, dull yellowish brown to greyish brown loamy sands, sandy loams to clay loams, bleached A ₂ , overlying yellowish brown, greyish yellow brown to dull yellow medium to heavy clays. Calcium carbonate and ferromanganese concretions often occur at depth. Alkaline to neutral soil reaction trend.	Dy2.32, 2.33, 2.42, 2.43, 3.33, 3.42, 3.43	5, 28, 32, 35, 40, 54, 102, 105, 114, 132, 133, 141, 221, 223, 235, 259, 289, 292, 294, 312, 325, 329, 330, 331

Table 6. Sites analysed and analytical ratings for varying parent materials for each Great Soil Group

Great Soil Group	Soil Family	Parent Material	Profiles Analysed (Site No.)	Bulk Surface Analysed (Site No.)	Analytical Ratings ¹					
					Total Nitrogen	Extractable Phosphorus	Extractable Potassium	Soil Sodicity	Soil Salinity	Available Soil Moisture
Lithosols			Nil							
Siliceous Sands	S2	Wigton Adamellite	600	242		Very low	Low			
	S2	Tawah Grandiorite		58	Low	Low	Very fair			
	S3	Quaternary alluvium	500, 505		Low-fair	Very fair-high	Very fair-high	Non sodic	Non-saline	Low
Black Earths	B1	Barambah Basalt	7, 16	461	Very fair-very high	Very fair-very high	Very fair-high	Strongly sodic	Non-saline	Very high
	B1	Wateranga Gabbro		72	Very fair	Low	Very fair			
	B1	Tertiary basalt	116	112	Very fair	Fair-very fair	High	Non sodic	Non-saline	Medium
	B2	Cainozoic alluvium	305		Very fair-high	Low-fair	High	Strongly sodic	Non-saline	Very high
	B2	Undifferentiated Devonian volcanics/ sediments		199	High	High	High			
	B2	Munbooree Beds		304	Very fair	Fair	High			
	B2	Wandilla Formation		190	Very fair	High	High			
	B2	Aranbanga Beds		103, 169	Very fair-very high	Fair-very high	High			
	B2	Broomfield Granite		35	Very fair	Very low	Fair			
	B2	Quaternary sheetwash	158		Very fair	High	High	Non sodic	Subsoil salinity	Very high
Grey, Brown and Red Clays	C1	Nogo Beds	335	354	Very fair	Very low-fair	High	Non sodic	Non-saline	High
	C1	Delubra Quartz Gabbro		400, 442	Low-fair	Very low-very fair	Very fair-high			
	C2	Biggenden Beds	60	26, 41	Fair-high	Very fair-high, some very low	High	Sodic	Subsoil salinity	Medium
	C2	Pumpkin Hut Mudstone	235		Very fair	Very low	High	Sodic	Subsoil salinity	Very high
	C2	Narayan Beds	391, 397, 398	390, 419	Fair-high	Low-high	High	Non sodic, some sodic	Non-saline – subsoil salinity	
	C2	Hawkwood Gabbro	431		Fair	High	High	Sodic	Subsoil salinity	
	C3	Cynthia Beds		213	Very fair	Very fair	High			
	C3	Tertiary basalt		187	High	Very high	High			

¹ Refer Appendix V

Table 6 (continued)

Great Soil Group	Soil Family	Parent Material	Profiles Analysed (Site No.)	Bulk Surface Analysed (Site No.)	Analytical Ratings ¹					
					Total Nitrogen	Extractable Phosphorus	Extractable Potassium	Soil Sodicity	Soil Salinity	Available Soil Moisture
Grey, Brown and Red Clays (cont)	C3	Cainozoic alluvium	327		Very fair-high	Low-high	High	Strongly sodic	Subsoil salinity	High
	C3	Derrarabungy Beds		319	Very fair	Very low	High			
	C3	Munboree Beds		303	Very fair	High	High			
	C3	Aranbanga Beds		79	Very fair	High	High			
	C3	Quaternary sheet wash		121	Very fair	Low	High			
	C3	Undifferentiated Devonian volcanics/ sediments	293	195, 272, 277	Fair-very fair	Very low-fair	Very fair-high	Sodic	Subsoil salinity	Medium-high
	C5	Cainozoic alluvium	285		Very fair	Low	High	Sodic	Subsoil salinity	Very high
	C5	Wigton Adamellite		254		Very low	Very low			
	C5	Quaternary alluvium	99, 451		Low-fair	Very low-low	Very fair-high	Non sodic – sodic	Non-saline – subsoil salinity	Medium-very high
	C5	Tertiary clay sheet	149		High	High	High	Strongly sodic	Subsoil salinity	Very high
Chernozems	Z1	Narayan Beds		428	High	Very high	High			
	Z1	Pumpkin Hut Mudstone		218	High	High	High			
	Z1	Aranbanga Beds	77, 459	76, 88, 105	Fair-very fair	High-very high	Very fair-high	Non sodic	Non-saline	Medium-high
	Z2	Undifferentiated Devonian sediments		294		High	High			
	Z2	Biggenden Beds		13	Low	Very low	Very fair			
Prairie Soils	F1	Barambah Basalt		64	High	Fair	High			
	F1	Biggenden Beds	17, 49	38, 51, 59	Fair-very fair	Very low-low	Very fair-high	Non sodic	Non-saline	Medium
	F1	Wandilla Formation	189		Fair	High	High	Non sodic	Non-saline	Medium
	F1	Caswell Creek Group		222	Very fair	Low	High			
	F2	Pumpkin Hut Mudstone		233	Very fair	Low	High			
	F2	Aranbanga Beds	90	119	Very fair	High-very high	High	Non sodic	Non-saline	Medium
	F2	Tertiary basalt	43		Very fair	Fair-high (BS)	High	Non sodic	Non-saline	High

¹ Refer Appendix V

Table 6 (continued)

Great Soil Group	Soil Family	Parent Material	Profiles Analysed (Site No.)	Bulk Surface Analysed (Site No.)	Analytical Ratings ¹					
					Total Nitrogen	Extractable Phosphorus	Extractable Potassium	Soil Sodicity	Soil Salinity	Available Soil Moisture
Prairie Soils (cont)	F2	Undifferentiated Devonian volcanics/sediments	318		Low-fair	Very low	Very fair-high	Non sodic	Non-saline	Medium-high
	F3	Devonian volcanics/sediments	273		Fair	Very low	Very fair	Non sodic	Non-saline	Low
	F4	Quaternary alluvium		381	Fair	Very low	High			
Non calcic Brown Soils	N1	Derrarabungy Beds	315		Fair	Very low-low	High	Non sodic	Non-saline	Medium
	N1	Biggenden Beds		69	Fair	Low	Very fair			
	N1	Aranbanga Beds		131	Low	Low	High			
	N2	Cynthia Beds		210	High	High	High			
	N2	Mount Perry Complex	87	80	Low	Very low-low	Very fair-fair	Non sodic	Non-saline	Medium
	N2	Coonambula Granodiorite		435	Low	Low	Very fair			
	N2	Rawbelle Batholith granodiorite		364	Low	Fair	Very fair			
	N2	Permo-Triassic granodiorite		268		Very low	High			
	N2	Broomfield Granite		23	Low	Very low	Low			
Red Brown Earths	R1	Quaternary alluvium	326		Very fair	Low	High	Non sodic	Non-saline	Medium
	R2	Rawbelle Batholith granodiorite	355		Low-fair	Very low-low	High	Strongly sodic	Subsoil salinity	Medium-very high
	R2	Aranbanga Beds	111	118,140	Fair-very fair	Very low-very fair	High-very fair	Strongly sodic	Subsoil salinity	Medium-high
	R2	Cynthia Beds	211		Low-fair	Low-fair	High	Non sodic	Subsoil salinity	Medium
Red Earths	E1	Caswell Creek Group		283		Very low	Very fair			
	E1	Duricrusted sediments		231, 248, 310	Very fair	Very low	Very fair-high			
	E1	Evergreen Formation		328, 371	Very fair	Fair	High			
	E3	Cainozoic alluvium	271		Low	Very low	High	Non sodic	Non-saline	Low-very low
Yellow Earths	E4									
Krasnozems	K1	Derrarabungy Beds	311		Very fair	Very low	Very fair	Non sodic	Non saline	Medium
	K1	Barambah Basalt		2	Very fair					
	K1	Cadarga Creek Granodiorite		369	Low	Very low	Fair			

¹ Refer Appendix V

Table 6 (continued)

Great Soil Group	Soil Family	Parent Material	Profiles Analysed (Site No.)	Bulk Surface Analysed (Site No.)	Analytical Ratings ¹					
					Total Nitrogen	Extractable Phosphorus	Extractable Potassium	Soil Sodicity	Soil Salinity	Available Soil Moisture
Krasnozems (cont)	K2	Duricrusted sediments	357		Low	Very low	Very fair	Non sodic	Non saline	Low
	K2	Evergreen Formation	374, 389	333	Fair-high	Very low	High	Non sodic	Non saline	Medium
	K2	Tertiary Basalt	117, 162, 18, 196, 382	138, 161, 178, 203, 376	Very fair-high	Very low-fair	Very fair-high	Non sodic	Non saline	Very low-medium
	K2	Hawkwood Gabbro	403		Low	Very low	Low	Non sodic	Non saline	
Euchrozems	U1	Barambah Basalt	1,6	465	Very fair-high	Very high	Very high	Non sodic	Non saline	Low-medium
	U1	Caswell Creek Group	220		Very fair	High	Very High	Non sodic	Non saline	Medium
	U1	Undifferentiated Devonian volcanics		275, 281, 312	Very fair	Low-high	Very fair-high			
	U1	Evergreen Formation		396, 416	Very fair	Low-fair	High			
	U1	Biggenden Beds	48, 52	15, 40	Low-high	Low-high	Very fair-high	Non sodic	Non saline	Medium
	U2	Derrarabungy Beds		288		Low	Very high			
	U2	Delubra Quartz Gabbro	384	370	Fair	Very low-low	High	Non sodic	Non saline	
	U2	Hawkwood Gabbro		383	High	High	High			
	U2	Tertiary Basalt	204, 230	157, 205	High	Very fair-high	High	Non sodic	Non saline – subsoil salinity	Medium-high
Xanthozems	X1	Duricrusted sediments	346		Fair	Very low	High	Non sodic	Non saline	Low
	X1	Barambah Basalt		462	Very fair	High	High			
Podzolised Sands	O1	Broomfield Granite		30	Very low	Very low	Very low			
Grey Brown and Yellow	P1	Wigton Adamellite	244		Low	Fair-low	Fair-very fair	Non sodic	Non saline	Low
Podzolics	P4	Cheltenham Creek Adamellite		445	Very low	Very low	Very fair			
	P4	Wigton Adamellite	255		Low	Very low	Very low	Sodic	Subsoil salinity	Low
	P4	Broomfield Granite		36	Low	Very low	Very low			
	P4	Degilbo Granodiorite		63	Very low	Very low	Fair			
	P5	Evergreen Formation	325		Very low	Very low	Low	Non sodic	Non saline	Very low

¹ Refer Appendix V

Table 6 (continued)

Great Soil Group	Soil Family	Parent Material	Profiles Analysed (Site No.)	Bulk Surface Analysed (Site No.)	Analytical Ratings ¹					
					Total Nitrogen	Extractable Phosphorus	Extractable Potassium	Soil Sodicity	Soil Salinity	Available Soil Moisture
Red Podzolics	P2	Rawbelle Batholith (granodiorite)		361	Very low	Very low	Very fair			
	P2	Aranbanga Beds		127	Fair	Very low	Very fair			
	P3	Quaternary alluvium		449	Low	High	High			
Soloths	T1	Cainozoic alluvium		94	Low	Very low	Fair			
	T2	Duricrusted sediments		300	-	Very low	Fair			
	T2	Evergreen Formation		359	Fair	Very low	High			
	T2	Cadarga Creek Granodiorite	362		Low	Very low	Fair			
	T2	Rawbelle Batholith (adamellite)	405		Very low	Very low	Very fair	Strongly sodic	Subsoil salinity	
	T2	Wandilla Formation		258	-	Very low	Very low			
	T2	Aranbanga Beds		109	High	Low	High			
	T3	Broomfield Granite		22	Low	Very low	Fair			
Solodized Solonetz and solodic soils	D2	Wandilla Formation		246		Low	High			
	D2	Brooweena Formation		29	Low	Very low	Low			
	D3	Aranbanga Beds	142, 153	67, 85, 110, 114, 152	Low-very fair	Very low-low	Low-high	Strongly sodic	Subsoil salinity	Medium-high
	D3	Cainozoic alluvium	75, 97	350	Fair-very fair	Low-high	Fair-high	Strongly sodic	Subsoil salinity	Medium-high
	D3	Narayan Beds		414	Low	Very low	High			
	D4	Derrarabungy Beds		341	Fair	Very low	Very fair			
	D4	Quaternary alluvium	450	19	Fair	Very low-low	Very fair-high	Strongly sodic	Subsoil salinity	High
	D4	Evergreen Formation		330, 337, 351	Low-fair	Very low-low	Very fair			
	D4	Mount Perry Complex		82, 86	Low-very fair	Low-very fair	High			
	D4	Biggenden Beds		25, 27, 61	Low-fair	Very low-fair	Very fair			
	D4	Nogo Beds		353	Low	Low	Very fair			
	D4	Wigton Adamellite		125, 245	Fair	Very low-fair	Very fair-high			
	D4	Undifferentiated granites		413	Very low	Very low	Very fair			
	D4	Undifferentiated Carboniferous sediments		321, 378	Low-very fair	Very low-low	High			

¹ Refer Appendix V

2.7 Land capability – land suitability

2.7.1 Introduction

A land capability classification has been completed for all land units recorded and follows the same format as Vandersee and Kent (1983). The land capability classification for agricultural purposes of Rosser *et al.* (1974) was used. This classification groups land into eight classes and contains three distinct divisions based on the degree of limitation for agricultural purposes. The eight classes are shown in Table 7. The three divisions are:

Agricultural land	arable	Classes I-IV
Agricultural land	pastoral	Classes V-VII
Non-Agricultural land		Class VIII

Table 7. A description of the eight land capability classes used in classifying land in the Central Burnett area

Land Class	Description
Class I	Land suitable for all agricultural and pastoral uses. Land is suited to a wide range of crops and is highly productive. Land presents no limitations to use of machinery or choice of implements Wind and water erosion hazard are low even under intensive cultivation.
Class II	Land suitable for all agricultural uses but with slight restrictions to use for cultivation in one or more of the following categories: Land with some limitation to the choice of crops and/or slight restrictions to productivity. Land with some impediment to the use of cultivation machinery which limits the choice of implements or restricts the conditions for successful operation. Land which under cultivation requires simple conservation practices to reduce soil loss to an acceptable level. These include agronomic practices such as contour working, strip cropping, stubble mulching.
Class III	Land suitable for all agricultural uses but with moderate restrictions to use for cultivation in one or more of the following categories: Land with moderate limitations to the choice of crops and/or moderate restrictions to productivity. Land with moderate impediment to the use of cultivation machinery which limits the choice of implements or restricts the conditions for successful operation. Land which under cultivation requires intensive conservation practices to reduce soil loss to an acceptable level. These include contour banking systems and intensive residue management involving specialised machinery.
Class IV	Land primarily suited to pastoral use but which may be safely used for occasional cultivation with careful management. Land on which the choice of crops is severely restricted and/or conditions is such that productivity under cropping is severely limited. Land with severe impediment to the use of cultivation machinery which limits the choice of implements or severely restricts the conditions for successful operation. Land which cannot be used safely for permanent cultivation. If cropped, a pasture phase must be the major component in the cropping program to limit soil loss to an acceptable level.
Class V	Land which in all other characteristics would be arable but has limitations which, unless removed, make cultivation impractical and/or uneconomical.
Class VI	Land which is not suitable for cultivation but is well suited to pastoral use and on which pasture improvement involving the use of machinery is practicable.
Class VII	Land which is not suitable for cultivation but on which pastoral use is possible only with careful management. Pasture improvement involving the use of machinery is not practicable.
Class VIII	Land which has such severe limitations that it is unsuited for either cultivation or grazing.

To determine the land capability class, the fourteen limiting factors (Appendix IV) were assessed for each land unit. The land capability classes and subclasses indicate the degree and kind of limitation to agricultural use of the land units. The land capability class together with the subclasses are presented for each land unit in Appendix II.

2.7.2 Land capability

Due to the complex nature of many of the land units described, a range of land capability classes for each land unit is common. To provide an overall view of land capability, those areas exhibiting a range of land capability have been allocated proportionally to the relevant classes. Much of the information in this report was prepared some time prior to publication. There may be detailed reports published that provide more accurate information in some areas.

The land classes, area of land within each class and percentage of the total study area are presented in Table 8. In addition a land capability map at a scale of 1:250 000 accompanies this report. The 74 mapping units have been grouped into the major land use groups. For each major land use group, the predominant land capability class, the land use limitations and land capability subclass as well as production suitability and management needs are indicated in Table 9.

Table 8. Area and percentage of total area of each land capability class

Land Capability Class								
	II	III	IV	V	VI	VII	VIII	Total
Area (ha)	70 239	96 340	133 850	4174	294 347	148 796	72 125	819 872
% of total	8.6	11.8	16.3	0.5	35.9	18.1	8.8	100%

It is obvious from the figures in Table 8 that approximately 79% of the area has been classed as primarily pastoral land (ie classes IV to VIII). Approximately 20% is classed as land suitable for continuous agriculture (classes II and III). Class IV land has been classified as primarily pastoral land however it is suitable for occasional cropping. No land has been classed as class I as it was considered that those areas likely to fall in this class were affected by occasional overflow flooding or wetness sufficient to place them in class II.

Approximately 36% of the land has been classed as class V and VI land and this together with class IV land occupied 52.7% of the area;. This indicates the large area of predominantly pastoral land capable of being improved using machinery and improved pasture species.

Table 9. Capability class, land use limitations and management needs for major land use groups.

Predominant land capability Class	Land use limitations and land capability subclass	Production suitability and management needs
II	Slight soil physical (p2) a workability (k2) restrictions. Slight moisture (m2) and water erosion (e2) limitations. Minor areas subject to periodic flooding (f2) or with slight gilgai microrelief (g2).	Suitable for summer and winter cropping of grain, forage, beans and oil seeds. Suitable for irrigation where water supplies are adequate. Suitable for grazing of native and improved pastures.
II-III	Slight moisture limitation (m2). Slight to moderate water erosion limitation (e2-3). Small areas of moderate to severe rockiness and stoniness limitation (r3-5). Minor areas of moderate soil salinity (s3-4).	Suitable for summer cropping of peanuts, beans, grain and oil seeds and some winter grain crops. Annual fertiliser applications as determined by soil analysis are desirable for continuous cropping. Requires soil conservation practices when cultivated. Suitable for grazing of native and improved pastures
II-III	Small areas of moderate moisture limitation (m3). Slight to moderate water erosion limitation (e2-3). Minor workability restrictions (k2). Minor areas subject to periodic water logging (w2-3).	Suitable for summer and winter cropping of grain and forage crops with some bean and oil seed crops. Alluvial areas are suitable for irrigation including horticultural crops where water supplies are adequate. Annual fertiliser applications as determined by soil analysis are desirable for continuous cropping. Requires soil conservation practices when cultivated. Suitable for grazing of native and improved pastures.

Table 9 (cont).

Predominant land capability Class	Land use limitations and land capability subclass	Production suitability and management needs
III	Slight to moderate moisture limitation (m2–3). Slight to moderate soil physical limitation (p2–3). Slight to moderate water erosion limitation (e2–3). Minor areas of moderate to severe soil salinity (s3–6).	Suitable for summer and winter cropping of grain and forage crops with some bean and oil seed crops. Areas are suitable for irrigation where water supplies are adequate. Annual fertiliser applications as determined by soil analysis are desirable for continuous cropping. Requires soil conservation practices when cultivated. Suitable for grazing of native and improved pastures.
III–IV	Slight to moderate moisture limitation (m2–4). Minor workability restrictions (k2). Some soils are slightly susceptible to wind erosion (a2). Moderate water erosion limitation (e3–4). Minor areas with slight soil physical limitation (p2) and effective soil depth limitations (d2–3).	Moderately suitable for summer cropping of peanuts, beans, grain and oil seeds and some winter crops but includes areas unsuitable for continuous cultivation. Some areas are suitable for horticultural tree and vine crops where irrigation water supplies are adequate. Annual fertiliser applications as determined by soil analysis are desirable for continuous cropping. Requires soil conservation practices when cultivated. Suitable for grazing of native and improved pastures.
III–IV	Slight to moderate moisture limitation (m2–3). Minor workability restrictions (k2–3). Moderate water erosion limitation (e3–4). Small areas with moderate soil physical limitations (p2–4). Minor areas with moderate soil salinity or stoniness limitations (s3, r3) or gilgai microrelief (g3). Occasional areas subject to periodic water logging (w3).	Moderately suitable for summer and winter cropping of grain and forage crops and minor areas of beans and oil seeds. Some areas are suitable for tree and vine crops. Includes areas suitable for occasional cultivation. Annual fertiliser applications as determined by soil analysis are desirable for continuous cropping. Requires soil conservation practices when cultivated. Suitable for grazing of native and improved pastures.
IV–V	Moderate to severe amounts of stone restrict use (r4–5).	Suitable for grazing of native pastures. Some areas may be stone picked before cultivation.
IV–VI	Moderate to severe moisture limitation (m3–6). Moderate effective soil depth limitation (d3–4). Moderate soil physical limitation (p3–4). Moderate to severe water erosion limitation (e3–6). Moderate workability restrictions (k3). Minor areas with moderate to severe topography limitation, stoniness and rockiness limitation, and gilgai microrelief (t4–6, r3, g3).	Suitable for grazing of native and improved pastures. Very limited areas are suitable for occasional cropping of both summer and winter grain and forage crops in combination with a pasture phase. Requires fertiliser when cropped. Requires soil conservation practices when cultivated. Minor areas are suitable for horticultural tree and vine crops.
VI	Moderate to severe moisture, effective soil depth, soil physical, and water erosion limitations (m4–6, d4, p4, e4–6) and minor topography limitation (t4–6). Small areas of moderate rockiness and stoniness limitation (r3–5).	Suitable for grazing of native and improved pastures. Clearing should be restricted on steeper areas. Some areas have excessive slope gradients, rock outcrops and/or highly erodible soils.
VI–VII	Moderate to severe moisture, effective soil depth, water erosion, topography, rockiness and stoniness limitations (m4–6, d3–6, e6–7, t4–7, r3–5).	Suitable for grazing of native and minor areas of improved pastures. Clearing should be restricted on steeper areas and overgrazing avoided for catchment protection, particularly on erosion susceptible soils. Erosion susceptible soils and steeper slope gradients are more suited to native and/or planted forests.
VII–VIII	Severe moisture, effective soil depth, water erosion, topography, rockiness and stoniness limitations (m6, d4–6, e7–8, t6–8, r5).	Suitable for both native and/or planted forests. Suitable for nature reserves with less sloping areas generally suitable for limited grazing of native pastures. Steep slope gradients, shallow soils, rock and stone greatly restrict use. Catchment protection is important hence any clearing should be selective and over grazing avoided particularly on steep slope gradients and erosion susceptible soils.
VIII	Severe topography limitations with abundant rock outcrop (t8, r5) on mountainous relief.	Suitable for nature reserves. Limited grazing of native pastures on some footslopes.

3. Land use

3.1 Present land use

3.1.1 Introduction

Although a wide variety of rural enterprises exist in the area, production is predominantly beef cattle oriented. The area devoted to more intensive agriculture, such as crops or pasture improvement, has increased from 1977 to 1988, but is still only 10% of the rural area. National parks and forestry occupy 12% of the total area. The gross value of agricultural production in the three Shires for the year 1988/89 was approximately \$64 million. Agricultural production includes crops, livestock disposals and livestock products, but not forestry.

Over the period 1977 to 1989, there has been a substantial reduction in the number of rural holdings in the area (Table 10) although the actual acreage has only marginally diminished. This change has been accompanied by land use changes on individual holdings.

Table 10. Area statistics for 1977/8, 1987/8 and 1988/9

Shire	Total area ('000 ha)	Area rural holdings ('000 ha)			No. of rural establishments			Area crops ('000 ha)			Area sown pastures ('000 ha)		
		88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8
Biggenden	132	88	94	96	106	106	159	3.7	4.1	3.7	5.4	5.7	8.9
Gayndah	271	202	192	233	138	150	235	7.9	7.7	8.4	10.7	8.0	6.6
Mundubbera	419	363	351	377	151	152	208	6.1	7.2	9.4	28.5	30.4	24.6

Source: Australian Bureau of Statistics

3.1.2 Agriculture

The total area of non-pastoral agriculture (crops and sown pasture) had not significantly changed over the period 1977 to 1989 (Table 10). Much of this acreage is associated with basic livestock enterprises (dairy, pigs and beef cattle production), although the fruit growing industry has a proportion of single enterprise properties. Within the region, crops and sown pastures comprise approximately 7% of the Biggenden area, 7% of Gayndah and 8% of Mundubbera. In terms of value of production, crops contributed \$2.07 million in Biggenden ($\approx 30\%$ of shire production), \$16.12 million in Gayndah ($\approx 67\%$) and \$21.54 million in Mundubbera ($\approx 65\%$).

Field crops

The main field crops are wheat, grain barley, maize and sorghum. Wheat and barley are mainly winter crops. Wheat acreage has been increasing since the early 1960s in all three Shires and now forms a significant land use in the Gayndah Shire. The swing to winter cropping is mainly attributed to changes in soil moisture conservation techniques. The region has always experienced difficulties with summer fallow, and the growth of minimum tillage operations has allowed maximisation of summer stored moisture.

In general, the summer crops have declined in acreage, with maize being the exception (Table 11). Cash crops (peanuts, soybeans and sunflowers) have declined, but the recent establishment of a peanut shelling

plant in Gayndah suggests continuity of production. The lighter soils of the Gurgeena Plateau (Mundubbera) and Biggenden are well suited to peanut growing. Both maize and grain sorghum are consumed within the region as fodder supplements. These are often grown in rotation with winter oats (a fodder crop) and a cash crop. However, because they are dryland crops, the acreage grown in any specific year tends to reflect opportunity cropping in response to seasonal conditions.

Table 11. Area planted to specific crops: 1977/8, 1987/8, 1988/9

Shire	Wheat (ha)			Barley (ha)			Peanuts (ha)			Soybeans (ha)		
	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8
Biggenden	515	209	97	63	12	185	592	1211	1151	16	-	7
Gayndah	1286	665	527	325	103	823	922	1161	1707	165	387	257
Mundubbera	600	522	768	702	187	792	126	539	1834	-	45	114

Shire	Sorghum (ha)			Maize (ha)			Sunflowers (ha)			Fruit (ha)			Vegetable (ha)		
	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8
Biggenden	786	1182	1351	298	513	185	4	-	127	814	44	9	1	-	4
Gayndah	1474	1583	2923	876	906	488	17	305	106	777	758	422	23	43	61
Mundubbera	1113	1829	2975	590	586	662	50	50	93	1005	1036	713	78	36	130

Fodder crops

In addition to winter oats and sorghum, fodder crops of cowpeas and lucerne are grown as dryland crops. Some are grazed direct, but other areas are cut for hay. Over the last decade, the production of hay has not changed significantly in the Biggenden or Gayndah Shires, but has more than doubled in the Mundubbera Shire (Table 12). Lucerne comprises 30–50% of the hay production. The proportion of hay lucerne grown under irrigation to that of dryland lucerne is about 70–80% and this has remained relatively constant over the last decade.

Table 12. Other agriculture statistics: 1977/8, 1987/8 and 1988/9

Shire	Area irrigated (ha)			Area fertilised ('000 ha)			Hay (ha)			Lucerne for hay (ha)		
	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8
Biggenden	242	242	296	2.2	2.1	1.5	140	122	138	23	52	71
Gayndah	1164	1164	856	4.1	4.3	3.2	284	181	241	80	65	150
Mundubbera	1990	1990	1682	5.8	4.4	4.1	671	628	282	304	358	232

Improved pasture

The area of sown pasture (Table 10) has increased slightly from 1977/78 to 1988/89. However the yields from this is perhaps less than might be expected due to the cut back in fertiliser levels which has accompanied the rural downtown in more recent years. Within the region, sown pastures represent approximately 4% of the Biggenden area, 4% of Gayndah and 7% of Mundubbera.

Horticulture

The most marked change in the region is the increase in acreage planted to fruit trees (Table 11). The region has historically been a premier citrus growing area (about 50% of the Queensland crop) but the total area has doubled from 1977 to 1988. In 1985 a fruit juicing factory was built at Mundubbera, processing some 4000 tons of oranges to form 2 million litres of juice. The increase in acreage of citrus also reflects the success of a biological control agent (a wasp), which has reduced the need for chemical spraying for pests by 90%. Citrus is grown under irrigation, so that increased water supplies facilitates expansion of citrus acreage. Salinity levels of summer irrigation water affect the diversity of fruit crops grown, so that the areas devoted to tropical fruit can be limited. However lychees, peaches, mangoes and avocados are grown. Vineyards produce early maturing Cardinal table grapes.

Many orchard areas grow vegetables between the tree rows as a cash crop, especially in newly established orchards. The vegetables are usually cucurbits (watermelon, rockmelon) or sometimes tomato or capsicum. Small areas of potatoes are still grown on the red upland soils.

The increase in fruit crops (Table 11) has been accompanied by an increase in fertiliser usage. In particular, both nitrogenous and mixed fertilisers have more than doubled over the last decade, to slightly above 1 000 tonnes p.a. each.

3.1.3 Pastoral production

Pastoral enterprises occupy approximately 75% of the total area. These are in the form of dairy, pig and beef cattle enterprises. Of the three Shires, Biggenden is the most reliant on pastoral activities for on-farm income (Table 13).

Table 13. Animal production statistics: 1977/8, 1987/8 and 1988/9

Shire	Total value of Ag. Prod. \$'000	Livestock disposal \$'000	Livestock products \$'000	Beef cattle ('000)			Dairy cattle ('000)			Pigs ('000)		
				88/9	87/8	77/8	88/9	87/8	77/8	88/9	87/8	77/8
Biggenden	6944	2893	2070	18.7	21.2	27.5	3.3	3.2	3.2	1.9	1.9	2.1
Gayndah	17670	5794	757	42.9	41.7	59.0	1.2	1.2	2.4	5.0	5.3	8.5
Mundubbera	34479	11350	1591	52.3	48.9	68.3	2.6	3.0	4.8	20.8	20.1	14.4

Dairying

In the past, dairying was an important component of pastoral production. However, with the closure of the Biggenden butter factory in 1969, and of the Gayndah factory in 1973, milk now has to be sent to Murgon for processing. The number of establishments designated as dairying has dropped markedly from 1977/8 to 1988/9: Biggenden (32 to 25), Gayndah (28 to 8) and Mundubbera (42 to 14). The decline in dairy herd numbers follows a similar trend (Table 13), but the size of herds on individual establishments has increased.

Many of the dairying enterprises are mixed cropping-dairying systems, depending on the production of fodder crops or grain supplements to maintain production. Oats is the main winter crop and forage sorghum the main summer crop. Lucerne is also grown.

Beef cattle

The numbers of beef cattle in the region have declined (Table 13) but future trends will largely depend on market conditions. Both breeding and fattening are carried out within the region. Property amalgamation has contributed to the reduction in number of beef establishments (1977/8 to 1988/9): Biggenden (136 to 84), Gayndah (201 to 109) and Mundubbera (173 to 132).

Beef production is based primarily on native pastures. The rougher country tends to be control-burnt only. Some of the lowland or rolling downs have been pasture improved with grasses and legumes, but this only represents approximately 5% of the rural area (Table 10). The majority of fattening relies on fodder crops or supplementary grains.

Pigs

In the past, pigs were run as a cash supplement to mixed dairy-cropping enterprises. However, the number of enterprises with pigs has dropped by about 65%, so that, in 1988/9, the numbers were: Biggenden (13), Gayndah (14) and Mundubbera (25). This reflects the trend towards feedlots for pigs, especially in Mundubbera where pig numbers have markedly increased in recent times (Table 13).

3.1.4 Forestry

In the Central Burnett as at 1988/9, State forests, timber reserves and forest entitlement areas totaled 98 745 hectares. The first State forest was established in 1908 and the first planting of native hoop pine plantations occurred in 1934. The more recent development of the Regional Forest Agreement may have implications for the future status of reserved areas.

The majority of the forests are wet or dry sclerophyll, located in the rougher country. They are managed under a balanced conservation program being periodically harvested on a sustainable production basis. They provide sawlogs and sleepers to local industry. The main sawmills are located in the towns of Mundubbera and Gayndah.

There are several small areas of remnant sub-tropical rainforest and hoop pine/bunya pine vine forest which are set aside as preservation areas. The hoop pine plantations supply timber to specialised mills outside of the region.

Management of the State forest also provides for multiple use which includes forest based recreation in suitable areas. Forest drives, walking tracks, camping grounds and picnic areas are available in the area. Other uses include nature conservation, apiary and grazing.

3.1.5 National parks

There are three National Parks in Central Burnett, covering a total area of 3406 hectares. Coalstoun Lakes and Mt Walsh are in Biggenden Shire and Auburn River National Park in the Mundubbera Shire.

Coalstoun Lakes National Park, 26 hectares, was gazetted in 1929. It contains twin volcanic crater lakes surrounded by tea-trees. It has abundant wildlife.

Mt Walsh National Park, 2990 hectares, was gazetted in 1947. It is dominated by rugged Mt Walsh, rising 645 metres, but also contains gorge country and rock pools. It provides bush walking, mountaineering and rock climbing within dry sclerophyll forest.

Auburn River National Park, 389 hectares, was gazetted in 1964. The park protects an area of open eucalypt forest (*Eucalyptus melanophloia*, *E. tereticornis*) with small areas of rainforest along the river bank together with bottlebrush, tea-tree and stunted figs. The Auburn River flows through the park over a jumbled mass of pink granitic boulders. Rough walking and basic camping facilities are available.

3.1.6 Water resources and supplies

There are two major storages in the area, providing water mainly for irrigation and domestic users. Wuruma Dam, located on the Nogo River with a storage capacity of 194 000 ML supplies water to the regulated sections of the Burnett River. Boondooma Dam is located on the Boyne River and supplies water to the regulated sections of the Boyne River as well as to Tarong Power Station. It has a capacity of 212 000 ML.

Weirs at Gayndah and Mundubbera provide water for irrigation and water supplies for those towns. However, they also provide limited recreational fishing and water sport opportunities.

Irrigation

Irrigation occurs along both the Burnett and Boyne Rivers with a good quality water supply provided from Wuruma Dam and Boondooma Dam respectively. As at 1988/9, some 3 100 hectares are irrigated from the Burnett River and 1 100 hectares are irrigated from the Boyne River.

Principal crops irrigated include citrus, melons, grapes, avocados, grain, lucerne and improved pastures.

4. Land degradation

Various types of land degradation have occurred in varying degrees throughout the area. The most common forms of land degradation are erosion and salinity. Issues such as weeds, regrowth and pasture degradation are not considered here.

4.1 Extent and cause

4.1.1 Erosion

There was probably negligible erosion, other than geological erosion, in this area prior to settlement. Accelerated erosion occurs following settlement due primarily to man's direct and indirect interference with his environment.

Erosion will occur on continuously cultivated sloping lands if soil conservation measures are not applied. The red soils of mapping units Lt1–2 are prone to sheet erosion even though they consist largely of highly permeable, well structured krasnozems. Reduced permeability following long-term agricultural use is identified as a major factor in the erosion of krasnozems on sloping sites (Briggs 1967). Gully erosion is associated with badly maintained waterways or poorly situated access tracks in these mapping units.

Gully erosion occurs more commonly in the remaining cultivated areas predominantly on black earths with some grey and brown clays, podzolics and soloth soils.

In the cleared or partially cleared grazing areas, severe gully erosion is associated with the banks and heads of many of the natural minor drainage lines. Areas too small to record at this mapping scale occur in almost all mapping units. Sheet erosion continues to occur in varying degrees throughout the grazing areas where inappropriate land use or management exposes soils to raindrop impact and runoff. This is particularly the case following extended dry periods.

The erosion of the sides and gully heads of the natural drainage lines is primarily due to increased runoff following clearing of the catchment including the drainage lines. Stocking rates are frequently high resulting in poor ground cover and hence higher runoff rates. Sharp *et al.* (1964) reported runoff rates from a heavily grazed watershed to be ten times greater than from a lightly grazed watershed.

Severe gully erosion is often associated with roads. This is usually due to the roadway diverting the water and increasing the flow rates. Often the highly erodible B horizon is exposed in the table drains and erodes at an accelerated rate. Waterfall action as a result of cross drainage structures has also caused gullies to form.

Tunnel erosion has been recorded on steeply sloping, completely cleared, land with soils having highly dispersible B horizons. Although causing problems locally, it is not regarded as a major form of erosion.

4.1.2 Salinity

Salinity in this area is classed as water table salting. There is an association of this type of salting with cleared and/or cultivated deep soils on deeply weathered rocks, though not all such areas exhibit salting (Hughes 1979). Jenkins and Irwin (1975) suggest that the main cause of water table salting is excessive clearing of upper slopes which allows more water to reach the saline ground water zone. This raises the water table and results in outbreaks in lower slope positions. Clearing of the valley floors has also allowed water tables to rise, resulting in increased saline outbreaks.

Watertable salting is usually associated with particular geological and geomorphological units. A large proportion of the salting in this area is related to the lateritised basalts (Lt mapping units). Other saline outbreaks have been recorded associated with sandstone or sedimentary mapping units, volcanic mapping units and some metamorphic mapping units. Saline seepages are now a feature of many of the lower slopes of valleys and narrow drainage lines of the area.

The area directly affected is difficult to obtain. Areas affected vary according to the wetness of the season and many areas are still contained within or very close to the present watercourses.

4.2 Recommended correction and/or prevention methods

It is possible to rehabilitate or prevent most forms of land degradation. Some of the methods or techniques which would have to be applied to provide complete reclamation or control may not be economically feasible. Local departmental officers, particularly soil conservation and agriculture, should be contacted for advice regarding practices to control degradation in particular areas.

4.2.1 Erosion

All cultivation, other than the alluvial flats associated with the major creeks, requires soil conservation measures to help control erosion by water. Mechanical soil conservation measures are well accepted in the area as indicated by the fact that the majority of the cultivated lands requiring soil conservation measures are currently protected. For more complete control of soil erosion, mechanical measures need to be combined with conservation cropping techniques (Bateman and Rowlings 1980).

Gully erosion which occurs in many of the marginal cropping areas could have been prevented by early recognition that these areas were never really suited to continuous cultivation. To reclaim severely eroded areas, gullies should be filled ensuring that no erodible B horizon is left exposed and an adequate depth of top soil cover is present for plant growth and a permanent pasture established. Fertiliser, particularly nitrogen and in most cases phosphorus, will be required to successfully establish improved pastures in these degraded areas.

In the grazing areas it is usually not economical to fill existing gullies. However steps should be taken to minimise the further development of both existing or new gullies. Consideration should be given to destocking and fencing badly eroded areas and allowing these to revegetate naturally. Some attempt to establish pasture in the degraded area may be justified. Rocks or old tyres placed in the head of the gully may help trap soil as well as prevent further headwards movement of the gully.

Many gullies, particularly those with unstable sides and heads could have been prevented by maintaining sufficient ground cover in the surrounding catchments to prevent excessive runoff. Stocking rates need to be adjusted so that there is an adequate ground cover present at all times.

Gullies associated with roads may have been prevented by carefully selecting road locations and in providing cross-drainage structures. Particular care is required with table drains where the highly

erodible, dispersible B horizons of texture contrast soils are often exposed. Runoff water should be dispersed as quickly as possible into a stable, well grassed or protected area. Any concentration of runoff water along these sites will rapidly lead to severe erosion which is difficult to reclaim.

Areas currently exhibiting tunnel erosion should be destocked and allowed to revegetate. Some light intermittent grazing may be possible once the area is stabilised.

Vegetation cover should be maintained at all times where wind erosion is suspected of being a problem.

4.2.2 Salinity

Reclamation of areas affected by watertable salting may be difficult to justify in economic terms. Drainage, using underground and surface drains, would only be considered where saline areas directly affect personal property or income, or other environmental values. Examples of such cases would include outbreaks near farm buildings or where they affect water supplies or outbreaks in mid-slope positions affect productive land further down slope.

Establishment of salt tolerant grasses and shrubs should be encouraged to help lower the watertable and prevent spread of the bare areas.

A number of salt tolerant trees have been suggested by Forestry Department (pers. comm.) as worthy of consideration. Several exotic species have been suggested in the past but these are now recognised as significant environmental weeds eg athel tree (*Tamarix aphylla*), pepper tree (*Schinus molle*), chinese elm (*Ulmus parviflora*), white mulberry (*Morus alba*) and chinese blackberry (*Celtis sinensis*). Native species include gum-topped box (*E. moluccana*), belah and the tea-trees (*Melaleuca linariifolia*, *M. nodosa* and *M. armillaris*).

Salt tolerant grasses such as Rhodes grass (*Chloris gayana*), green couch grass (*Cynodon dactylon*) and makarikari grass (*Panicum coloratum*) have been grown successfully in saline areas in the past. Native saltbush species have been successful in some areas.

As one of the major causes appears to be overclearing of trees on the upper slopes and on the valley floors, the problem will most likely remain until these areas are re-established to trees or there is a change of land use in recognised recharge areas. This is unlikely to occur until the saline areas become large enough to significantly affect agricultural areas or impact on water quality.

Acknowledgements

While the author has been responsible for the data compilation, interpretation and development of concepts, many other people have been involved in the preparation and development of this report.

The period of time which has elapsed since the project's inception has influenced the list of people to whom the author extends grateful acknowledgment for their contributions. Principally the author would like to thank:

- For management, oversight and guidance during the project; Peter Wilson, Brian Vandersee and John Mullins
- For assistance in collection of data: Ian Heiner and Phil Sorby.
- For assistance in geological interpretation of the area: Keith Hughes.
- For analysis of the soil samples: Dennis Baker and the staff of the Agricultural Chemical Laboratory.
- For cartographic input: Charlie Ellis, John Myers, Gary Finney and Angela Paltridge.
- For editorial and statistical interpretation: Valerie Eldershaw, Ian Heiner
- For word processing: Louise Henrickson.
- For preparation of the final document: Diane Bray.

References

- Australian Bureau of Statistics (1996). *Population statistics 1996*.
- Baker DE and Eldershaw VJ (1993). *Interpreting Soil Analyses*. Queensland Department of Primary Industries, Project Report QO93014.
- Bateman RJ and Rowlings RW (1980). Conservation cropping — a new way of farming for the South Burnett? *Queensland Agricultural Journal* **100**, xii-xvi.
- Briggs HS (1967). What causes erosion on red soil? *Queensland Agricultural Journal* **93**, 692.
- Bruce R and Rayment E (1982). *Analytical methods and interpretation used by the Agricultural Chemistry Branch for soil and land use surveys*. Queensland Department of Primary Industries, Bulletin QB82004.
- Bureau of Meteorology (1979). Climate. In, *Wide Bay — Burnett Resources Investigations*. Co-ordinator General's Department, Queensland, Report NS2.
- Coaldrake JE; Tothill JC; McHarg GW and Hargreaves JH. (1972). *Vegetation Map of Narayen Research Station, South East Queensland*. Technical Paper No. 12, Division of Tropical Pastures, CSIRO, Australia
- Coaldrake JE, Roe PA and McKay M (1972). *Annotated bibliography on the ecology and stabilization of coastal sand dunes, mining spoils and other disturbed areas*. Brisbane.
- Cranfield LC (1994). *Maryborough, Queensland, 1 : 250 000 geological series – explanatory notes*. Queensland Department of Minerals and Energy, Brisbane.
- Day RW, Whitaker WG, Murray CG, Wilson IH and Grimes KG (1983). *Queensland Geology*. Geological Survey of Queensland Publication 383.
- de Mooy CT, Hubble GD and Beckman GG (1977). *The soils of the Central Burnett Area, Queensland*. Soils and Land Use Series CSIRO Australia Report No 56.
- Driscoll EG (1960). *Geology of the Mundubbera district*. University of Queensland Papers 5, No. 5.
- Ellis PL (1968). *Geology of the Maryborough 1:250 000 sheet area*. Queensland Department of Mines, Geological Survey of Queensland, Report No. 26.
- Geological Survey of Queensland (1979). *Geology and mineral resources*. In Wide Bay - Burnett Resources investigations Vol II - Land Resources, Queensland Co-ordinator General's Department Report NS 2.
- Geological Survey of Queensland (1981). *Mineral resources of the Wide Bay - Burnett region*. Queensland Government Mining Journal **82**, 153–178.
- Hughes KK (1979). *Assessment of dryland salinity in Queensland*. Queensland Department of Primary Industries, Division of Land Utilisation Report 79/7.
- Isbell RF (1962). *Soils and vegetation of the brigalow lands of eastern Australia*. CSIRO Australia, Soils and Land Use Series 43.

- Isbell RF and Hubble GD (1967). *'Soils' Fitzroy Region*. Queensland Resource Series. Department of National Development, Canberra.
- Isbell RF, Thompson CH, Hubble GD, Beckman GG and Paton TR (1967). *Atlas of Australian Soils Sheet 4 – Brisbane – Charleville– Rockhampton– Clermont Area, with explanatory data*. Melbourne University Press, Melbourne.
- Isbell RF (1996). *The Australian Soil Classification*. CSIRO, Australia.
- Jenkins JJ and Irwin RW (1975). *The northern slopes land deterioration project— some preliminary conclusions*. Soil Conservation Authority, Victoria.
- Kent DJ, Sorby P and Reid RE (1989). *Soils and irrigation potential of the Ceratodus Area, Eidsvold, Queensland*. Queensland Department of Primary Industries, Project Report QO 89024.
- McCarroll SM and Brough DM (2000) *Agricultural Land Resource Assessment of Coalstoun Lakes, Queensland*. Department of Natural Resources, Land Resources Bulletin DNRQ00096.
- McCarroll SM and Brough DM (2000) *Soil Attributes and Agricultural Suitability of the Burnett River Riparian Lands, Gayndah – Perry River*. Department of Natural Resources, Land Resources Bulletin DNRQ00128.
- McDonald RC, Isbell RF, Speight JC, Walker J and Hopkins MS (1984). *Australian soil and land survey handbook*. 2nd Edition Inkata Press, Melbourne.
- Murphy PR, Schwarzbock H, Cranfield LC, Withnall IW and Murray CG (1976). *Geology of the Gympie 1:250 000 sheet area*. Geological Survey of Queensland, Report No. 96.
- Neldner VJ and Paton CJ (1986). *Vegetation survey of Brian Pastures Research Station, Gayndah, Queensland*. Queensland Department of Primary Industries, Research Establishments Publication
- Northcote KH (1972). *A factual key for the recognition of Australian soils*. 4th Edition, Rellim Technical Publications: Glenside, South Australia.
- Northcote KH and Skene DJM (1972). *Australian soils with saline and sodic properties*. CSIRO, Australia, Division of Soils, Soil Publication 7.
- Reid RE, Sorby P and Baker DE (1986). *Soils of the Brian Pastures Research Station, Gayndah, Queensland*. Queensland Department of Primary Industries, Research Establishments Publication QR86004.
- Reiser RF (1971). *Chinchilla, Queensland, 1:250 000 geological series — explanatory notes*. Bureau of Mineral Resources, Geology and Geophysics.
- Ridley WF (1962). *Vegetal distribution relative to geology in a complex part of south east Queensland*. Proceedings of the Royal Society of Queensland **72**, 45–59.
- Rosser J, Swartz GL, Dawson NM and Briggs HS (1974). *A land capability classification for agricultural purposes*. Queensland Department of Primary Industries, Division of Land Utilisation, Technical Bulletin 14.
- Sharp AL, Bond JJ, Neuberger JW, Kuhlman AR and Lewis JK (1964) Runoff as affected by intensity of grazing on rangelands. *Journal of Soil and Water Conservation* 103-106.

- Sorby P and Reid RE (2001) *Soils and Agricultural Suitability of the South Burnett Agricultural Lands, Queensland*. Department of Natural Resources, Land Resources Bulletin QNRM01014.
- Specht RL (1970). Vegetation. In, Leeper GN (ed.) *The Australian Environment*, 4th edition (revised), CSIRO, Melbourne University press.
- Speight JG (1984). Landform. In, McDonald *et al.* (1984). *Australian soil and land survey handbook*. 2nd Edition Inkata Press, Melbourne.
- Stace HCT, Hubble GD, Brewer R, Northcote KH, Sleeman JR, Mulcahy MJ and Hallsworth EG (1968). *A handbook of Australian soils*. Rellim technical publications: Glenside, South Australia.
- Stanton JP (1979) *Important areas for nature conservation in the Wide Bay Burnett Region — a preliminary report*. National Parks and Wildlife Service, Research and Planning Branch.
- Stevens NC (1961). Upper Cainozoic volcanism near Gayndah, Queensland. *Proceedings of the Royal Society of Queensland* **72**, 75–82.
- Vandersee BE and Kent DJ (1983). *Land resources of the Burnett Region, Part 1: South Burnett*. Queensland Department of Primary Industries, Land Resource Bulletin QV83001.
- Water Resources Council (1975). *Groundwater resources of Australia*. Australian Government Publishing Service, Canberra.
- Watkins JR (1967) Relationship between climate and the development of landforms in the Cainozoic rocks of Queensland, *Journal of the Geological Society of Australia*, Vol.14, Pt.1 p.153-168
- Wellman P (1978). Potassium-Argon ages of Cainozoic volcanic rocks from the Bundaberg, Rockhampton and Clermont areas of eastern Queensland. *Proceedings of the Royal Society of Queensland*. **89**, 59–64.
- Wilson PR and Sorby P (1991). *Auburn River irrigation suitability study*. Queensland Department of Primary Industries, Project Report QO91007.
- Whitaker WA, Murphy PR and Rollason RG (1974). *Geology of the Mundubbera 1:250 000 sheet area*. Department of Mines. Geological Survey of Queensland. Report No. 84.
- Young PAR (1979). *The rainforests of the Biggenden district, South East Queensland: A biogeographical and ecological investigation* (Thesis for BSc honours), School of Australian Environmental Studies, Griffith University.
- Willcocks J and Young P (1991). *Queensland's rainfall history*. Queensland Department of Primary Industries, Information Series QI91002.

APPENDIX 1

Index to Mapping Units

Alphabetical list of Mapping Unit Summaries	Page No
Ca1, Ca2	62
Cd1, Cd2,	81
Cd3, Cd4	82
Cp1, Cp2	96
Cz1	65
Dh1, Dh2	83
Dh3, Dh4	84
Je1	78
Je2	79
Lc1	69
Lj1, Lj2	66
Lj3, Lj4	67
Lp1, Lp2	68
Lp3	69
Lt1, Lt2	64
Lt3	65
Pa1	77
Pb1, Pb2	93
Pb3, Pb4	94
Pb5	95
Pc1	89
Pd1, Pd2	73
Pg1, Pg2	85
Pm1	90
Pm2	91
Po1	95
Pr1	90
Pt1	89
Pu1	91
Pu2	92
Pw1	74
Pz1, Pz2	97
Qa1, Qa2	61
Qb1, Qb2	70
Qb3	71
Qr1, Qr2	63
Ra1	74
Ra2, Ra3	75
Ra4, Ra5	76
Ra6	77
Rb1	79
Rb2	80
Rc1	92
Rd1	87
Rd2	88
Rf1	88
Rg1	80
Ro1	87
Rs1	86
Rt1	86
Rw1, Rw2	72
Tb1	71
Ts1	78

APPENDIX I Mapping Units

Qa 1 [21 574 ha]

Land Unit and / or Associated Mapping Units	5	4	2	1	3	363	3	12	14	
Sites	3 175 450	212	108 409	381 326 490 498 506	107 408 500 505		107 408 500 505	486 542	104 113 284 350 489	
Est. % of Mapping Unit	9	14	18	25	14	10		6	4	

Landform: Level to gently undulating alluvial plains. Major stream channels deeply incised.

Geology: Quaternary alluvia (recent). Qa

Soils: Deep to very deep gradational textured soils with dark clay loam to fine sandy loam surfaces grading to brown or dark reddish brown clays (prairie soils) and texture contrast soils with brown or yellowish brown clay subsoils (red brown earths, solodic soils, solodized solonetz soils). Areas of uniform deep sands (siliceous sands) occur on levees and dark and grey cracking clays (black earths, grey clays) on back plains.

Vegetation: Queensland blue gum, Moreton Bay ash/ silver-leaved ironbark grassy open forest to woodland with areas of poplar box/ narrow-leaved ironbark/ Queensland blue gum grassy woodland to open forest on levee backslopes and drainage lines. Silver-leaved ironbark is frequently associated and occasional areas of brigalow also occur. Flaxleaf tea-tree, weeping bottle brush, black tea-tree, river she-oak fringe river channels.

Qa 2 [19 536 ha]

Land Unit and / or Associated Mapping Units	5	2	6	9	6	10	8	2	7	5	
Sites	3 175 450	108 409	99 460 148 539 451 457	452	99 460 148 539 451 457	449	75	108 409	19 512	3 175 450	
Est. % of Mapping Unit		15		4	45	3	8		15	10	

Landform: Level to gently undulating alluvial plains.

Geology: Quaternary alluvia (recent). Qa.

Soils: Deep to very deep, frequently self mulching, grey and brown cracking clays (grey and brown clays) and areas of dark cracking clays (black earths) with areas of weak gilgai microrelief. Areas of texture contrast soils with brown to yellowish brown clay subsoils (non-calcic brown soils, red brown earths, solodic soils) frequently occur.

Vegetation: Poplar box, Queensland blue gum/ silver-leaved ironbark/ narrow-leaved ironbark open woodland to open forest and Queensland blue gum/ narrow-leaved ironbark/ Moreton Bay ash/ silver-leaved ironbark open forest to woodland. Scattered areas of open forest of gum-topped box or brigalow also occur. Weeping bottle brush, broad-leaved apple and river she-oak frequently fringe channels.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Ca 1 [5304 ha]

Land Unit and / or Associated Mapping Units	Dh1	14	13	Qa1	14	12	11	Je2	12	11	15	Lj3
Sites		104 113 284 350 489	285						486 542	327	332	
Est. % of Mapping Unit		10	15			15	55					5

Landform: Level plains to gently undulating rises. Generally slightly elevated above more recent alluvia.

Geology: Undifferentiated Cainozoic alluvia, older than Quaternary. Cza, areas Qa.

Soils: Deep to very deep, frequently self mulching, grey and brown cracking clays and minor dark cracking clays (grey and brown clays and black earths) with gilgai microrelief varying from slight to strong. Minor areas of texture contrast soils with brown to yellowish brown clay subsoils (solodic soils) also occur.

Vegetation: Predominantly brigalow, belah/ wilga shrubby open forest with "softwood scrub" species frequently associated. Moderate to small areas of poplar box/ narrow-leaved ironbark/ silver-leaved ironbark/ pink bloodwood grassy open forest.

Ca 2 [6300 ha]

Land Unit and / or Associated Mapping Units	Lp3	17	18	16	18	Qa1	20	19	17	19	16	Dh
Sites		271	307 492	305	307 492		306	261 262	271	261 262	305	
Est. % of Mapping Unit					20		5		25	15	35	

Landform: Gently undulating plains and rises. Generally slightly elevated above more recent alluvia.

Geology: Undifferentiated Cainozoic alluvia, older than Quaternary. Cza, areas Qa.

Soils: Deep to very deep, dark and brown hardsetting, cracking clays (black earths and brown clays) with slight gilgai microrelief and areas with dark reddish brown loams and clay loams grading into reddish brown light clays (red earths). Smaller areas of texture contrast soils with greyish brown to bright yellowish brown subsoils (solodic soils, solodized solonetz and minor yellow podzolic soils).

Vegetation: Poplar box grassy open forest and open forests of silver-leaved ironbark, narrow-leaved ironbark, Moreton Bay ash, pink bloodwood. Small areas of Queensland blue gum, Moreton Bay ash/ bull oak/ swamp mahogany open forest to woodland and brigalow/ belah open

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Qr 1 [5937 ha]

Land Unit and / or Associated Mapping Units	Lt3	63	61	60	64	60	62	64	60	Qa
Sites		122	185	158	159	158	121	159	158	
Est. % of Mapping Unit		10	25	45			15	5		

Landform: Gently undulating to undulating rises and outwash slopes.

Geology: Basaltic colluvium, sheet wash. Qr, Qa.

Soils: Deep to very deep, dark self mulching, cracking clays (black earths) and red and brown cracking clays (red and brown clays). Minor areas of dark reddish brown light clays (euchrozems) also occur below adjacent scarps.

Vegetation: Queensland blue gum, silver-leaved ironbark/ pink bloodwood/ Moreton Bay ash woodland to open woodland and narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood woodland. Occasional closed scrub of "softwood scrub" species on slopes below scarps.

Qr 2 [1 409 ha]

Land Unit and / or Associated Mapping Units	Qa	67	65	66	68	Ra5 Cp2
Sites		166	4 25 149 150		463	
Est. % of Mapping Unit		20	40	30	10	

Landform: Gently undulating to undulating rises.

Geology: Tertiary clays, residual colluvial soil. Qr, Qa.

Soils: Very deep, grey and brown cracking clays (grey and brown clays) and dark self mulching cracking clays (black earths) with gilgai microrelief varying from weak to moderate. Small areas of brown clay loams to light clays (prairie soils) and texture contrast soils (solodic soils).

Vegetation: Brigalow, belah, wilga shrubby open forest and brigalow/ Queensland blue gum/ poplar box open forest. Small areas of poplar box/ Queensland blue gum open forest on lower slopes and "softwood scrub" species open scrub on footslopes of adjoining hills.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Lt 1 [6754 ha]

Land Unit and / or Associated Mapping Units	Cz 1	173	172	176	173	174	Lt2	175	172	175	176	172	Lt3
Sites		137 196	161 162 203 536	160 179 202	137 196	138 181 230		178 376	161 162 203 536	178 376	160 179 202	161 162 203 536	
Est. % of Mapping Unit					25	20		10			5	40	

Landform: Undulating rises on plateau remnants.

Geology: Lateritised Tertiary basalt. Tb.

Soils: Very deep soils with dark reddish brown clay loams to light clays, occasionally snuffy, grading into dark reddish brown to reddish brown light to medium clays (krasnozems, euchrozems, earthy krasnozems) and very occasional red earths.

Vegetation: Gympie messmate, brown bloodwood, large-fruited grey gum/ spotted gum shrubby open to closed forest and spotted gum, narrow-leaved ironbark/ pink bloodwood open forest with areas of "softwood scrub" species closed scrub on plateau surfaces. Small areas of Queensland blue gum, pink bloodwood, narrow-leaved ironbark open forest occur on lower slopes and drainage areas.

Lt 2 [5801 ha]

Land Unit and / or Associated Mapping Units	Pz2	178	180	178	181	178	179	177	Lt3	
Sites		187 537	199 447	187 537	205	187 537	535	204 240		
Est. % of Mapping Unit			7	35	3		10	45		

Landform: Undulating to rolling rises.

Geology : Colluvium from lateritised Tertiary basalt, fresh basalt. Tb, (Pzw).

Soils: Deep to very deep soils with very dark reddish brown light clays grading to dark reddish brown light to medium clays (euchrozems, krasnozems) and dark, self mulching cracking clays (black earths) on slopes. Small areas of red and brown cracking clays (red and brown clays) and deep brown light clays (chernozems) also occur.

Vegetation: "Softwood scrub" species closed scrub on steep upper slopes and brigalow, wilga/ belah open forest on clay soils. Small areas of mixed brigalow, "softwood scrub" species open scrub occur as well as occasional areas of black tea-tree and Queensland blue gum/ Moreton Bay ash/ poplar box open forest along drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Lt 3 [5385 ha]

Land Unit and / or Associated Mapping Units	Lt2	185	184	Lt1	182	183	184	183	Qr1
Sites		180	186		176	177	186	177	
Est. % of Mapping Unit		10			35		25	30	

Landform: Steep hills and scarps. Frequent rock outcrops and stony areas.

Geology: Lateritised Tertiary basalt and exposed unweathered basalt. Tb.

Soils: Very shallow, dark reddish brown clay loams grading into dull reddish brown or yellowish brown light clays (lithosols, lithosol – podzolic soil intergrades) on scarps and shallow dark cracking clays (black earths, brown clays) on lower slopes. Soils are gravelly throughout. Small areas of moderately deep dark reddish brown clay loams to light clays (euchrozems) also occur on low ridges.

Vegetation: Spotted gum, narrow-leaved ironbark/ pink bloodwood/ red ash/ grass tree open forest on scarps and silver-leaved ironbark, gum-topped bloodwood/ Moreton Bay ash/ kurrajong grassy open forest on clays. Small areas of "softwood scrub" species closed scrub on ridges and brigalow, wilga low open forest on some steep slopes.

Cz 1 [29 395 ha]

Land Unit and / or Associated Mapping Units	Cd	191	187	186	198	193	192	186	188	190	Lj/Lc/Lp	190	188	189	187
Sites		247 368	249 346	248 357 404		228		248 357 404	231 301				231 301	226 227	249 346
Est. % of Mapping Unit		8	20			2	5	20		15			15	15	

Landform: Level plains to undulating rises and rolling low hills on plateau remnants.

Geology: Duricrusted sediments, lateritised sandstone, ferricrete and sheet wash. Czs, Cz.

Soils: Moderately deep to deep, brownish black to dark reddish brown loams to sandy clay loams, frequently snuffy, grading into dark reddish brown to yellowish brown gravelly clay loams to medium clays (red earths, earthy krasnozems, xanthozems) on level areas and mixed shallow to moderately deep, yellowish brown to reddish brown texture contrast soils (red and yellow podzolic soils, soloths, lithosol–podzolic soil intergrades) on slopes and dissected areas.

Vegetation: Spotted gum, narrow-leaved ironbark/ Gympie messmate/ broad-leaved ironbark layered open forest with varying presence of pink bloodwood/ rusty gum/ long-fruited grey gum/ gum-topped ironbark and small-fruited or large-fruited yellowjacket. Lancewood is commonly associated on marginal slopes near dissected areas. Small areas of broad-leaved ironbark, budgeroo open forest or "softwood scrub" species closed scrub on plateau margins and gum-topped box open forest on lower slopes and incised drainage areas.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Lj 1 [86 471 ha]

Land Unit and / or Associated Mapping Units	245	Cz1	342	341	346	333	343	341	342	341	339	344	345	Cz1
Sites	322		323 347		483		348 349 356		323 347			358		
Est. % of Mapping Unit	10				8	5	15		15	30	7	10		

Landform: Undulating to steep low hills and plateau remnants. Frequent rock outcrop on benched scarps.

Geology: Lateritised Evergreen Formation. Jle, areas Czs.

Soils: Moderately deep texture contrast soils with dark sandy loam to sandy clay loam surface soils overlying mottled brownish grey to reddish brown light to medium clays (yellow and red podzolic soils, soloths) on sloping areas. Shallow to moderately deep gravelly, dark to dark reddish brown sandy loams to loams grading to reddish brown to yellowish brown clay loams or light clays (red and yellow earths, lithosol-podzolic soil intergrades) on broad crests and upper slopes. Areas of gravelly loams and shallow sands (lithosols, siliceous sands) also occur on steep slopes and near rock outcrops.

Vegetation: Spotted gum, narrow-leaved ironbark/ pink bloodwood/ brown bloodwood/ rusty gum/ yellowjacket/ Gympie messmate, large-fruited grey gum layered open forest on slopes. Scattered areas of broad-leaved ironbark/ spotted gum/ gum-topped ironbark/ Gympie messmate or rusty gum/ narrow-leaved ironbark or budgeroo/ spotted gum/ lancewood shrubby open forest also occur. Minor areas of Queensland blue gum or gum-topped box open forest occur near drainage areas.

Lj 2 [3757 ha]

Land Unit and / or Associated Mapping Units	351	Cz1	349	347	348	333	347	335	348	Pa1	
Sites			388	389	392		389		392		
Est. % of Mapping Unit	8		8	30	12	2		40			

Landform: Undulating low hills.

Geology: Lateritised Evergreen Formation. Jle.

Soils: Deep soils, with very dark reddish brown to dark brown clay loams grading to mottled yellowish brown or dark reddish brown light to medium clays (xanthozems, krasnozems) and texture contrast soils with mottled dull yellowish brown clay subsoils (soloths, red and yellow podzolic soils) on slopes and low crests. Small areas of snuffy, red loams (red earths) on slopes near scarps.

Vegetation: Spotted gum, narrow-leaved ironbark/ pink bloodwood/ rusty gum/ Queensland blue gum/ red ash shrubby open forest on slopes. Areas of "softwood scrub" species open to closed scrub on upper slopes and gum-topped box/ narrow-leaved ironbark/ Queensland blue gum open forest on valley floors.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Lj 3 [7405 ha]

Land Unit and / or Associated Mapping Units	Je1	354	351	Lt or Cz1	351	353	350	351	350	352	Lj3	356	358	355	330	Qa
Sites		482	282 328 371 415		282 328 371 415	372	374 417	282 328 371 415	374 417	329 416		373	333	351 375 488		
Est. % of Mapping Unit		8				8	32	18		15		4	5	8	2	

Landform: Gently undulating rises to low hills.

Geology: Partly lateritised Evergreen Formation, minor sheet wash. Jle.

Soils: Moderately deep to deep dark reddish brown clay loams and sandy loams to light clays, occasionally snuffy, grading to reddish brown or dark red light to medium clays (krasnozems, red earths, euchrozems). Small areas of brown and red cracking clays (brown and red clays) or lower slopes and valley floors. Occasional areas of lithosols and brown texture contrast soils (solodic soils).

Vegetation: "Softwood scrub" species open to closed scrub with scattered areas of large-fruited grey gum, spotted gum/ gum-topped ironbark or spotted gum, narrow-leaved ironbark/ Gympie messmate/ large-fruited grey gum open forest on slopes. Small areas of brigalow, belah or poplar box or gum-topped box open forest near drainage lines and narrow-leaved ironbark or silver-leaved ironbark woodland on upper slopes.

Lj 4 [5513]

Land Unit and / or Associated Mapping Units	Lj3	353	Lt1	351	350	341	357	350	341	Lj3
Sites		372		282 328 371 415	374 417		418	374 417		
Est. % of Mapping Unit		10		12	33	25	20			

Landform: Undulating rises to rolling low hills.

Geology: Lateritised Evergreen Formation, some sheet wash. Jle.

Soils: Deep soils with dark reddish brown loams to clay loams grading to reddish brown light to medium clays (krasnozems, red earths) and moderately deep texture contrast soils with reddish to yellowish brown sandy clay to medium clay subsoils (red and yellow podzolic soils) on slopes. Small areas of lithosols on low ridges.

Vegetation: "Softwood scrub" species closed scrub and spotted gum, narrow-leaved ironbark/ pink bloodwood/ brown bloodwood/ large-fruited grey gum/ yellowjacket open forest on slopes. Shallow areas of gum-topped ironbark, Gympie messmate, spotted gum shrubby open forest on ridges and large-fruited grey gum, spotted gum open forest on upper slopes.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Lp 1 [7240 ha]

Land Unit and / or Associated Mapping Units	Pd1	272	270	271	Cz1	271	272	249	250	272	270	276	270	Lt
Sites		383	382	370 403		370 403	383			383	382	369	382	
Est. % of Mapping Unit						30		6	5	20		4	35	

Landform: Undulating rises and low hills.

Geology: Lateritised Hawkwood Gabbro and Delubra Quartz Gabbro, some sheet wash. P-Rh, P-Rd.

Soils: Deep to very deep, dark to dark reddish brown clay loams to light clays grading into dark reddish brown or dark red light to medium clays (krasnozems, euchrozems, minor red earths) on slopes with red and brown cracking clays (red and brown clays) on lower slopes and drainage lines. Occasional areas of texture contrast soils (soloths).

Vegetation: "Softwood scrub" species closed scrub on upper slopes and silver-leaved ironbark, gum-topped bloodwood grassy woodland on slopes. Small areas of brigalow, "softwood scrub" species open forest on lower slopes and poplar box open forest on valley floors. Occasional areas of spotted gum, Queensland peppermint open forest.

Lp 2 [7771 ha]

Land Unit and / or Associated Mapping Units	Cz1	276	273	275	313	273	276	274	275	323	Pr1
Sites		369		423 424		367	369		423 424		
Est. % of Mapping Unit				15	2	35	15	27		6	

Landform: Undulating rises to rolling low hills, some scarp areas.

Geology: Partially lateritised Cheltenham Creek Adamellite, undifferentiated granodiorite and small areas of Hawkwood Gabbro and Delubra Quartz Gabbro. P-Rt, P-Rr, P-Rd, P-Rh.

Soils: Moderately deep texture contrast soils with brownish black to greyish yellow brown loamy coarse sand to sandy clay loam surfaces overlying mottled dull brown to reddish brown sandy clay to medium clay subsoils (soloths, red and yellow podzolic soils, some solodic soils). Occasional areas of coarse sands (siliceous sands) and red loams to clay loams (krasnozems) on upper slopes and ridge crests.

Vegetation: Narrow-leaved ironbark, pink bloodwood/ rusty gum/ spotted gum/ Queensland peppermint open forest on slopes and spotted gum, narrow-leaved ironbark/ Queensland peppermint open forest on upper slopes and ridges. Small areas of silver-leaved ironbark woodland and poplar box open forest on lower slopes.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Lp 3 [21 484 ha]

Land Unit and / or Associated Mapping Units	282	Cz1	274	277	278	281	277	274	277	279	280	277	279	Ca
Sites				253 255 258	259	257	253 255 258			253 255 258	260 270	254 269	253 255 258	260 270
Est. % of Mapping Unit	2		25	35	15	3					5			15

Landform: Gently undulating rises to rolling low hills.

Geology: Partially lateritised Wigton Adamellite, Wandilla Formation, and some intermediate volcanics. Puw, Pgw, Pzw, D.

Soils: Moderately deep texture contrast soils with brownish black to greyish yellow loamy coarse sand to sandy clay loam surfaces overlying mottled brown and dull yellow orange sandy clay to medium clay subsoils (soloths, yellow and red podzolic soils, solodic soils) and some shallow yellow sandy loams (yellow earths) on slopes. Minor areas of grey and brown cracking clays (grey and brown clays) along drainage lines and red clay loams (krasnozems) on upper slopes.

Vegetation: Spotted gum, narrow-leaved ironbark/ Queensland peppermint/ pink bloodwood/ wattle/ bull oak/ quinine berry layered open forest on slopes and ridge crests. Small areas of narrow-leaved ironbark/ rusty gum/ pink bloodwood open forest on lower slopes and Queensland blue gum, rusty gum, gum-topped box open forest on valley floors. Occasional areas of "softwood scrub" species closed scrub on upper slopes near scarps

Lc 1 [14 452 ha]

Land Unit and / or Associated Mapping Units	Cd1	283	289	288	Cz1	231	289	285	287	284	286	283	285	Cd2
Sites		283 345 491		300				311	309	310		313	283 345 491	311
Est. % of Mapping Unit		14		5		18	2		8	30		11		12

Landform: Undulating to rolling low hills and dissected plateau remnants. Rocky scarps on unit margins.

Geology: Lateritised or partly lateritised Derrarabungy Beds, parts of Caswell Creek Group. Cld, Clc.

Soils: Shallow to moderately deep soils, frequently gravelly, with brownish black to dark reddish brown sandy loams to clay loams grading into dark reddish brown to dull orange sandy clay loams to light clays (red earths, some krasnozems) on plateau remnants and upper slopes. Moderate areas of texture contrast soils with dull yellow to dull reddish brown clay loam to medium heavy clay subsoils (yellow and red podzolic soils, soloths, minor solodic soils) on mid slopes. Minor areas of stony lithosols and deep siliceous sands.

Vegetation: Spotted gum, narrow-leaved ironbark, brown bloodwood/ long-fruited grey gum/ broad-leaved ironbark/ gum topped ironbark or narrow-leaved ironbark, spotted gum, pink bloodwood/ rusty gum/ silver-leaved ironbark shrubby open forest on upper slopes, ridge crests and plateau surfaces. Small areas of broad-leaved ironbark, spotted gum, gum-topped ironbark open forest on upper slopes and rusty gum, pink bloodwood open forest on lower slopes with Queensland blue gum/ gum-topped box open forest near drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Qb 1 [4630 ha]

Land Unit and / or Associated Mapping Units	Ra 5	80	69	70	71	69	71	70	71	72	69	72	69	70	Qb2
Sites		6 540	1 465	24 464	6 540	24 464	1 465	24 464	2 5	6 540	2 5	6 540	1 465		
Est. % of Mapping Unit	2					15	30		13	40					

Landform: Gently undulating to undulating rises. Frequent rock outcrop and stony areas.

Geology: Barambah Basalt. Qpb, Czub.

Soils: Moderately deep to deep soils with very dark reddish brown to dark reddish brown clay loams to light clays grading into dark reddish brown to dark red light or medium clays (euchrozems, krasnozems). Small areas of dark cracking clays (black earths, grey clays) near drainage areas.

Vegetation: "Softwood scrub" species open to closed scrub on upper slopes with scattered Moreton Bay ash, Queensland blue gum on margins. Silver-leaved ironbark or Queensland blue gum, Moreton Bay ash grassy woodland on some slopes and Queensland blue gum, silver-leaved ironbark woodland on drainage areas.

Qb 2 [1166 ha]

Land Unit and / or Associated Mapping Units	Pb3	75	76	75	73	74	73	Ra5
Sites		8		8	7		7	
Est. % of Mapping Unit			20	25	30	25		

Landform: Gently undulating rises and rolling hills. Some stony areas and scree slopes on volcanic cones.

Geology: Barambah Basalt. Qpb, Czub.

Soils: Moderately deep to deep, self mulching, dark and brown cracking clays (black earths, brown clays) with some surface stone. Small areas of shallower soils with dark clay loam to light clay surfaces grading into brownish black to brown clay loams to light clays (prairie soils) on steep slopes and minor areas of red clay loams to light clays (euchrozems) on slopes.

Vegetation: Brigalow grassy open forest on slopes with areas of brigalow/ "softwood scrub" species/ Queensland blue gum/ black tea-tree open forest on lower slopes. "Softwood scrub" species closed scrub dominant on slopes of volcanic cones.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Qb 3 [4174 ha]

Land Unit and / or Associated Mapping Units	77	80	77	80	78	Qa	77	Qa	78	79	Ra Rd Pb
Sites	53 462		53 462	461	64 538		53 462		64 538	16	
Est. % of Mapping Unit			50	10	25					15	

Landform: Gently undulating to rolling rises on stony basalt flows.

Geology: Barambah Basalt. Qpb, Czub.

Soils: Shallow to moderately deep soils with brownish black to dark brown clay loam to light clay surfaces grading into dark brown or brown clay loam or light to medium clays (prairie soils) on crests of stony flows, and dark and brown cracking clays (black earths, brown clays) on flows and in drainage areas.

Vegetation: Silver-leaved ironbark, narrow-leaved ironbark/ gum-topped bloodwood/ Queensland blue gum woodland and narrow-leaved ironbark, Queensland blue gum woodland to open forest on flows with minor areas of "softwood scrub" species open scrub. Small areas of Queensland blue gum, silver-leaved ironbark/ poplar box grassy woodland and patches of black tea-tree/ brigalow on drainage areas.

Tb1 [4365 ha]

Land Unit and / or Associated Mapping Units	Ra5	83	81	86	81	86	84	81	82	81	83
Sites		163	135	116	135	116		135	139	135	163
Est. % of Mapping Unit		10	40			20	5		25		

Landform: Undulating low hills to steep hills. Frequent stony areas and some rock outcrop.

Geology: Capping of Tertiary basalt. Tb.

Soils: Shallow to moderately deep, self mulching, dark and brown cracking clays (black earths, brown clays) on slopes and brownish black to black gravelly clay loams to light clays grading to dark brown or reddish brown clays (prairie soils) on steeper slopes and ridges.

Vegetation: Narrow-leaved ironbark, gum-topped bloodwood, silver-leaved ironbark grassy woodland to open forest. Minor areas Queensland blue gum, silver-leaved ironbark of Moreton Bay ash/ broad-leaved apple open forest near drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Rw1 [8384 ha]

Land Unit and / or Associated Mapping Units	Pu	86	87	85	89	86	90	88	87	85	89	85	91	Rw2/Ra2
Sites		116	157 165	174 533	115	116	112	117	157 165	174 533	115	174 533	172	
Est. % of Mapping Unit			15			17	8	8		45	5		2	

Landform: Gently undulating to undulating rises. Some stony areas.

Geology: Triassic basalt (Abernethy Basalt). Tb, Ra, (Raw).

Soils: Moderately deep to deep, self mulching, black to dark reddish brown cracking clays (black earths, brown clays, minor red clays). Smaller areas of shallow dark to brown non-cracking clays (prairie soils, chernozems) on upper slopes and broad ridge crests with minor dark reddish brown light clays (krasnozems).

Vegetation: Silver-leaved ironbark, gum-topped bloodwood/ narrow-leaved ironbark/ Moreton Bay ash grassy woodland to open forest on slopes with areas of narrow-leaved ironbark, pink bloodwood grassy woodland on broad ridges with scattered Moreton Bay ash, silver-leaved ironbark frequently present. Queensland blue gum, silver-leaved ironbark or poplar box open forests occur on lower slopes and drainage areas. Occasional areas of brigalow/ "softwood scrub" species.

Rw2 [4161 ha]

Land Unit and / or Associated Mapping Units	Rw1	93	91	93	91	Rw1	86	90	92	89	93	90	92	Ra
Sites		486	172	486	172		116	112		118	486	112		
Est. % of Mapping Unit			20	5			5	55		3			12	

Landform: Undulating to rolling low hills. Surface rock common, some rock outcrop.

Geology: Triassic basalt (Abernethy Basalt). Tb, Ra (Raw).

Soils: Predominantly shallow, loose, brownish black to dark brown, cracking clays (black earths, brown clays) on steep slopes and stony ridge crest with small areas of brownish black clay loams grading to brown clays (prairie soils) near rock outcrops.

Vegetation: Silver leaved ironbark, gum-topped bloodwood, narrow-leaved ironbark/ Moreton Bay ash/ pink bloodwood grassy woodland with frequent areas of "softwood scrub" species closed scrub on steep upper slopes and crests. Minor areas of Queensland blue gum, silver-leaved ironbark near drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pd 1 [14 488 ha]

Land Unit and / or Associated Mapping Units	Lp	249	247	246	248	246	276	246	249	250	247	250	249	271	246	Pd2	246	249
Sites		385 426 431 444	401 402 442 443	384 399 440 441	400	384 399 440 441	369	384 399 440 441	385 426 431 444	432	401 402 442 443	432	385 426 431 444	370 403	384 399 440 441		384 399 440 441	
Est. % of Mapping Unit					15	40	2		15	5	15			8				

Landform: Undulating rises and undulating low hills. Occasional rock outcrops.

Geology: Delubra Quartz Gabbro, Hawkwood Gabbro, some areas lateritised. P-Rd, P-Rh.

Soils: Shallow to moderately deep texture contrast soils with brownish black to dark reddish brown sandy loam to clay loam surfaces overlying brown to dark reddish brown light to medium clay subsoils (non-calcic brown soils, red brown earths, minor red podzolic soils) on slopes with moderately deep red and brown cracking clays (red and brown clays) on mid and lower slopes. Areas of dark reddish brown clay loam to light clay soils (euchrozems) on upper slopes and broad low ridges.

Vegetation: Silver-leaved ironbark, gum-topped bloodwood grassy woodland to open forest on slopes and broad ridges with scattered kurrajong, Moreton Bay ash, narrow-leaved ironbark occasionally present. Areas of poplar box, silver-leaved ironbark, false sandalwood open forest or brigalow, "softwood scrub" species/wilga shrubby open forest on lower slopes and minor poplar box, Queensland blue gum/ silver-leaved ironbark open forest on valley floors.

Pd 2 [1976 ha]

Land Unit and / or Associated Mapping Units	Pd1	252	254	251	252	253	251	253	251	252
Sites		386	387		386					386
Est. % of Mapping Unit			10		20		50	20		

Landform: Rolling to steep hills. Rock outcrop common.

Geology: Delubra Quartz Gabbro. P-Rd.

Soils: Predominantly shallow dark gravelly loams to clay loams (lithosols) on steeper slopes and ridges with areas of moderately deep to deep soils with brownish black to dark brown clay loam to light clay surface soils grading to dark reddish brown clay subsoils (chernozems, prairie soils) on lower slopes. Minor areas of red earths, euchrozems on broad ridges and upper slopes.

Vegetation: Narrow-leaved ironbark/ spotted gum open forest on lithosols with areas of narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood/ kurrajong/ wattles open forest on lower slopes and narrow-leaved ironbark, gum-topped bloodwood on broad ridges.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pw 1 [921 ha]

Land Unit and / or Associated Mapping Units	Cp2	159	160	163	159	160	162	161	Qa
Sites	72		70	72				71	
Est. % of Mapping Unit			10	30	20	20	20	20	

Landform: Undulating to rolling low hills

Geology: Wateranga Gabbro, minor conglomerate. Prt, (Prw).

Soils: Predominantly shallow to moderately deep, dark and brown cracking clays (black earths, brown clays) on slopes and drainage areas with dark brown clay loams to light clays (prairie soils) on steeper slopes. Small areas of gravelly sandy loams (rudimentary podzols) and soloths on conglomerate and minor areas of lithosols on ridges.

Vegetation: Silver-leaved ironbark, gum-topped bloodwood/ narrow-leaved ironbark/ Queensland blue gum grassy woodland to open forest on slopes with narrow-leaved ironbark frequently dominant. Areas of narrow-leaved ironbark, rusty gum, pink bloodwood/ quinine berry woodland to open forest on sandy soils and narrow-leaved ironbark, spotted gum open forest on ridges. Minor areas of Queensland blue gum, narrow-leaved ironbark, Moreton Bay ash grassy open forest on lower slopes and drainage lines.

Ra 1 [11 602 ha]

Land Unit and / or Associated Mapping Units	Ra 5	122	126	123	131	122	124	122	123	125	122	131	122	Qa
Sites	77 89 90 119 459	151 173 169 103	79 84 129	101 105 111 142 164	77 89 90 119 459	76 88 523 528	77 89 90 119 459	79 84 129	102 458 532	77 89 90 119 459	101 105 111 142 164	77 89 90 119 459		
Est. % of Mapping Unit			<2			15	48	20	5		10			

Landform: Undulating rises to low hills.

Geology : Andesites (and minor basalt) of the Aranbanga Beds. Ra, Rma.

Soils: Shallow to moderately deep, brownish black to dark brown light to medium clay soils becoming browner with depth (prairie soils, chernozems, minor brown clays and black earths) on slopes and crests, smaller areas of brown and grey cracking clays (brown and grey clays) and texture contrast soils with brown to reddish brown medium to heavy clay subsoils (solodic soils, red brown earths) on lower slopes and drainage lines.

Vegetation: Silver-leaved ironbark, gum-topped bloodwood/ narrow-leaved ironbark grassy open forest with Moreton Bay ash associated on slopes and pink bloodwood on upper slopes. Areas of poplar box/ silver-leaved ironbark/ narrow-leaved ironbark/ Queensland blue gum/ Moreton Bay ash/ broad-leaved apple open forest on lower slopes and poplar box, Queensland blue gum grassy woodland in drainage lines.

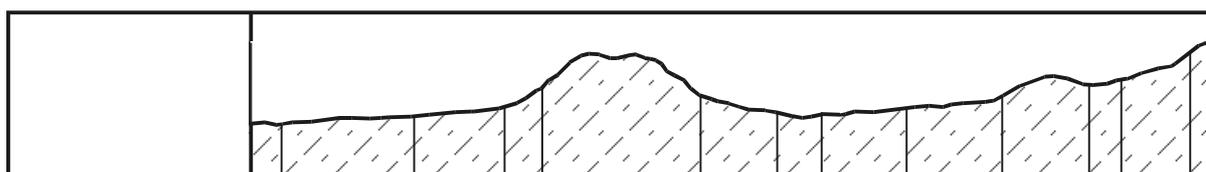
The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Ra 2 [3322 ha]



Land Unit and / or Associated Mapping Units	Qa	123	126	128	Ra4	127	132	126	127	124	126	128	Ra5
Sites		79 84 129	151 173 169 103	167 170		168	110 114 156 184 265	151 173 169 103	168	76 88 523 528	151 173 169 103	167 170	
Est. % of Mapping Unit		14					3	30	25	10		18	

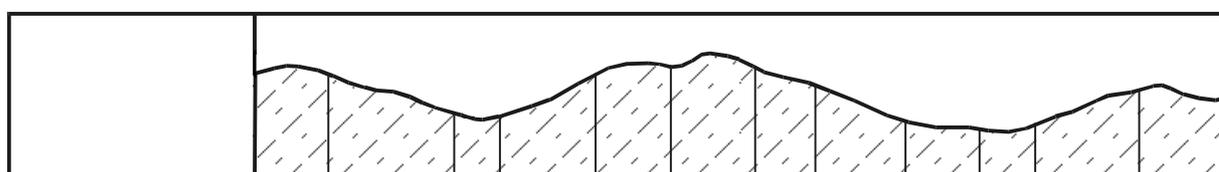
Landform: Undulating rises to minor rolling rises.

Geology: Aranbanga Beds. Ra, Rma.

Soils: Deep, self mulching, dark and brown cracking clays (black earths, brown clays) and similar non-cracking clay soils (chernozems) on lower slopes with gravelly soils with dark to brown clay loam to light clay surface soil grading to brown or yellowish brown clay subsoils (prairie soils) on upper slopes and ridge crests. Minor areas of texture contrast soils (solodic soils), near drainage lines.

Vegetation: Brigalow/ belah/ scrub wilga/ "softwood scrub" species/ silver-leaved ironbark shrubby open forest on long lower slopes and "softwood scrub" species open to closed scrub with patches of brigalow open forest on upper slopes. Small areas of Queensland blue gum, Moreton Bay ash or poplar box woodland to open forest on lower slopes and drainage lines. Isolated areas of narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood woodland or stony rises

Ra 3 [23 415]



Land Unit and / or Associated Mapping Units	124	122	133	129	130	136	122	129	132	125	131	130
Sites	76 88 523 528	77 89 90 119 459	67 85 132 182	120 267	109 118 525		77 89 90 119 459	120 267	110 114 156 184 265	102 458 532	101 105 111 142 164	109 118 525
Est. % of Mapping Unit	5	13	2		17	1		32	10	5	15	

Landform: Undulating rises to rolling low hills. Minor areas of rock outcrop.

Geology : Aranbanga Beds. Ra, Rma.

Soils: Moderately deep texture contrast soils with brownish black to dark brown sandy loam and clay loam surface soils overlying mottled brown to greyish yellow brown medium to heavy clays (solodic soils) on slopes with shallow gravelly texture contrast soils (red brown earths) on upper slopes. Small areas of dark and brown clay soils (prairie soils, chernozems) on slopes with some brown clays.

Vegetation: Narrow-leaved ironbark, pink bloodwood/ silver-leaved ironbark/ Moreton Bay ash/ quinine berry grassy woodland to open forest on slopes with areas of silver-leaved ironbark, narrow-leaved ironbark / gum-topped bloodwood/ grey bloodwood/ Moreton Bay ash woodland or spotted gum open forest on upper slopes. Small areas of Queensland blue gum, narrow-leaved ironbark/ Moreton Bay ash/ poplar box woodland to open forest on lower slopes and poplar box/ Queensland blue gum or gum-topped box open forest on valley floors. Weeping bottle brush, black tea-tree, river she-oak fringe drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Ra 4 [18 711]

												
Land Unit and / or Associated Mapping Units	Ra3	135	134	136	134	130	135	133	132	131	134	136
Sites		98	266	106 155 264	266	109 118 525	98	141 144	110 114 156 184 265	101 105 111 142 164	266	106 155 264
Est. % of Mapping Unit			35	15		8	22	3	7	10		

Landform: Rolling low hills. Frequent areas of rock outcrop.

Geology: Aranbanga Beds. Ra, Rma.

Soils: Shallow to moderately deep texture contrast soils with brownish black to dark brown sandy loam to gritty clay loam surfaces overlying dark brown to greyish yellow brown sandy to medium clay subsoils (solodic soils, minor red brown earths) on slopes. Shallow stony lithosols on upper slopes and rocky ridges. Some deep texture contrast soils (solodic soils, solodized solonetz soils) near drainage lines and minor areas of brown clay loams (prairie soils).

Vegetation: Spotted gum, narrow-leaved ironbark/ Queensland blue gum/ rusty gum/ quinine berry/ wattle/ dogwood/ bull oak shrubby open forest on slopes with pink bloodwood, Queensland peppermint, black she-oak frequently associated on ridges. Areas of narrow-leaved ironbark/ gum-topped bloodwood/ silver-leaved ironbark/ Moreton Bay ash/ pink bloodwood open forest on lower slopes. Minor areas of Queensland blue gum/ narrow-leaved ironbark or gum-topped box woodland to open forest occur on valley floors.

Ra 5 [64 262 ha]

														
Land Unit and / or Associated Mapping Units	Ra 1	141	137	138	141	140	137	139	129	132	137	138	142	Ra 2
Sites		448	130	141 144	448	9 10	130	131 140 143	120 267	110 114 156 184 265	130	141 144	145	
Est. % of Mapping Unit			40	15	10	12		13	5	2			3	

Landform: Rolling to steep hills and mountains with rock outcrops.

Geology: Aranbanga Beds. Ra, Rma.

Soils: Shallow stony, greyish brown to yellowish brown sandy loams to clay loams (lithosols, lithosol-podzolic soil intergrades) on steep slopes and ridges. Shallow to moderately deep texture contrast soils with dark reddish brown to dull yellowish brown light to medium clay subsoils (red brown earths, non calcic brown soils, grey brown and yellow podzolic soils, solodic soils) on lower slopes, saddles and broader ridges. Minor areas of dark clay loams to light clays (prairie soils) on slopes.

Vegetation: Spotted gum, narrow-leaved ironbark/ pink bloodwood/ wattles/ quinine berry layered open forest on slopes and ridges with scattered Queensland blue gum, Moreton Bay ash associated on lower slopes. Small areas of narrow-leaved ironbark/ silver-leaved ironbark/ gum-topped bloodwood grassy woodland to open forest on lower slopes and brown bloodwood, small-fruited grey gum, brush box/ white mahogany/ pink bloodwood/ narrow-leaved ironbark open forest on ridges. Minor areas of Queensland blue gum, narrow-leaved ironbark open forest on drainage lines and "softwood scrub" species open to closed scrub on slopes.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Ra 6 [9015 ha]

Land Unit and / or Associated Mapping Units	Ra 3	143	145	143	149	144	143	147	148	132	143	146	145	143	Ra 5
Sites		127 146 154	154 194	128 134	127 146 153	154 194 136	126	127 146 153	154 194 198	152 193 198	110 114 156 184 265	127 146 153 154 194	133 171	128 134	127 146 153 154 194
Est. % of Mapping Unit					5	20	40	5	5	2		8	15		

Landform: Undulating low hills to rolling hills with minor rock outcrop.

Geology: Partly lateritised Aranbanga Beds. Ra, Rma.

Soils: Shallow to moderately deep, texture contrast soils with brownish black to brown sandy loam to clay loam surfaces, frequently gravelly, overlying dark reddish brown to greyish brown medium to heavy clay subsoils (soloths, red, yellow and grey brown podzolic soils, minor solodic soils) on slopes and ridge crests. Scattered areas of reddish brown clay loams to light clays (krasnozems, red earths) on broad crests and minor areas of brown clays.

Vegetation: Spotted gum, narrow-leaved ironbark, pink bloodwood/ Queensland peppermint/ rusty gum/ silver-leaved ironbark/ Moreton Bay ash layered open forest on slopes and broad crests with areas of broad-leaved ironbark, pink bloodwood, rusty gum/ spotted gum/ Queensland peppermint/ white mahogany/ black she-oak shrubby open forest or gum-topped box/ narrow-leaved ironbark/ spotted gum open forest on upper slopes and saddles. Minor areas of Queensland blue gum, Moreton bay ash, broad-leaved apple or gum-topped box grassy open forest on lower slopes and drainage lines. Occasional areas of budgeroo, brown bloodwood/ thready bark she-oak shrubby open forest on slopes.

Pa 1 [21 035 ha]

Land Unit and / or Associated Mapping Units	267	264	268	269	262	266	263	267	266	262	263	264	266	265	Lp or Lj
Sites		414	393 406	430	425 427 429	398	390 391 419	397	398	425 427 429	390 391 419	414	398	428	
Est. % of Mapping Unit		15	7	5	15		25	8	10					15	

Landform: Undulating rises to rolling low hills. Occasional rock outcrops on ridges.

Geology: Narayen Beds. Pla.

Soils: Moderately deep to deep, brown cracking clays (brown clays, some black earths) and uniform, dark to dark reddish brown light to medium clay soils becoming heavier with depth (prairie soils, chernozems) with occasional weak linear gilgai microrelief on lower slopes, becoming shallow on upper slopes. Minor areas of texture contrast soils with brown to dark reddish brown clay subsoils (red brown earths, non-calcic brown soils, solodic soils) on slopes and near drainage lines.

Vegetation: Silver-leaved ironbark, gum-topped bloodwood/ kurrajong/ narrow-leaved ironbark grassy woodland to open forest on slopes with poplar box/ silver-leaved ironbark woodland or narrow-leaved ironbark, gum-topped box/ false sandalwood open forest or Queensland blue gum, rough-barked apple/ Moreton Bay ash open forest on lower slopes and along drainage lines. Small areas of "softwood scrub" species/ brigalow open scrub on slopes below lateritised areas and brigalow/ wilga open forest on some lower slopes.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Ts 1 [2778 ha]

Land Unit and / or Associated Mapping Units	21	22	24	22	21	24	23	21	Ra4
Sites	93 96	94 541	97	94 541	93 96	97	95	93 96	
Est. % of Mapping Unit		30	15		35		20		

Landform: Undulating rises and gently undulating plains.

Geology: Undifferentiated Cainozoic and Tertiary alluvial gravels and sands. Czua, Ts.

Soils: Moderately deep to deep texture contrast soils with brownish black to greyish brown sandy loam to sandy clay loam surface soils, frequently gravelly, overlying mottled brown to dull yellow orange sandy to heavy clay subsoils (soloths, solodic soils, solodized solonetz soils and grey brown podzolic soils), becoming shallower on slopes.

Vegetation: Narrow-leaved ironbark, gum-topped box/ Queensland blue gum/ pink bloodwood/ Moreton Bay ash/ bull oak/ wattles grassy open forest on plains and rusty gum/ Queensland peppermint/ gum-topped box/ bull oak/ narrow-leaved ironbark/ dogwood/ quinine berry shrubby open forest on low rises. Areas of gum-topped box, bull oak/ myrtle tree shrubby open forest on broad ridges and gum-topped box, narrow-leaved ironbark/ bull oak/ pink bloodwood open forest on drainage lines.

Je 1 [7168 ha]

Land Unit and / or Associated Mapping Units	Lj1	329	332	333	331	329	330	339	334	329	Lj1	332	330	Qa
Sites		337	501	338 484	330	337	331 340 352		380 396	337		501	331 340 352	
Est. % of Mapping Unit			10	7	15	35	20	8	5					

Landform: Undulating rises and undulating low hills.

Geology: Sandstones of Evergreen Formation. Je.

Soils: Deep texture contrast soils with brownish black to greyish brown sandy loam to sandy clay loam surface soils overlying mottled, dull brown to greyish yellow brown clay subsoils (solodic soils, solodized solonetz soil, soloths). Reddish brown gradational soils (krasnozems, euzozems) also occur.

Vegetation: Narrow-leaved ironbark/ pink bloodwood/ spotted gum/ bull oak/ Moreton Bay ash grassy open forest on slopes with areas of poplar box/ narrow-leaved ironbark/ Queensland blue gum open forest or silver-leaved ironbark, narrow-leaved ironbark/ bull oak/ beefwood grassy woodland on lower slopes and valley floors. Scattered areas of narrow-leaved ironbark, rusty gum open forest on lower slopes and open forests of Queensland blue gum, Moreton Bay ash or gum-topped box/ narrow-leaved ironbark/ Queensland blue gum on lower slopes and drainage lines.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Je 2 [15 137 ha]

Land Unit and / or Associated Mapping Units	337	338	335	336	339	337	340	335	333	336	337	Je3
Sites	325	339	359	485 487 494 495	324	325	492 493	359	338 484	485 487 494 495	325	
Est. % of Mapping Unit		10		20	8	15	9	32	6			

Landform: Undulating rises to low hills.

Geology: Sandstones of Evergreen Formation. Jle.

Soils: Moderately deep to deep texture contrast soils with brownish black to brownish grey sandy loam to silty clay loam surface soils overlying mottled brown to bright yellowish brown clay and some sandy clay loam subsoils (soloths, red and yellow podzolic soils), shallow on ridges. Occasional areas with texture contrast soils with reddish brown clay subsoils (non-calcic brown soils) and minor yellow earths.

Vegetation: Spotted gum, narrow-leaved ironbark/ rusty gum/ pink bloodwood, Queensland blue gum/ wattles shrubby open forest on slopes and ridges with Queensland peppermint, budgeroo and lancewood often associated on ridges. Areas of narrow-leaved ironbark/ silver-leaved ironbark/ long-fruited bloodwood/ pink bloodwood/ kurrajong/ Queensland blue gum grassy open forest to woodland and rusty gum/ narrow-leaved ironbark/ swamp mahogany/ Moreton Bay ash shrubby open forest on lower slopes. Small areas of Queensland blue gum, Moreton Bay ash or gum-topped box open forest occur along drainage lines with swamp mahogany and rough-barked apple often associated.

Rb 1 [6849 ha]

Land Unit and / or Associated Mapping Units	Qa	103	104	103	105	107	104	106	103	Ra
Sites		74 473	44 73 476	74 473	474		44 73 476	29	74 473	
Est. % of Mapping Unit					8	20	30	20	22	

Landform: Undulating rises to rolling low hills

Geology: Brooweena Formation. Rlb, (Rb).

Soils: Shallow to moderately deep texture contrast soils with deep brownish black to greyish yellow brown sandy loam to sandy clay loam surface soils, often gravelly, overlying dull brown to dull yellow orange light to medium clay subsoils (soloths, solodic soils) on slopes with shallow gravelly sandy loams (lithosols) on steeper slopes and ridges.

Vegetation: Spotted gum, narrow-leaved ironbark/ Queensland peppermint/ pink bloodwood/ Queensland blue gum/ gum-topped box/ rusty gum/ wattles/ bull oak/ dogwood grassy open forest with brush box, brown bloodwood, white mahogany frequently associated on ridges. Areas of narrow-leaved ironbark, Queensland blue gum, Queensland peppermint/ rusty gum open forest and Queensland blue gum, brown bloodwood, rusty gum open forest occur on mid and lower slopes. Queensland blue gum, Moreton Bay ash/ narrow-leaved ironbark/ swamp mahogany/ broad-leaved apple grassy open forests occur on valley floors with weeping bottle brush, river she-oak, flaxleaf tea-tree fringing watercourses.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Rb 2 [4026 ha]

Land Unit and / or Associated Mapping Units	Rf1	107	110	105	110	109	111	108	109	108	107
Sites				474		28		32	28	32	
Est. % of Mapping Unit		30	15	3		17	10	25			

Landform: Rolling hills to steep mountains with frequent rock outcrops.

Geology: Brooweena Formation. Rlb, (Rb).

Soils: Shallow, gravelly, brownish black to dull yellowish brown sandy loams to clay loams (lithosols) on steep slopes and ridges. Moderately deep texture contrast soils with brownish black to greyish yellow brown sandy loam to sandy clay loam surfaces overlying brown to dull yellowish brown clay subsoils (yellow and grey brown podzolic soils, some soloths) on lower slopes. Minor areas of dark to brown clay loams grading to light clays (prairie soils).

Vegetation: Predominantly spotted gum, narrow-leaved ironbark/ brush box/ brown bloodwood/ white mahogany open forest on steep slopes with small-fruited grey gum, narrow-leaved ironbark, broad-leaved ironbark/ brush box/ "softwood scrub" species shrubby open forest or broad-leaved ironbark, spotted gum, brown bloodwood open forest on ridges. Small areas of narrow-leaved ironbark, Queensland blue gum/ spotted gum/ rusty gum/ Queensland peppermint and Queensland blue gum, Moreton Bay ash/ swamp mahogany/ broad-leaved apple open forest occur on lower slopes and drainage lines. Minor areas of "softwood scrub" species closed scrub.

Rg 1 [3366 ha]

Land Unit and / or Associated Mapping Units	Qa	118	120	118	121	118	120	121	119	
Sites		147 543	183	147 543		147 543	183		100 534	
Est. % of Mapping Unit			20	40	15				25	

Landform: Undulating rises with some rolling low hills.

Geology: Gayndah Beds (Gayndah Formation). Rg.

Soils: Shallow to moderately deep texture contrast soils, frequently stony surface, with brownish black to dark brown sandy loam to clay loam surfaces overlying dark brown to yellowish brown clay subsoils (yellow podzolic soils, lithosol-podzolic soil intergrades, some soloths, red brown earths and solodic soils). Shallow gravelly, sandy loams (lithosols) occur on ridge crests.

Vegetation: Narrow-leaved ironbark, pink bloodwood, Moreton Bay ash/ silver-leaved ironbark/ Queensland peppermint/ beefwood/ wattle grassy woodland to open forest on slopes with areas of narrow-leaved ironbark, spotted gum, rusty gum/ Queensland peppermint/ black she-oak/ Moreton Bay ash layered open forest on ridges. Poplar box, Queensland blue gum/ Moreton Bay ash open forest frequently occurs on drainage lines and lower slopes.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Cd 1 [15 250 ha]

Land Unit and / or Associated Mapping Units	Lj	222	224	221	223	221	222	283	221	225	221	223	231	Lc1
Sites		320	342	291 292 343 379 378	319 321 341 377	291 292 343 379 378	320		291 292 343 379 378	344	291 292 343 379 378	319 321 341 377	191 201 308	
Est. % of Mapping Unit			10		12	34	15	12		2			15	

Landform: Undulating rises to undulating low hills.

Geology: Derrarabungy Beds. Cld.

Soils: Moderately deep, texture contrast soils with brownish black to brown sandy loam to silty clay loam surface soils overlying mottled dull yellowish brown to reddish brown light to medium clay subsoils (solodic soils, solodized solonetz soils, soloths, yellow podzolic soils). Shallow gravelly sandy clay loam soils (lithosols) frequently occur on upper slopes. Areas of brown clays on slopes.

Vegetation: Predominantly narrow-leaved ironbark/ silver-leaved ironbark/ pink bloodwood/ gum-topped box/ Queensland blue gum open forest with frequent areas of narrow-leaved ironbark, spotted gum/ pink bloodwood woodland to open-forest on upper slopes and crests. Queensland blue gum, gum-topped box, rough-barked apple/ Moreton Bay ash open forests occur on drainage lines with river she-oak, weeping bottle brush and black tea-tree fringing watercourses. Scattered areas of narrow-leaved ironbark, rusty gum and brigalow, black tea-tree/ belah open-forest occur on lower slopes.

Cd 2 [2233 ha]

Land Unit and / or Associated Mapping Units	Dh1	221	222	Lc1	231	226	228	221	229	227	Dh4
Sites		291 292 343 379 378	320		191 201 308	288 312	289	291 292 343 379 378	290	298	
Est. % of Mapping Unit		22	5		8	30	10		10	15	

Landform: Gently undulating to undulating rises.

Geology: Derrarabungy Beds and outwash from lateritised areas. Cld.

Soils: Deep soils with very dark reddish brown clay loams to light clays grading to dark reddish brown light to medium clays (euchrozems). Moderately deep texture contrast soils with brownish black to brown sandy loam to silty clay loam surfaces overlying reddish brown to dull yellowish brown clay subsoils (solodic soils, soloths, non calcic brown soils, minor yellow podzolic soils). Scattered minor areas of brown clays, prairie soils and shallow gravelly lithosols.

Vegetation: Narrow-leaved ironbark/ silver-leaved ironbark/ spotted gum/ kurrajong/ pink bloodwood grassy open forest to open woodland on slopes with areas of spotted gum, narrow-leaved ironbark/ pink bloodwood/ rosewood/ wattles shrubby open forest on upper slopes and ridges. Small areas of brigalow/ "softwood scrub" species low open forest. Woodland to open forests of narrow-leaved ironbark, Queensland blue gum/ Moreton Bay ash on lower slopes and drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Cd 3 [23 085 ha]

Land Unit and / or Associated Mapping Units	Lc1	231	234	235	231	233	230	235	234	225	230	232	Cd 4
Sites		191 201 308		221	191 201 308	314	222 223 315 504	221	229 317			192 214 316	
Est. % of Mapping Unit				4	30	10	35		6	1		14	

Landform: Rolling low hills and strike ridges. Scattered rock outcrop.

Geology: Caswell Creek Group. Clc.

Soils: Shallow to moderately deep texture contrast soils, often gravelly throughout, with brownish black loam to fine sandy clay loam surfaces overlying dark reddish brown to dull yellow clay subsoils (non calcic brown soils, red and yellow podzolic soils, soloths, some solodic soils). Similar gradational textured soils with dark reddish brown subsoils (prairie soils) also occur. Scattered areas of shallow gravelly lithosols and grey and brown clays also occur.

Vegetation: Narrow-leaved ironbark, silver-leaved ironbark/ gum-topped bloodwood/ kurrajong/ pink bloodwood/ wattles/ red ash grassy woodland to open forest or spotted gum, narrow-leaved ironbark/ red ash, wattles open forest on slopes and ridge crests. Small areas of gum-topped box/ poplar box/ silver-leaved ironbark open forest and brigalow, belah/ "softwood scrub" species low open forest on lower slopes. Queensland blue gum, Moreton Bay ash/ broad-leaved apple open forest occurs on valley floors with swamp mahogany, river she-oak, black tea-tree, weeping bottle brush fringing water courses.

Cd 4 [5894 ha]

Land Unit and / or Associated Mapping Units	Cd3	237	236	238	208	236	237	239	237	236	238	230	232	Dh2
Sites		215 216	224			224	215 216	219	215 216	224	225		192 214 316	
Est. % of Mapping Unit			45		2			3	20		5	18	7	

Landform: Rolling low hills to steep hills with occasional rock outcrop.

Geology: Caswell Creek Group, Crana Beds. Clc, Clr.

Soils: Shallow to moderately deep soils with brownish black to very dark brown clay loams to light clays grading into dark brown to dull reddish brown light to medium clays (prairie soils, minor chernozems). Areas of texture contrast soils with brown to reddish brown clay subsoils (non calcic brown soils, red podzolic soils, solodic soils) also occur. Minor areas of brown and dark cracking clays (brown clays, black earths) are associated with drainage lines.

Vegetation: Predominantly "softwood scrub" species closed scrub with areas of wattle regrowth. Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood woodland to open forest on less sloping areas. Scattered areas of brigalow, belah/ gum-topped box/ poplar box/ "softwood scrub" species occur on slopes and near drainage lines. Open forests of poplar box, Queensland blue gum/ gum-topped box are often associated with drainage lines.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Dh 1 [15 643 ha]

Land Unit and / or Associated Mapping Units	Cd3	206	204	210	204	208	210	205	206	204	207	208	207	205
Sites		234 286	232 233 239 287 318	206	232 233 239 287 318	207 217 237 274	206	334	234 286	232 233 239 287 318	235 238 272 299 499	207 217 237 274	235 238 272 299 499	334
Est. % of Mapping Unit				8	40	4			15		10			23

Landform: Undulating rises to low hills.

Geology: Pumpkin Hut Mudstone. Dh, Clc.

Soils: Shallow to moderately deep uniform and gradational textured soils with brownish black to dark brown clay loam to light clay surfaces grading to dark reddish brown to brown light to medium clay subsoils (prairie soils, chernozems) and texture contrast soils with dark brown clay loam surfaces overlying brown to yellowish brown clay subsoils (solodic soils, solodized solonetz). Minor areas of brown clays and occasional shallow loamy lithosols also occur.

Vegetation: Silver-leaved ironbark, gum-topped bloodwood/ narrow-leaved ironbark grassy woodland and narrow-leaved ironbark/ silver-leaved ironbark/ kurrajong/ Moreton Bay ash grassy woodland on slopes and hillcrests. Smaller areas of poplar box, Queensland blue gum/ silver-leaved ironbark/ Moreton Bay ash/ false sandalwood woodland to open forest and brigalow/ belah open forest occur on lower slopes and drainage lines

Dh2 [2963 ha]

Land Unit and / or Associated Mapping Units	Lc1	209	210	209	212	209	210	211	204	208	204	211	Pz2	
Sites		218 220 236	206	218 220 236		218 220 236	206		232 233 239 287 318	207 217 237 274	232 233 239 287 318	233 239 237 287 318		
Est. % of Mapping Unit			15	60	5				12	3			5	

Landform: Undulating rises to undulating low hills.

Geology: Caswell Creek Group, Pumpkin Hut Mudstone. Clc, Dh.

Soils: Predominantly shallow to moderately deep uniform and gradational textured soils with brownish black to dark brown clay loam to light clay surfaces grading into dark reddish brown to yellowish brown light to medium clay subsoils (prairie soils, chernozems) and areas of deep dark and brown cracking clays (grey, brown and red clays, black earths). Minor areas texture contrast soils with yellowish brown clay subsoils (solodic soils) in drainage lines.

Vegetation: "Softwood scrub" species closed scrub, largely cleared, with areas of brigalow/ belah/ wilga open forest and silver-leaved ironbark woodland on slopes. Minor areas of poplar box, Queensland blue gum open forest on lower slopes and valley floors

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Dh 3 [4329 ha]

Land Unit and / or Associated Mapping Units	Qa 1	207	208	207	216	213	215	213	216	214	208	213	215	Pz
Sites		235 238 272 299 499	207 217 237 274	235 238 272 299 499	277 496	195 273	200 275 276	195 273	277 496	281	207 217 237 274	195 273	200 275 276	
Est. % of Mapping Unit				25	6	30	12			23	4			

Landform: Undulating rises to undulating low hills.

Geology: Undifferentiated Devonian Beds (intermediate volcanics, mudstone). D.

Soils: Moderately deep to deep soils with brownish black to dark brown clay loam to light clay surfaces grading to dark brown to yellowish brown light to medium clay subsoils (prairie soils, chernozems) and dark reddish brown to reddish brown light to medium clays (euchrozems). Minor areas of brown clays and texture contrast soils with brown to yellowish brown clay subsoils (solodic soils) also occur.

Vegetation: Silver-leaved ironbark/ narrow-leaved ironbark/ pink bloodwood/ Moreton Bay ash grassy woodland and silver-leaved ironbark, Moreton Bay ash/ gum-topped bloodwood woodland to open forest on slopes with poplar box/ silver-leaved ironbark open forest on lower slopes. Scattered areas of brigalow/ "softwood scrub" species/ belah low open forest also occur with poplar box, Queensland blue gum/ silver-leaved ironbark/ false sandalwood on lower slopes and valley floors.

Dh 4 [4384 ha]

Land Unit and / or Associated Mapping Units	Cd 2	204	217	220	218	217	220	217	219	Qa
Sites		232 233 239 287 318	256 293 297 303	296	294	256 293 297 303	296	256 293 297 303	295 304	
Est. % of Mapping Unit		5			25	50	8		12	

Landform: Undulating rises.

Geology: Undifferentiated Devonian beds. D.

Soils: Deep dark and brown cracking clays (brown clays, black earths) occasionally weakly gilgaied with areas of brownish black to brown clay loam to light clay surface soils grading to dark reddish brown to brown light to medium clay subsoils (prairie soils, chernozems). Small areas of texture contrast soils with brown sandy clay to heavy clay subsoils (solodic soils, solodized solonetz soils) also occur.

Vegetation: Brigalow/ belah/ wilga open to low open forest with "softwood scrub" species associated in places. Poplar box/ silver-leaved ironbark/ gum-topped box open forest occurs on gentle lower slopes and drainage lines. Scattered areas of silver-leaved ironbark, narrow-leaved ironbark, gum-topped bloodwood grassy woodland also occur.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pg 1 [13 558 ha]

Land Unit and / or Associated Mapping Units	303	301	302	303	302	304	305	300	301	300	302	301
Sites												
Est. % of Mapping Unit				12	23	10	5	30	20			

Landform: Rolling hills to steep hills with occasional steep mountains. Frequent rock outcrop on crests and slopes.

Geology: Toondahra Granite, undifferentiated granite, adamellite, granodiorite.

Soils: Shallow to moderately deep texture contrast soils with brownish black to greyish brown loamy sand to sandy loam surface soils overlying yellowish brown to reddish brown sandy clays (red and yellow podzolic soils, soloths, solodic soils). Areas of shallow sands and loamy sands (siliceous sands) and gravelly sandy lithosols.

Vegetation: Spotted gum, narrow-leaved ironbark/ rusty gum/ cypress pine, black she-oak, wattle layered open forest on steep slopes with narrow-leaved ironbark, Queensland blue gum, rusty gum, pink bloodwood layered open forest on lower slopes. Spotted gum, narrow-leaved ironbark, pink bloodwood/ Queensland peppermint/ dogwood shrubby open forest occurs on rocky ridge crests. Small areas of narrow-leaved ironbark, Queensland blue gum, rough-barked apple, bull oak/ silver-leaved ironbark open forest near drainage lines.

Pg 2 [2587 ha]

Land Unit and / or Associated Mapping Units	Pg1	359	361	362	361	360	362	360	359	
Sites			268 302		268 302					
Est. % of Mapping Unit		40		5	25			30		

Landform: Undulating rises. Occasional stony areas.

Geology: Undifferentiated Permo-Triassic granodiorite, granite. P-Rg.

Soils: Predominantly shallow to moderately deep texture contrast soils with brownish black to dark reddish brown sandy loam to clay loam surface soils overlying dark reddish brown to yellowish brown light to medium clay subsoils (non-calcic brown soils, some red brown earths, solodic soils). Large areas of shallow gravelly sandy clay loams (lithosols) occur on upper slopes and crests.

Vegetation: Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood/ kurrajong/ emu apple/ quinine berry grassy woodland on slopes and spotted gum, narrow-leaved ironbark/ kurrajong/ wattles open forest on upper slopes and ridges. Queensland blue gum, Moreton Bay ash/ silver-leaved ironbark grassy open forest occurs near drainage lines.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Rt 1 [2104 ha]

Land Unit and / or Associated Mapping Units	Pb 4	150	158	150	152	151	150	151
Sites	56 58	521	56 58	57			56 58	
Est. % of Mapping Unit			5	45	15	35		

Landform: Rolling low hills and occasional steep low hills. Areas of rock outcrop.

Geology: Tawah Granodiorite. Rlgt, (Rt).

Soils: Shallow to moderately deep, uniform textured soils with coarse sandy loams grading to dull reddish brown or dull yellowish brown clayey coarse sands or sandy clay loams (siliceous sands, minor rudimentary podzol soils) and shallow sandy lithosols. Minor areas of texture contrast soils with dull reddish brown to bright brown coarse sandy clay loam or sandy clay subsoils (red and yellow podzolic soils, soloths) on valley floors and lower slopes.

Vegetation: Narrow-leaved ironbark, Moreton Bay ash, pink bloodwood/ brush box/ wattles/ quinine berry/ bitterbark open forest on slopes and crests with spotted gum frequently associated on ridge crests. Queensland blue gum, Moreton Bay ash/ pink bloodwood open forest occurs on valley floors with swamp mahogany, river she-oak, broad leaf paper bark tee-tree, weeping bottle brush fringing stream channels.

Rs 1 [5483 ha]

Land Unit and / or Associated Mapping Units	311	315	311	313	312	311	312	314	328	314	311	Pa1
Sites	421		421	422	394 420	421	394 420	395		395	421	
Est. % of Mapping Unit		8	45	10			25	10	2			

Landform: Undulating rises to rolling low hills. Occasional rock outcrop.

Geology: Mount Saul Adamellite, mixed flows and pyroclastics. Rms, R.

Soils: Shallow to moderately deep texture contrast soils, becoming deep on lower slopes, with brown to brownish black sandy loam to sandy clay loam surfaces overlying mottled, brown to greyish yellow brown clay subsoils (solodic soils, solodized solonetz soils, soloths, grey brown podzolic soils) and occasional areas of shallow sandy loams to loamy sands (lithosols, siliceous sands) on stony ridge crests.

Vegetation: Narrow-leaved ironbark, silver-leaved ironbark/ pink bloodwood/ kurrajong/ Moreton Bay ash/ quinine berry woodland on slopes and crests. Poplar box, Queensland blue gum/ Moreton Bay ash/ false sandalwood shrubby open forests and rusty gum, Queensland blue gum, rough-barked apple grassy woodlands occur on lower slopes and minor drainage lines. Queensland blue gum, narrow-leaved ironbark/ Moreton Bay ash/ rough-barked apple open forests occur near drainage lines.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Ro 1 [5421 ha]

Land Unit and / or Associated Mapping Units	Ra	154	157	158	155	153	156	153	154	153	Cp2
Sites				521	522	66 524	68	66 524		66 524	
Est. % of Mapping Unit			10	5	15	35	10		25		

Landform: Rolling low hills to steep hills. Surface stone and boulder outcrop on upper slopes and crests.

Geology: Chowey Granite. Rlgo, (Pc).

Soils: Shallow to moderately deep, uniform textured loamy sands to coarse sandy loams and clayey sands (siliceous sands, lithosols, some rudimentary podzol soils) becoming deeper on lower slopes. Minor areas of texture contrast soils with mottled, brown to dull yellowish brown clay subsoils (soloths, solodic soils, minor yellow podzolic soils) also occur.

Vegetation: Narrow-leaved ironbark, spotted gum, pink bloodwood/ Moreton Bay ash/ wattles/ black she-oak/ quinine berry shrubby open forest on steeper slopes and ridge crests. Open forests of rusty gum, narrow-leaved ironbark, pink bloodwood/ Queensland peppermint or white mahogany, pink bloodwood, rusty gum or narrow-leaved ironbark, pink bloodwood, Queensland blue gum occur on lower slopes. Moreton Bay ash, Queensland blue gum, pink bloodwood open forests occur on valley floors with swamp mahogany, river she-oak, flaxleaf tea-tree, weeping bottle brush, black tea-tree fringing stream channels.

Rd 1 [6064 ha]

Land Unit and / or Associated Mapping Units	164	170	169	164	165	166	164	169	168	164	Pb 2
Sites	453 454			453 454	21 62 63 65	456 472	453 454			453 454	
Est. % of Mapping Unit		10	15		3	2	65		5		

Landform: Rolling low hills to rolling hills. Frequent rock outcrop.

Geology: Mungore Complex (granites). Rlgr, (Rm).

Soils: Predominantly shallow, uniform textured loamy coarse sands to sandy loams (lithosols, siliceous sands, rudimentary podzols), often gravelly. Minor areas of texture contrast soils with brown to greyish brown sandy clay subsoils (solodic soils, solodized solonetz soils, yellow podzolic soils) also occur.

Vegetation: Narrow-leaved ironbark, spotted gum, pink bloodwood/ Moreton Bay ash/ quinine berry/ wattles open forest on slopes and crests. Small scattered areas of pink bloodwood, white mahogany, forest she-oak, small-fruited grey gum/ swamp mahogany/ brush box open forest to woodland occur on upper slopes and "softwood scrub" species closed scrub or white mahogany, brown bloodwood, brush box open to closed forest on slopes. Minor areas of spotted gum, narrow-leaved ironbark/ Queensland peppermint open forest occur on lower slopes with Queensland blue gum, Moreton Bay ash open forest on narrow valley floors. River she-oak, weeping bottle brush, broad leaf paper barked tea-tree fringe stream channels.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Rd 2 [10 856 ha]

Land Unit and / or Associated Mapping Units	Pd2	164	167	169	168	170	165	166	167	168	171	169	171	170	168	167
Sites	453 454						21 62 63 65	456 472								
Est. % of Mapping Unit	5	33		20	12	8	2					12	8			

Landform: Steep to very steep mountains with frequent rock outcrop.

Geology: Mungore Complex, Degilbo Granodiorite. Rlgr, Rlgd, (Rm, Rd).

Soils: Shallow to occasionally moderately deep, uniform textured, loamy coarse sand to sandy loam soils (lithosols, siliceous sands, rudimentary podzol soils), often stony throughout. Isolated areas of texture contrast soils with brown to greyish brown sandy clay subsoils (solodic soils, yellow podzolic soils) on low sloping areas.

Vegetation: Spotted gum, narrow-leaved ironbark, brush box/ pink bloodwood/ grey gum/ wattle open forest on slopes with open forests of white mahogany, brown bloodwood, brush box/ small-fruited grey gum or pink bloodwood, white mahogany, forest she-oak/ swamp mahogany on slopes or crests. Isolated areas of "softwood scrub" species closed scrub occur on slopes and New England blackbutt, red bloodwood, white mahogany shrubby woodland on crests. Moreton Bay ash, Queensland blue gum, narrow-leaved ironbark open forest occurs on valley floors.

Rf 1 [16 122 ha]

Land Unit and / or Associated Mapping Units	Pb	112	117	115	113	117	115	114	116	Rb 1	
Sites		22 30 55	31 35	23 36	34	31 35	23 36	33 54			
Est. % of Mapping Unit		30	5		25	15		18	7		

Landform: Undulating rises to undulating low hills. Occasional rock outcrop.

Geology: Broomfield Granite. Rlgb, (Rf).

Soils: Shallow to moderately deep, texture contrast soils with brownish black or greyish yellow brown loamy coarse sand, sandy loam or sandy clay loam surface overlying brown to bright yellowish brown clay subsoils (soloths, yellow podzolic soils, solodic soils, minor non-calcic brown soils). Minor areas of gravelly, loamy soils (lithosols, siliceous sands) and yellow earths .

Vegetation: Narrow-leaved ironbark, pink bloodwood, rusty gum/ Moreton Bay ash/ Queensland peppermint/ swamp mahogany/ wattles/ bull oak/ quinine berry open forest and rusty gum, brown bloodwood, swamp mahogany open forest on slopes and low rises. Areas of spotted gum, gum-topped box or spotted gum, narrow-leaved ironbark open forest occur on slopes and ridge crests. Narrow-leaved ironbark, Queensland blue gum, Moreton Bay ash open forests also occur on slopes with Queensland blue gum, swamp mahogany/ gum-topped box open forest on lower slopes and drainage lines. River she-oak, weeping bottle brush, black tea-tree fringe stream channels.

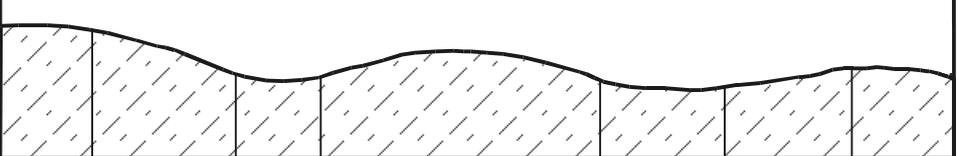
The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pt 1 [4057 ha]

							
Land Unit and / or Associated Mapping Units	Lp	308	310	306	309	307	306
Sites			434	445	446	433	445
Est. % of Mapping Unit		20	<1	40	14	25	

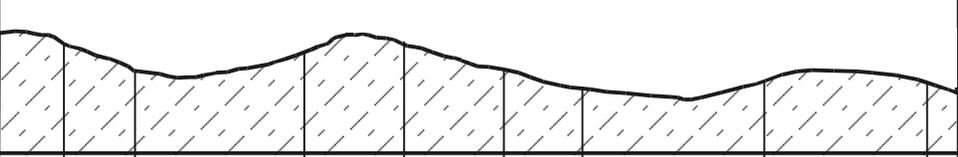
Landform: Undulating low hills. Occasional rock outcrops.

Geology: Cheltenham Creek Adamellite. P-Rt.

Soils: Moderately deep to deep texture contrast soils with brownish black to greyish brown loamy coarse sands to sandy loams overlying mottled reddish brown to dull yellow orange sandy to medium clay subsoils (red and yellow podzolic soils, soloths, some solodic soils and solodized solonetz soils). Minor areas of grey and brown clays occur in drainage depressions.

Vegetation: Narrow-leaved ironbark/ silver-leaved ironbark/ Queensland blue gum/ rusty gum grassy open forest and silver-leaved ironbark/ narrow-leaved ironbark or rusty gum, Moreton Bay ash/ narrow-leaved ironbark/ pink bloodwood open forests on slopes and rises. Woodlands to open forests of Queensland blue gum, Moreton Bay ash/ silver-leaved ironbark/ rough-barked apple and gum-topped box/ Queensland blue gum are associated with drainage lines and depressions.

Pc 1 [2462 ha]

									
Land Unit and / or Associated Mapping Units	Cz1	321	317	318	316	320	319	317	Po 1
Sites			438			435	439	438	
Est. % of Mapping Unit		7		15	35	13	10	20	

Landform: Rolling low hills to steep hills. Minor areas of rock outcrop.

Geology: Coonambula Granodiorite. P-Rc.

Soils: Moderately deep to deep texture contrast soils with brownish black to greyish yellow brown loamy sand to sandy loam surface overlying greyish yellow brown to dark brown sandy clay subsoils (soloths, yellow podzolic soils, minor non calcic brown soils). Occasional lithosol-podzolic soil intergrades.

Vegetation: Narrow-leaved ironbark, silver-leaved ironbark/ long-fruited bloodwood/ rusty gum/ Queensland blue gum/ Moreton Bay ash open forests on slopes and low ridge crests. Scattered areas of silver-leaved ironbark, gum-topped bloodwood/ Moreton Bay ash grassy woodland on lower slopes with Queensland blue gum, Moreton Bay ash/ pink bloodwood open forest along drainage lines, occasionally with areas of poplar box. Occasional areas of narrow-leaved ironbark, Moreton Bay ash open forest on slopes.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pr 1 [17 008 ha]

Land Unit and / or Associated Mapping Units	Cz1/ Lp2	322	323	325	322	324	322	326	328	325	323	327
Sites		362 405	355 364 407	363 412 413	362 405	411	362 405	410	360	363 412 413	355 364 407	361
Est. % of Mapping Unit		35	25			12		8	5	10		5

Landform: Undulating rises to rolling low hills. Scattered rock outcrop on ridges.

Geology: Cadarga Creek Granodiorite; undifferentiated granodiorite, granite. P-Ra, P-Rr.

Soils: Moderately deep to deep texture contrast soils with brownish black to brown loamy coarse sand to sandy clay loam surface soils overlying reddish brown to dull yellowish brown clay subsoils (soloths, red, yellow and grey brown podzolic soils, solodic soils, solodized solonetz soils and non-calcic brown soils). Shallow gravelly sandy lithosols also occur on ridges.

Vegetation: Narrow-leaved ironbark, pink bloodwood/ Queensland blue gum/ silver-leaved ironbark/ kurrajong/ spotted gum/ Queensland peppermint shrubby open forest on slopes and ridges with areas of silver-leaved ironbark, narrow-leaved ironbark, Queensland blue gum/ gum-topped bloodwood also on slopes. Grassy open forests of poplar box/ silver-leaved ironbark/ Queensland blue gum/ Moreton Bay ash/ false sandalwood or gum-topped box or narrow-leaved ironbark, rusty gum, Queensland blue gum occur on lower slopes. Narrow-leaved ironbark, Queensland blue gum/ Moreton Bay ash shrubby open forest occurs on drainage lines.

Pm 1 [7494 ha]

Land Unit and / or Associated Mapping Units	Ra4	53	54	52	53	56	53	55	52	54	52
Sites		81 83	82 86 530	80 87 92 529	81 83		81 83	91	80 87 92 529	82 86 530	80 87 92 529
Est. % of Mapping Unit						10	28	12		5	45

Landform: Undulating rises to rolling low hills. Rock outcrops on ridges.

Geology: Mount Perry Complex, (Mingo Granite). Pgp, (Pm).

Soils: Moderately deep and occasionally shallow texture contrast soils with black to dark brown clayey coarse sand to sandy clay loam surface overlying brown to bright reddish brown clay subsoils (non-calcic brown soils, red brown earths, red and yellow podzolic soils, solodic soils and solodized solonetz soils). Scattered areas of uniform and gradational textured, brown clay loam to clay soils (prairie soils, chernozems) and minor shallow sandy to loamy lithosols on ridges.

Vegetation: Silver-leaved ironbark, gum-topped bloodwood/ Moreton Bay ash/ narrow-leaved ironbark/ Queensland blue gum grassy open forest to woodland on slopes, rises and low ridges. Narrow-leaved ironbark, pink bloodwood/ Moreton Bay ash/ silver-leaved ironbark/ wattles/ quinine berry open forest on slopes and ridges with spotted gum occasionally associated. Queensland blue gum, Moreton Bay ash, narrow-leaved ironbark open forest occurs along drainage lines with black tea-tree, weeping bottle brush fringing stream channels.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pm 2 [1932 ha]

Land Unit and / or Associated Mapping Units	Ra4	52	58	57	59	52	54	58	Pm1
Sites		80 87 92 529	531			80 87 92 529		531	
Est. % of Mapping Unit			35	40	15	5	5		

Landform: Steep hills with frequent rock and boulder outcrop.

Geology: Mount Perry Complex, (Yenda Granodiorite). Pgp, (Pry).

Soils: Shallow to very shallow stony sands and loams (lithosols) and shallow to moderately deep texture contrast soils with black to dark brown coarse sandy clay loam surfaces overlying dark brown, reddish brown or greyish yellow brown clay subsoils (non-calcic brown soils, solodic soils). Minor areas of brown clay loam gradational textured soils (prairie soils) also occur.

Vegetation: Narrow-leaved ironbark/ silver-leaved ironbark/ Moreton Bay ash/ spotted gum open forest to woodland on upper slopes and ridges with woodlands of narrow-leaved ironbark, gum-topped bloodwood/ silver-leaved ironbark/ kurrajong on slopes and low ridges. Scattered areas of "softwood scrub" species open scrub on steep slopes. Queensland blue gum, Moreton Bay ash, narrow-leaved ironbark open forest occurs on valley floors.

Pu 1 [12 105 ha]

Land Unit and / or Associated Mapping Units	Pu2	290	293	294	296	291	290	292	294	293	295	291
Sites		244	241 242	250		243	244	245	250	241 242		243
Est. % of Mapping Unit					5	15	45	12	5	8	10	

Landform: Undulating rises to undulating low hills.

Geology: Wigton Adamellite. Puw, Pgw, (Pw).

Soils: Predominantly shallow to moderately deep texture contrast soils with brownish black to greyish brown loamy coarse sand to sandy clay loam overlying brown to dull yellowish brown clay subsoils (red and yellow podzolic soils, soloths, solodic soils, solodized solonetz soils, minor non-calcic brown soils). Areas of gradational textured soils with sandy loams grading to bright brown to dull yellow orange sandy clay loams (yellow earths) and uniform coarse sands (siliceous sands) or sandy lithosols on ridges and some slopes.

Vegetation: Narrow-leaved ironbark, silver-leaved ironbark/ pink bloodwood/ quinine berry/ wattles grassy open forest on slopes with areas of narrow-leaved ironbark, pink bloodwood, Queensland blue gum, Moreton Bay ash/ red ash/ wattles/ quinine berry woodland to open forest on lower slopes. Narrow-leaved ironbark, pink bloodwood open forest occurs on ridges and upper slopes with occasional areas of spotted gum, narrow-leaved ironbark open forest. Queensland blue gum, Moreton Bay ash, broad-leaved apple open forest occurs along drainage lines with river she-oak, weeping bottle brush fringing watercourses.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pu 2 [19 570 ha]

Land Unit and / or Associated Mapping Units	299	296	294	290	295	298	297	295	294	295	299
Sites	125				124	123	251 252	124		124	125
Est. % of Mapping Unit	10	23	5	5	30	12	15				

Landform: Rolling to steep low hills. Frequent rock and boulder outcrop on ridges.

Geology: Wigton Adamellite (Granite). Puw, Pgw, (Pw).

Soils: Shallow to moderately deep texture contrast soils with brownish black clayey coarse sand to sandy loam surface overlying bright brown to dull yellow orange clay subsoil (soloths, red and yellow podzolic soils, solodic soils). Areas of uniform sandy soils (siliceous sands, rudimentary podzols) and lithosol-podzolic soil intergrades on ridges.

Vegetation: Narrow-leaved ironbark, pink bloodwood/ rusty gum/ Queensland blue gum/ quinine berry/ black she-oak/ dogwood grassy open forest on slopes and ridges with areas of spotted gum, narrow-leaved ironbark/ pink bloodwood/ wattles/ bull oak open forest on steep upper slopes. Minor areas of narrow-leaved ironbark, gum-topped bloodwood, pink bloodwood open forest on slopes. Queensland blue gum, Moreton Bay ash, broad-leaved apple/ silver-leaved ironbark open forest occurs along valley floors.

Rc 1 [4367 ha]

Land Unit and / or Associated Mapping Units	Cd 3	244	241	242	241	242	243	244	241	240	245	240	243	Qa 1
Sites	213	211 502	210 503	211 502				213	211 502	208		208	209	
Est. % of Mapping Unit			20	25		12	8			5	30			

Landform: Undulating rises to low hills.

Geology: Cynthia Beds. Rmc.

Soils: Moderately deep, dark brown and red cracking clay soils (brown, red and minor grey clays, black earths), with occasional areas of linear gilgai, and texture contrast soils with brownish black to dark brown sandy clay loam surfaces overlying dark reddish brown to yellowish brown clay subsoils (non calcic brown soils, red brown earths, solodic soils) on slopes. Small areas of gradational textured soils with brown to reddish brown clay subsoils (prairie soils) on upper slopes and broad ridge crests, often gravelly.

Vegetation: Silver-leaved ironbark, narrow-leaved ironbark/ poplar box/ wattles woodland to open forest on slopes. Areas of brigalow, belah/ wilga/ "softwood scrub" species low open forest on lower slopes and drainage lines and "softwood scrub" species closed scrub on upper slopes and broad stony ridge crests. Poplar box, sandalwood/ Queensland blue gum/ wilga/ silver-leaved ironbark shrubby open forest occurs on lower colluvial slopes and flats.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pb 1 [6698 ha]

Land Unit and / or Associated Mapping Units	Pb5	31	28	29	25	44	27	26	29	27	26	Qa
Sites			14 61	467	12 13 15 469		466 470	60	467			
Est. % of Mapping Unit		5	10	5	38	8	12	25				

Landform: Undulating rises and some rolling low hills. Areas of surface stone.

Geology: Biggenden Beds (Gympie Group). Plb, (Pg).

Soils: Moderately deep to deep, gradational and uniform textured soils, often with gravelly surface, with dark brown to brownish black clay loam or light clay surface grading to dark brown to dull reddish brown clay subsoils (chernozems, prairie soils, minor euchrozems) with areas of dark and brown cracking clays (black earths, brown clays). Minor areas of texture contrast soils (solodic soils, solodized solonetz) on lower colluvial slopes.

Vegetation: Narrow-leaved ironbark, Moreton Bay ash/ Queensland blue gum open forest to woodland on lower slopes with narrow-leaved ironbark, gum-topped bloodwood, Queensland blue gum/ Moreton Bay ash/ silver-leaved ironbark woodland to open forest on slopes and broad ridges. Narrow-leaved ironbark, Queensland blue gum, pink bloodwood/ Moreton Bay ash/ bull oak/ beefwood open forest occurs on texture contrast soils. Queensland blue gum often becomes dominant along drainage lines.

Pb 2 [4838 ha]

Land Unit and / or Associated Mapping Units	Rd1	30	31	35	30	33	30	31	32	Qa	34	30	Pb 4/5
Sites		511			511	471	511		20 27		475 513	511	
Est. % of Mapping Unit		45	15	3		12			15		10		

Landform: Rolling low hills and undulating rises. Scattered rock outcrop.

Geology: Biggenden Beds (Gympie group). Plb, (Pg).

Soils: Predominantly shallow to moderately deep and deep texture contrast soils, often gravelly, with brownish black to greyish brown loamy sand to clay loam surface overlying reddish brown to dull yellowish brown light to heavy clay subsoils (soloths, solodic soils, and solodized solonetz soils, red and yellow podzolic soils, minor red brown earths). Minor areas of stony loams (lithosols) on ridges and dark clay soils (prairie soils) on lower slopes.

Vegetation: Narrow-leaved ironbark, spotted gum/ Moreton Bay ash/ Queensland blue gum open forest and narrow-leaved ironbark, Queensland blue gum/ Moreton Bay ash/ pink bloodwood/ wattles/ kurrajong open forest on slopes. Minor areas of brown bloodwood, spotted gum/ white mahogany open forest occurs on residual, partly lateritised ridges with narrow-leaved ironbark/ pink bloodwood/ gum-topped bloodwood/ Moreton Bay ash woodland to open forest on lower slopes. Queensland blue gum, Moreton Bay ash, narrow-leaved ironbark/ broad-leaved apple open forest occurs on drainage lines. River she-oak, weeping bottle brush, swamp mahogany fringe stream channels.

The symbol “/” means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pb 3 [14 247 ha]

Land Unit and / or Associated Mapping Units	Qa	43	41	44	42	40	37	36	38	42	37	36	38	39	43	42	36	Pb 5
Sites	41	26 43	17	42 478 526		49 51	39 477 50 514 515		42 478 526		477 514 515 39 50	40 48 52 481	480 516	41	42 478 526	477 514 515 39 50		
Est. % of Mapping Unit	1	3	10	3	5	20	35					15	8					

Landform: Undulating low hills to rolling low hills. Occasional areas of rock outcrop.

Geology: Biggenden Beds (Gympie Group). Plb, (Pg).

Soils: Shallow to moderately deep, gradational and uniform textured soils with brownish black, dark reddish brown or dark brown clay loam to light clay surfaces grading to dark brown or dark reddish brown clay subsoils (prairie soils, euzozems, minor chernozems) and dark and brown, self mulching, cracking clays (brown and grey clays, black earths). Small areas of texture contrast soils with brown clay subsoils (soloths, solodic soils) also occur. Minor shallow gravelly lithosols on ridges.

Vegetation: "Softwood scrub" species closed to open scrub on slopes and crests with open forests of silver-leaved ironbark/ gum-topped bloodwood/ Moreton Bay ash or narrow-leaved ironbark, Queensland blue gum/ Moreton Bay ash/ pink bloodwood/ kurrajong on lower slopes. Minor areas of narrow-leaved ironbark/ spotted gum/ silver-leaved ironbark on upper slopes and crests. Queensland blue gum, Moreton Bay ash, silver-leaved ironbark woodland to open forest occurs on valley floors with areas of brigalow, belah open forest on adjacent slopes. River she-oak, swamp mahogany, black tea-tree, weeping bottle brush fringe stream channels.

Pb 4 [8010 ha]

Land Unit and / or Associated Mapping Units	Pb3	46	31	29	26	45	44	29	31	47	
Sites		479				38 59	17				
Est. % of Mapping Unit		8		3	6	20	35		6	22	

Landform: Undulating low hills to steep hills. Rock outcrop occurs on steeper ridges.

Geology: Biggenden Beds (Gympie Group). Plb, (Pg).

Soils: Very shallow to shallow, gradational and uniform textured soils, usually gravelly, with brownish black to dark brown clay loam to light clay surfaces grading to dark brown or dark reddish brown light to medium clay subsoils (prairie soils, minor chernozems) with stony loams and clay loams (lithosols) on steep ridges. Minor areas of texture contrast soils with mottled brown clay subsoils (yellow podzolic soils, soloths, solodic soils). Occasional deep, dark or brown cracking clays (brown clays, black earths) near drainage lines.

Vegetation: Narrow-leaved ironbark, gum-topped bloodwood/ Moreton Bay ash/ silver-leaved ironbark open forest on slopes and ridges. Spotted gum, narrow-leaved ironbark open forest occurs on steeper rocky slopes and ridges. Occasional areas of narrow-leaved ironbark, lemon scented gum/ spotted gum open forest on low ridges and narrow-leaved ironbark, Queensland blue gum open forest on lower slopes and valley floors.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pb 5 [20 862 ha]

Land Unit and / or Associated Mapping Units	Ra 5	51	47	50	48	49	25	35	47	50	48	47	51
Sites		37		11 508	509	455 510			507		509		
Est. % of Mapping Unit		5		13		15	1	<1			20		45

Landform: Rolling hills to steep mountains. Major areas of rock outcrop.

Geology: Biggenden Beds (Gympie Group). Plb, (Pg).

Soils: Shallow, gravelly clay loams (lithosols) and gradational textured soils with dark clay loam surfaces grading to dark reddish brown or brown clay subsoils (prairie soils, minor chernozems, chocolate soils). Areas of texture contrast soils with dark reddish brown to dull yellowish brown clay subsoils (non-calcic brown soils, yellow and grey brown podzolic soils, solodic soils) occur on slopes and drainage areas.

Vegetation: Spotted gum, narrow-leaved ironbark open forest with small-fruited grey gum, brush box, gum-topped box, white mahogany, red ash associated in places and "softwood scrub" species closed scrub on steep slopes and ridges. Scattered areas of narrow-leaved ironbark, gum-topped bloodwood/ silver-leaved ironbark woodland also occur on slopes. Minor areas of narrow-leaved ironbark, Moreton Bay ash open forest and Queensland blue gum, narrow-leaved ironbark, Moreton Bay ash/ broad-leaved apple open forest occur on lower slopes and valley floors.

Po 1 [12 671 ha]

Land Unit and / or Associated Mapping Units	Je2	256	258	Qa2	259	335	257	Qa1	255	257	255	261	260	Cz 1
Sites		335 365	366		336 353				437	354	437		436	
Est. % of Mapping Unit		20	12		20	3			25	12		3	5	

Landform: Gently undulating rises to undulating low hills.

Geology: Nogo Beds. Plo.

Soils: Moderately deep to deep, dark to red, brown and grey cracking clays (red, brown and grey clays, black earths) with occasional areas of moderate gilgai, and texture contrast soils with brownish black to brown clay loam to coarse sandy loam surfaces overlying dark reddish brown to dull yellowish brown medium or heavy clay subsoils (red brown earths, solodic soils, minor soloths). Minor areas of dark clay soils with reddish brown subsoils (prairie soils).

Vegetation: Narrow-leaved ironbark, poplar box, false sandalwood/ silver-leaved ironbark/ Queensland blue gum/ beefwood open forest to woodland with areas of silver-leaved ironbark, gum-topped bloodwood woodland or brigalow, wilga open forest on slopes and low rises. Small areas of poplar box/ Queensland blue gum/ whitewood open forests occur on lower slopes and drainage lines. Scattered areas of "softwood scrub" species open scrub also occur.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Cp 1 [3667 ha]

Land Unit and / or Associated Mapping Units	Cp 2	95	102	95	101	102	94	95	Pb1
Sites			519		518	519	18		
Est. % of Mapping Unit			8	17	50		25		

Landform: Undulating low hills. Occasional areas of rock outcrop.

Geology: Biggenden Beds (Good Night Beds). Plb, (CPo).

Soils: Predominantly shallow to moderately deep texture contrast soils, gravelly throughout, with brownish black to greyish yellow brown loamy fine sand to clay loam surfaces overlying brown to dull reddish or dull yellowish brown light to heavy clay subsoils (soloths, yellow podzolic soils, solodic soils, solodized solonetz soils) and areas of shallow loamy soils (lithosols).

Vegetation: Spotted gum, narrow-leaved ironbark/ Queensland peppermint/ pink bloodwood/ wattles open forest to woodland on slopes and ridges. Areas of narrow-leaved ironbark/ silver-leaved ironbark/ spotted gum/ bull oak/ wattles open forest or narrow-leaved ironbark, Queensland blue gum, Moreton Bay ash woodland to open forest occur on lower slopes. Queensland blue gum, narrow-leaved ironbark, Moreton Bay ash open forest occurs on valley floors with black tea-tree, river she-oak, weeping bottle brush, flaxleaf tea-tree, swamp mahogany fringing stream channels.

Cp 2 [23 180 ha]

Land Unit and / or Associated Mapping Units	96	99	102	98	100	97	96	101	102	96	97	96
Sites	45 46	69	519	527	47 520	78 517	45 46	518	519	45 46	78 517	45 46
Est. % of Mapping Unit		10		15	5	20		5	5	40		

Landform: Rolling low hills to steep hills. Occasional rock outcrop.

Geology: Biggenden Beds (Good Night Beds). Plb, (CPo).

Soils: Shallow, stony clay loam soils (lithosols) and texture contrast soils, usually gravelly, with brownish black to greyish brown clay loam surface soils overlying dark reddish brown to greyish brown light to heavy clay subsoils (non calcic brown soils, red and yellow podzolic soils, soloths, solodic soils and solodized solonetz soils). Minor areas of lithosol-podzolic soil intergrades. Small areas of uniform textured, brown clay soils (prairie soils) on slopes.

Vegetation: Spotted gum, narrow-leaved ironbark/ Queensland peppermint/ pink bloodwood/ quinine berry/ red ash/ bull oak/ dogwood/ wattles open forest and areas of "softwood scrub" species open scrub on upper slopes and ridges. Small areas of narrow-leaved ironbark/ silver-leaved ironbark or narrow-leaved ironbark, gum-topped bloodwood woodland to open forest occur on lower slopes. Queensland blue gum, narrow-leaved ironbark, Moreton Bay ash/ kurrajong open forest occurs on valley floors with black tea-tree, river she-oak, flaxleaf tea-tree, swamp mahogany, weeping bottle brush fringing stream channels.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

Appendix I (continued)

Pz 1 [5869 ha]

Land Unit and / or Associated Mapping Units	Dh3	194	197	194	198	195	196	201	198	194	Pz2
Sites		246		246	190 263 279	198	188	197	190 263 279	246	
Est. % of Mapping Unit			7	45	5	20	15	8			

Landform: Undulating to rolling low hills.

Geology: Wandilla Formation. Pzw.

Soils: Predominantly shallow to moderately deep, gravelly, texture contrast soils with brownish black to brown sandy loam to clay loam surfaces overlying brown to yellowish brown light to medium clay subsoils (solodic soils, non calcic brown soils, solodized solonetz soils, yellow podzolic soils) and areas of lithosol - podzolic soil intergrades. Dark to brown clay loam to light clay soils (prairie soils) occur on some lower slopes. Shallow stony lithosols occur on ridges.

Vegetation: Narrow-leaved ironbark, silver-leaved ironbark/ pink bloodwood/ kurrajong/ beefwood/ wattles woodland to open forests on slopes. Areas of narrow-leaved ironbark, gum-topped bloodwood/ silver-leaved ironbark/ kurrajong/ wattles open forest or spotted gum, narrow-leaved ironbark/ pink bloodwood open forest occur on slopes and some ridges. Queensland blue gum, silver-leaved ironbark, Moreton Bay ash/ narrow-leaved ironbark/ false sandalwood or poplar box open forests occur on valley floors. Black tea-tree, weeping bottle brush, river she-oak, broad-leaved apple fringe stream channels.

Pz 2 [18 598 ha]

Land Unit and / or Associated Mapping Units	Pz1	199	201	198	200	202	200	198	194	203
Sites			197	190 263 279	280	278	280	190 263 279		
Est. % of Mapping Unit		30	20		20	10		8	5	7

Landform: Steep hills, occasional mountains. Frequent rock outcrops.

Geology: Wandilla formation, part Mount Perry Complex (Curtis Island Group). Pzw, Pgp, (DCc).

Soils: Predominantly shallow gravelly sandy loam to clay loam soils (lithosols) and lithosol-podzolic soil intergrades. Small areas of texture contrast soils with brown to dull yellowish brown light to medium clay subsoils (solodic soils, solodized solonetz soils) on lower slopes. Occasional areas of uniform textured dark to brown clay loam to light clay soils (prairie soils) also occur.

Vegetation: Spotted gum, narrow-leaved ironbark/ Queensland blue gum/ wattles/ red ash open forests or narrow-leaved ironbark, pink bloodwood/ silver-leaved ironbark/ kurrajong/ wattles open forests on slopes and ridges. Small areas of "softwood scrub" species open scrub occur on the prairie soils. Queensland blue gum, silver-leaved ironbark, Moreton Bay ash/ narrow-leaved ironbark open forest occurs on valley floors.

The symbol "/" means with or without

Diagrammatic cross-sections present relationships of land units and/or mapping units to each other; not drawn to scale.

Formation names in brackets are those proposed following remapping of the Maryborough 1 : 250 000 geology sheet.

APPENDIX II

Land Units

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
1	Deep to very deep soils. Brownish black fine sandy loams to clay loams grading into brown to dark reddish brown clays. Gn 3.22, 3.13, 3.52, 4.33. Occasional reddish brown texture contrast soils. Dr 2.23. Neutral to alkaline soil reaction trend.	Poplar box, Moreton Bay ash, Queensland blue gum open forest with scattered silver-leaved ironbark frequently present. Occasional brigalow open forest.	Plain and levee back slopes. 0-3% slope.	Recent alluvia.	II m ₂ , f ₂
2	Moderately deep to deep texture contrast soils. Deep brownish black to dark brown sandy clay loams overlying brown to reddish brown clays. Calcium carbonate or ferromanganese concretions often occur at depth. Db 2.13, 2.23, Dy 3.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, poplar box/silver-leaved ironbark open forest with scattered gum-topped box open forest.	Back plains, valley floors. 0-2% slope.	Recent alluvia.	IV m ₃ , p ₄ , e ₂ , s ₃
3	Very deep soils. Brownish black to brown sandy loams grading to bright brown to dull reddish brown sandy loams. Uc 5.11, 5.22, Gn 2.24, 3.56. Occasional texture contrast soils. Dr 2.23. Neutral soil reaction trend.	Queensland blue gum, Moreton Bay ash open forest with scattered silver-leaved ironbark, poplar box frequently present.	Levees. 0-2% slope.	Recent alluvia.	IV m ₄ , n ₂ , f ₂
4	Deep soils. Brownish black hardsetting to self mulching clays often becoming browner with depth. Ug 5.15, 5.17, 5.24. Alkaline soil reaction trend.	Poplar box/Queensland blue gum/silver-leaved ironbark open forest.	Back plains, drainage lines. 0-1% slope.	Recent alluvia.	II p ₂ , w ₂ , k ₂
5	Deep texture contrast soils. Shallow brownish black fine sandy clay loams, bleached A ₂ , overlying greyish yellow brown or brown clays. Calcium carbonate and ferromanganese concretions occur at depth. Dy 2.43, 2.33, Db 2.43. Alkaline soil reaction trend.	Poplar box/narrow-leaved ironbark grassy woodland with scattered gum-topped box, whitewood occasionally present.	Plains, valley floors. 0-3% slope.	Recent alluvia.	IV m ₄ , p ₃ , s ₂ , e ₂
6	Deep to very deep soils. Brownish black self mulching clays becoming greyish yellow with depth. Small areas with moderate gilgai. Calcium carbonate concretions and ferromanganese nodules often occur at depth. Ug 5.28, 5.21, 3.2, 5.34. Occasional yellow texture contrast soil. Dy 2.33. Alkaline soil reaction trend.	Poplar box, Queensland blue gum open woodland to open forest with scattered Moreton Bay ash, silver-leaved ironbark, gum-topped box, wattle. Occasional patches of brigalow open forest.	Plains, valley floors. 0-2% slope.	Recent alluvia.	II m ₂ , p ₂ , s ₂
7	Deep texture contrast soils. Shallow very dark brown to greyish brown clay loams overlying brownish grey to dull brown medium to heavy clays. Ferromanganese nodules may occur at depth. Db 1.13, 2.12, Dd 1.13, Dy 2.32. Occasional clay soils. Ug 5.2. Neutral to alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark grassy open forest with scattered silver-leaved ironbark, Moreton Bay ash frequently present.	Plains. 0-2% slope.	Recent alluvia.	III m ₃ , p ₃ , e ₂
8	Very deep texture contrast soils. Moderately deep brownish black sandy loams to clay loams, occasional bleached A ₂ , overlying greyish brown to yellowish brown medium clays. Manganese concretions often occur. Db 2.33, Dy 3.43, 5.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash grassy open forest with scattered broad-leaved apple, narrow-leaved ironbark, silver-leaved ironbark, pink bloodwood frequently present.	Plains, slightly elevated areas. 0-1% slope.	Recent alluvia.	IV m ₄ , p ₄ , e ₂
9	Deep soils. Brownish black self mulching clays becoming brownish grey or yellowish brown with depth. Areas with weak gilgai occur. Ug 5.24, 5.16. Occasional brown texture contrast soils. Db 2.33. Alkaline soil reaction trend.	Poplar box, silver-leaved ironbark grassy woodland to open forest with scattered Moreton Bay ash, Queensland blue gum frequently present.	Plains, slightly elevated. 0-2% slope.	Recent alluvia	III m ₃ , p ₃ , s ₂ , e ₂
10	Deep soils. Brownish black to dark brown sandy clay loams grading to dull reddish brown to yellowish brown sandy to medium clays. Gn 3.15, Dy 3.22, 5.22. Neutral soil reaction trend.	Queensland blue gum, silver-leaved ironbark, broad leaved apple/Moreton Bay ash open forest. River she-oak, weeping bottle brush along stream channel.	Scrolls, terraces. 0-3% slope.	Recent alluvia.	IV m ₄ , g ₂ , e ₂ , f ₂

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
11	Very deep soils. Dark brown self mulching clays becoming brown to greyish yellow brown with depth. Weak to strong gilgai occur. Calcium carbonate and manganese concretions occur at depth. Ug 5.34, 5.24. Alkaline soil reaction trend.	Brigalow, belah, wilga shrubby open forest with scattered wattles, "softwood scrub" species frequently present.	Lower slopes, broad drainage depressions. 0-1% slope.	Old alluvia.	III-IV m ₃ , s ₃ , g ₃ , w ₃
12	Deep soils. Brownish black to greyish yellow brown self mulching clays becoming yellowish brown with depth. Areas of weak gilgai occur. Calcium carbonate and manganese concretions occur at depth. Ug 5.34, 5.24, 5.15. Occasional brown texture contrast soils. Db 1.43. Alkaline soil reaction trend.	Brigalow, belah/poplar box open forest.	Stagnant relict plains, mid slopes. 0-2% slope.	Old alluvia.	III m ₃ , s ₂ , k ₂ , e ₂
13	Deep to very deep soils. Brownish black self mulching clays becoming brownish grey to greyish yellow brown with depth. Calcium carbonate may occur at depth. Ug 5.28, 5.15, 5.34. Alkaline soil reaction trend.	Poplar box grassy open forest with scattered silver-leaved ironbark frequently present.	Plains, slightly elevated. 0-1% slope.	Old alluvia.	II m ₂ , k ₂ , e ₂
14	Deep texture contrast soils. Deep brownish black to greyish brown sandy loams to clay loams, bleached A ₂ , overlying brown to yellowish brown medium to heavy clays. Calcium carbonate and ferromanganese concretions often occur at depth. Db 1.43, Dy 2.43, 3.43. Alkaline soil reaction trend.	Poplar box, narrow-leaved ironbark open forest with scattered silver-leaved ironbark/pink bloodwood/Queensland blue gum frequently present.	Stagnant plains. 0-2% slope.	Old alluvia.	IV m ₄ , p ₄ , e ₂
15	Deep texture contrast soils. Shallow brownish black to dark brown sandy clay loams overlying brown to yellowish brown light to medium clays. Ferromanganese nodules may occur at depth. Db 1.32, 1.12, 2.32, Dy 2.32, Gn 3.22. Neutral soil reaction trend.	Brigalow, poplar box open forest with scattered wilga, kurrajong frequently present.	Plains, lower slopes. 1-3% slope.	Old alluvia.	III m ₃ , p ₃ , e ₃
16	Very deep soils. Brownish black hard-setting clays becoming browner with depth. Calcium carbonate often occurs at depth. Ug 5.15, 5.34, areas Ug 5.24. Alkaline soil reaction trend.	Poplar box grassy open forest with frequent patches of brigalow, belah open forest.	Plains, lower slopes. 0-1% slope.	Old alluvia.	III m ₂ , p ₃ , k ₂ , w ₃
17	Deep to very deep soils. Very dark reddish brown gritty clay loams grading to dark reddish brown light clays. Gn 2.12. Occasional red texture contrast soils. Dr 2.2. Neutral soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark, Moreton Bay ash, pink bloodwood/Queensland blue gum open forest.	Plains, slightly elevated. 0-1% slope.	Old alluvia.	III m ₃ , p ₂ , e ₂
18	Deep texture contrast soils. Very deep brownish black to brown loamy sands to fine sandy loams, frequently bleached A ₂ , overlying greyish brown to bright yellowish brown gritty sandy to heavy clays. Calcium carbonate concretions and manganese segregations may occur at depth. Dy 5.43, 3.42. Neutral to alkaline soil reaction trend.	Moreton Bay ash, Queensland blue gum open forest with scattered bull oak, narrow-leaved ironbark, swamp mahogany, wattle, myrtle frequently present.	Plains, lower slopes. 0-2% slope.	Old alluvia.	IV m ₄ , p ₃ , e ₃
19	Very deep soils. Small to moderate gilgai occur. Dark greyish yellow medium clays overlying dull yellowish brown medium to heavy clays. Brownish black clay surface in depressions. Calcium carbonate occurs throughout puff and at depth in depression. Ug 5.24, 5.34, 3.2. Alkaline soil reaction trend.	Queensland blue gum woodland with scattered narrow-leaved ironbark, Moreton Bay ash occasionally present.	Plain, shallow drainage depressions. 0-1% slope.	Old alluvia.	IV p ₂ , k ₃ , g ₃ , w ₄
20	Very deep texture contrast soils. Deep brown fine sandy loams overlying bright brown to reddish brown gritty medium clays. Dy 5.21, 5.42. Neutral to acid soil reaction trend.	Moreton Bay ash, silver-leaved ironbark, pink bloodwood open forest with scattered narrow-leaved ironbark, Queensland blue gum/poplar box frequently present.	Plains, relict levees. 0-1% slope.	Old alluvia.	IV m ₄ , p ₃ , e ₂
21	Moderately deep to deep texture contrast soils. Deep brownish black gravelly fine sandy loams to sandy clay loams, frequently bleached A ₂ , overlying dull yellow orange to dark brown sandy to medium clays. Dy 3.41, 3.42, Db 2.21. Acid soil reaction trend.	Narrow-leaved ironbark/gum-topped box open forest with scattered pink bloodwood, Queensland blue gum, Moreton Bay ash, wattles, bull oak frequently present.	Upper slopes and broad ridge crests. 0-4% slope.	Tertiary sediments.	IV - VI m ₄ , p ₄ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
22	Deep texture contrast soils. Deep greyish brown to brownish black sandy loams, bleached A ₂ , overlying brown to dull yellowish brown sandy to heavy clays. Gravel may occur throughout. Db 2.41, Dy 3.41. Acid soil reaction trend.	Rusty gum shrubby open forest with scattered Queensland peppermint, gum-topped box, bull oak, narrow-leaved ironbark, wattle, quinine berry, dogwood frequently present.	Mid slopes of low rises, gently sloping plains. 1-6% slope.	Tertiary sediments.	IV m ₄ , p ₃ , e ₂
23	Shallow to moderately deep texture contrast soils. Deep brownish black to greyish brown sandy loams to clay loams, frequently bleached A ₂ , overlying dull yellowish brown medium to heavy clays. Often gravelly throughout. Calcium carbonate may occur at depth. Dy 5.43, 3.43, Db 2.43. Alkaline soil reaction trend.	Gum-topped box, bull oak open forest.	Upper slopes and crests of low ridges. 2-6% slope.	Tertiary sediments.	VI m ₄ , d ₂ , p ₃ , e ₆
24	Deep texture contrast soils. Deep brown to greyish brown gravelly sandy loams to sandy clay loams, bleached A ₂ , overlying brown to dull yellowish brown sandy to heavy clays. Ferromanganese nodules may occur at depth. Db 2.42, 2.43, Dy 3.43. Neutral to alkaline soil reaction trend.	Gum-topped box, narrow-leaved ironbark open forest with scattered pink bloodwood, bull oak, wattles frequently present.	Lower slopes, broad drainage lines. 0-2% slope.	Tertiary sediments.	IV m ₄ , p ₄ , e ₄
25	Moderately deep to deep soils. Brownish black to dark brown clay loams to light clay grading into dark brown or dull reddish brown medium to heavy clays. Ferromanganese nodules and calcium carbonate concretions may occur at depth. Uf 6.31, Gn 3.13, 3.23, Dd 1.13. Alkaline to neutral soil reaction trend.	Narrow-leaved ironbark, Moreton Bay ash grassy open woodland to open forest with scattered Queensland blue gum frequently present.	Mid and lower slopes. 1-8% slope.	Biggenden Beds. (Gympie Group)	IV m ₃ , p ₃ , e ₄
26	Deep to moderately deep soils. Brownish black to dark brown light to medium clays becoming slightly browner with depth. Calcium carbonate and manganese concretions may occur at depth. Uf 6.31, Ug 5.32, 5.13. Alkaline soil reaction trend.	Narrow-leaved ironbark/gum-topped bloodwood/Queensland blue gum grassy woodland to open forest with Moreton Bay ash frequently present.	Mid and lower slopes. 1-8% slope.	Biggenden Beds. (Gympie Group).	III m ₂ , p ₂ , e ₃
27	Shallow to moderately deep soils. Black to brownish black self mulching clays becoming browner with depth. Calcium carbonate may occur at depth. Ug 5.13, 5.23, Uf 6.31. Alkaline soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood open woodland to open forest with scattered Queensland blue gum, silver-leaved ironbark frequently present.	Mid and upper slopes. 5-10% slope.	Biggenden Beds, frequently basalt. (Gympie Group).	III m ₂ , d ₂ , e ₃
28	Deep texture contrast soils. Moderately deep to deep brownish black to dull yellowish brown loamy sands to sandy loams, bleached A ₂ , overlying greyish yellow brown to dull yellow medium to heavy clays. Dy 3.43, 3.42. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum, pink bloodwood woodland to open forest with scattered Moreton Bay ash, bull oak, beefwood frequently present.	Lower slopes, outwash fans. 1-3% slope.	Biggenden Beds. (Gympie Group).	IV m ₆ , p ₄ , e ₂
29	Deep to very deep soils. Black to brownish black self mulching clays becoming greyish yellow brown at depth. Calcium carbonate frequently occurs at depth. Ug 5.14, 5.34. Occasional brown texture contrast soils. Db 2.43. Alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark woodland to open forest with scattered silver-leaved ironbark frequently present.	Lower slopes, drainage lines. 0-2% slope.	Biggenden Beds. (Gympie Group).	III k ₃ , w ₃ , e ₂
30	Shallow texture contrast soils. Moderately deep dark brown clay loams, frequently bleached A ₂ , overlying brown to dull yellowish brown medium to heavy clays over decomposing rock. Gravelly throughout. Dy 3.41, Db 1.21. Occasional loams. Um 1.42. Acid soils reaction trend.	Narrow-leaved ironbark, spotted gum woodland to open forest with scattered Moreton Bay ash, Queensland blue gum, rusty gum, wattle frequently present.	Mid and upper slopes, low ridge crests. 6-15% slope with some areas as steep at 30%.	Biggenden Beds. (Gympie Group).	VII m ₆ , p ₄ , s ₃ , r ₃ , e ₇

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
31	Shallow to moderately deep texture contrast soils. Moderately deep brownish black loamy sands to clay loams, frequently bleached A ₂ , overlying brown to dull yellowish brown sandy clay loams to heavy clays. Calcium carbonate may occur at depth. Dy 3.43, 2.42, Db 1.33, 2.42. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum open forest with scattered Moreton Bay ash, pink bloodwood, spotted gum, quinine berry, wattle frequently present.	Mid and lower slopes. 5-12% slope.	Biggenden Beds. (Gympie Group).	VI m ₆ , p ₃ , t ₄ , e ₄
32	Deep texture contrast soils. Moderately deep brownish black clay loams, bleached A ₂ , overlying dull yellowish brown to brown medium to heavy clays. Ferromanganese nodules occur at depth. Dy 3.43, 2.43, Db 2.43. Alkaline soil reaction trend.	Narrow-leaved ironbark, Moreton Bay ash/Queensland blue gum/wattles grassy open forest.	Lower outwash slopes. 1-3% slope.	Biggenden Beds. (Gympie Group).	IV - VI m ₄ , p ₄ , e ₃
33	Deep texture contrast soils. Scattered rock outcrops. Moderately deep brownish black sandy clay loams overlying dark reddish brown to yellowish brown light clays. Dr 4.51, Dy 2.11. Occasional areas of gradational soils. Gn 2.21, 2.11. Acid soil reaction trend.	Brown bloodwood, spotted gum shrubby open forest with scattered white mahogany, Queensland blue gum, gum-topped box, Queensland peppermint, wattles frequently present.	Upper slopes and broad ridges. 1-6% slope. Some areas as steep as 15%.	Biggenden Beds. (Gympie Group).	IV m ₄ , p ₃ , e ₃
34	Shallow soils. Brownish black clay loams or light clays overlying dark brown to dull reddish brown light to medium clays over decomposing rock. Db 1.33, Dr 2.12, Uf 6.31. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark woodland to open forest with scattered Moreton Bay ash, pink bloodwood, gum-topped bloodwood frequently present.	Mid and lower slopes. 4-12% slope.	Biggenden Beds. (Gympie Group).	IV m ₄ , d ₃ , e ₄
35	Deep texture contrast soils. Deep brownish black to greyish brown sandy clay loams to clay loams, bleached A ₂ , overlying brown to greyish yellow brown medium to heavy clays. Ferromanganese and calcium carbonate concretions frequently occur at depth. Dy 3.43, Db 2.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, narrow-leaved ironbark open forest with scattered broad-leaved apple frequently present. River she-oak, weeping bottle brush, swamp mahogany fringe stream channels.	Lower slopes and adjacent drainage lines. 0-2% slope.	Biggenden Beds. (Gympie Group).	IV m ₄ , d ₃ , p ₂ , e ₃
36	Very shallow to shallow soils. Occasional rock outcrop. Brownish black to dark brown clay loams to light clays grading to dark reddish brown to brown light to medium clays over decomposing rock. Often gravelly throughout. Uf 6.31, Gn 3.22, 3.12. Neutral soil reaction trend.	"Softwood scrub" species closed scrub with scattered bottle tree, kurrajong emergents.	Mid and upper slopes, low stony ridge crests. 10-25% slope, minor areas as steep as 45%.	Biggenden Beds. (Gympie Group).	VI - VII m ₄ , d ₄ , t ₆ , e ₆
37	Shallow soils. Very dark brown clay loams to light clays grading into dark brown to dark reddish brown light to medium clays over decomposing rock. Often gravelly throughout. Uf 6.31, Gn 3.22, 3.12 areas Ug 5.32. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy open forest with scattered Moreton Bay ash, narrow-leaved ironbark frequently present.	Mid and lower slopes. 6-12% slope.	Biggenden Beds. (Gympie Group).	IV m ₃ , d ₃ , t ₄ , e ₄
38	Shallow to moderately deep soils. Dark reddish brown to very dark brown clay loams to light clays grading to dark reddish brown to dark brown light to medium clays. Uf 6.31, 6.32, Gn 3.12, minor areas Ug 5.31. Neutral soil reaction trend.	"Softwood scrub" species closed scrub with lantana frequently present.	Mid and upper slopes. 3-8% slope, minor areas as steep as 12%.	Biggenden Beds. (Gympie Group).	III m ₃ , e ₃
39	Shallow to moderately deep texture contrast soils. Moderately deep brownish black fine sandy clay loams to clay loams, frequently bleached A ₂ , overlying dull yellowish brown or brown medium to heavy clays. Dy 2.41, 3.31, Db 2.41, 2.2. Occasional brown loams. Um 1.43. Acid to neutral soil reaction trend.	Narrow-leaved ironbark woodland to open forest with scattered spotted gum occasionally present.	Upper slopes and ridge crests. 1-4% slope.	Biggenden Beds. (Gympie Group).	IV - VI m ₃ , p ₃ , t ₂ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
40	Moderately deep to deep texture contrast soils. Moderately deep brownish black clay loams, frequently bleached A ₂ , overlying mottled dull yellowish brown to brown medium to heavy clays. Ferromanganese nodules and calcium carbonate may occur at depth. Dy 3.43, 2.42, Db 2.43, areas Ug 5.32. Alkaline to neutral soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum open forest with scattered Moreton Bay ash, kurrajong, wattles frequently present. Occasional patches of brigalow/black tea-tree low open forest.	Lower slopes. 2-5% slope.	Biggenden Beds. (Gympie Group).	IV - VI m ₄ , p ₃ , e ₄
41	Moderately deep soils. Dark brown to dull yellowish brown light to medium clays grading into brown to dark reddish brown medium to heavy clays. Calcium carbonate may occur at depth. Ug 5.32, areas Uf 6.31. Alkaline soil reaction trend.	"Softwood scrub" species closed scrub. Areas of brigalow low open forest frequently present.	Mid and lower slopes. 5-10% slope, minor areas as steep as 15%.	Biggenden Beds. (Gympie Group).	III m ₂ , k ₂ , e ₃
42	Deep to very deep soils. Brownish black light to medium clays becoming brown to greyish yellow brown with depth. Calcium carbonate and manganese concretions may occur at depth. Ug 5.15, 5.16, 5.34, minor areas Uf 6.32, Dy 3.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, silver-leaved ironbark/narrow-leaved ironbark grassy woodland to open forest. River she-oak, swamp mahogany, black tea-tree, weeping bottle brush fringe stream channels.	Lower slopes and narrow valley floors. 0-4% slope.	Biggenden Beds. (Gympie Group).	II m ₂ , w ₂ , e ₂
43	Moderately deep to deep soils. Weakly gilgaied areas occur. Dark brown to brownish black clays becoming browner with depth. Calcium carbonate occurs at depth. Ug 5.32, 5.23, 5.13. Alkaline soil reaction trend.	Brigalow, belah open forest.	Lower slopes and valley floors. 0-5% slope.	Biggenden Beds. (Gympie Group).	III m ₃ , p ₂ , e ₃
44	Very shallow to shallow soils. Occasional rock outcrop. Brownish black to dark brown clay loams to light clays grading to very dark brown to dark reddish brown medium to heavy clays. Uf 6.31, 6.32, Gn 3.22. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood open forest with scattered silver-leaved ironbark, Moreton Bay ash frequently present.	Upper and mid slopes some ridge crests. 10-20% slope, some areas as steep as 30%.	Biggenden Beds. (Gympie Group)	VI - VII m ₃ , d ₄ , t ₆ , e ₄
45	Shallow to moderately deep soils. Brownish black clay loams grading to dark reddish brown to dark brown light to medium clays over decomposing rock. Often gravelly throughout. Gn 3.42, 3.22, areas Uf 6.31. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood/Moreton Bay ash open forest with scattered brush box, Queensland blue gum frequently present on lower slopes.	Mid and lower slopes. 4-10% slope.	Biggenden Beds. (Gympie Group)	IV - VI m ₃ , d ₃ , e ₄
46	Shallow texture contrast soils. Occasional rock outcrop. Moderately deep brownish black gravelly, sandy clay loams, occasional bleached A ₂ , overlying dull yellowish brown to brown medium clays. Dy 3.22, 4.11, Db 2.21. Neutral to acid soil reaction trend.	Narrow-leaved ironbark, lemon scented gum/spotted gum open forest.	Upper slopes, broad ridge crests. 6-15% slope, some areas as steep as 20%.	Biggenden Beds. (Gympie Group)	VII m ₆ , d ₄ , r ₄ , e ₇
47	Very shallow soils. Frequent rock outcrops. Brownish black stony clay loams over rock or occasionally over yellowish brown clays. Um 6.41, 1.43, areas Dy 2.2. Neutral soil reaction trend.	Spotted gum, narrow-leaved ironbark woodland to open forest with scattered "softwood scrub" species, red ash, brush box occasionally present.	Mid and upper slopes, stony ridge crests. 15-40% slope, some areas as steep as 100%.	Biggenden Beds. (Gympie Group).	VIII m ₆ , d ₆ , t ₇ , r ₅ , e ₈
48	Shallow soils. Occasional rock outcrops. Brownish black clay loams grading to dark reddish brown to brown light to medium clays over decomposing rock. Gn 3.21, 3.42, Um 1.43. Neutral soil reaction trend.	"Softwood scrub" species closed scrub with scattered hoop pine, bottle tree emergents.	Mid and upper slopes, ridge crests. 10-35% slope, minor areas as steep as 80%.	Biggenden Beds. (Gympie Group).	VII - VIII m ₆ , d ₂ , t ₇ , e ₆
49	Shallow soils. Areas of rock outcrop. Brownish black to dark brown clay loams to light clays over dark brown or dark reddish brown light to medium clays. Frequently gravelly throughout. Manganese concretions may occur at depth. Uf 6.31, Db 1.12. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood grassy open forest with scattered silver-leaved ironbark, red ash, "softwood scrub" species frequently present.	Mid and upper slopes. 20-35% slope with areas as steep as 45%.	Biggenden Beds. (Gympie Group).	VII m ₃ , d ₄ , t ₇ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
50	Shallow to moderately deep texture contrast soils. Shallow brownish black to greyish brown gravelly clay loams overlying brown to yellowish brown light to medium clays. Dy 2.11, 2.31, Db 2.11, areas Um 1.31. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/small-fruited grey gum open forest with scattered gum-topped box, white mahogany, wattle, red ash frequently present.	Mid and upper slopes, ridge crests. 4-12% slope, some areas as steep as 30%.	Biggenden Beds. (Gympie Group).	VI - VII m ₄ , p ₄ , t ₄ , e ₆
51	Shallow stony soils. Minor areas of rock outcrop. Greyish yellow brown fine sandy clay loams over rock or dull yellowish brown to reddish brown clays. Um 1.31, areas Dy 2.41, Dr 3.12. Neutral to acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, brush box open forest.	Lower slopes. 6-15% slope.	Biggenden Beds. (Gympie Group).	VII m ₆ , d ₆ , t ₄ , r ₄ , e ₆
52	Moderately deep texture contrast soils. Moderately deep black to dark brown sandy loams or clay loams overlying dark brown to reddish brown sandy clays to medium clays over decomposing rock. Calcium carbonate may occur at depth. Dr 2.22, Db 1.22, 2.23. Neutral to alkaline soil reaction trend.	Silver-leaved ironbark gum-topped bloodwood grassy open forest to open woodland with scattered Moreton Bay ash, narrow-leaved ironbark, Queensland blue gum, wattle frequently present.	Mid and lower slopes, broad low rises. 2-8% slope.	Mount Perry Complex (Mingo Granite).	IV m ₄ , p ₃ , e ₃
53	Shallow to moderately deep texture contrast soils. Minor rock outcrops. Moderately deep brownish black clayey coarse sands to sandy loams overlying dull yellowish brown gravelly medium clays. Dy 5.22, 3.23, Dr 2.21. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, pink bloodwood open forest with scattered Moreton Bay ash, silver-leaved ironbark, quinine berry, wattles/rusty gum frequently present.	Mid and upper slopes on low rises. 3-12% slope with minor areas as steep as 30%.	Mount Perry Complex (Mingo Granite).	VI m ₆ , p ₃ , t ₄ , r ₂ , e ₄
54	Deep texture contrast soils. Deep brownish black to dark brown loamy sands to fine sandy clay loams, bleached A ₂ , overlying yellowish brown to brown medium to heavy clays. Calcium carbonate and manganese concretions may occur at depth. Dy 3.43, Db 2.43. Occasional dark clays. Ug 5.15. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, narrow-leaved ironbark, grassy open forest with scattered pink bloodwood, silver-leaved ironbark, wattles, whitewood frequently present.	Lower slopes and drainage lines. 0-3% slope.	Mount Perry Complex (Mingo Granite).	IV m ₄ , p ₃ , s ₂ , e ₂
55	Shallow soils. Occasional rock outcrops. Brownish black clay loams to light clays grading to brown to very dark brown clays over decomposing rock. Calcium carbonate may occur at depth. Uf 6.32, 6.31, Gn 3.22, areas Ug 5.13. Alkaline to neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy open forest. Occasional patches of "softwood scrub" species.	Upper slopes and ridge crests. 2-6% slope, some areas as steep as 10%.	Mount Perry Complex (Mingo Granite).	IV - VI m ₄ , d ₃ , r ₃ , e ₃
56	Shallow texture contrast soils. Frequent rock outcrops. Shallow brownish black loamy sands or sandy clay loams overlying dull yellowish brown sandy to medium clays. Db 1.21, Um 1.43. Neutral to acid soil reaction trend.	Narrow-leaved ironbark open forest with scattered pink bloodwood, Moreton Bay ash/spotted gum, wattles frequently present.	Upper slopes and sharp ridges. 15-25% slope, minor areas as steep as 35%.	Mount Perry Complex (Mingo Granite).	VII m ₆ , t ₆ , r ₅ , e ₇
57	Very shallow to shallow soils. Frequent rock outcrops. Brownish black to greyish brown loamy sands to sandy clay loams over rock. Uc 1.23, Um 1.44. Neutral soil reaction trend.	Narrow-leaved ironbark/silver-leaved ironbark, Moreton Bay ash open forest to open woodland.	Upper slopes and ridges. 30-60% slope. Some areas up to 100% slope.	Mount Perry Complex (Yenda Granodiorite).	VII - VIII m ₆ , d ₆ , t ₇ , r ₇ , e ₇
58	Shallow texture contrast soils. Areas of rock outcrop. Shallow brownish black coarse sandy clay loams overlying dark brown to brown sandy to medium clays. Db 1.12, Gn 3.22, areas Um. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood open woodland to woodland with scattered silver-leaved ironbark frequently present.	Upper slopes and ridge crests. 8-15% slope with some areas up to 25% slope.	Mount Perry Complex (Yenda Granodiorite).	VII m ₆ , d ₄ , r ₅ , e ₆
59	Very shallow soils. Occasional areas of rock outcrop. Brownish black to brown sandy clay loams to clay loams over decomposing rock. Gravelly throughout. Um 1.44. Neutral soil reaction trend.	"Softwood scrub" species open scrub with bottle tree emergents.	Steep slopes and ridge crests. 40-60% slope, some areas up to 100% slope.	Mount Perry Complex (Yenda Granodiorite).	VIII m ₆ , d ₆ , t ₇ , r ₄ , e ₈
60	Very deep soils. Brownish black self-mulching medium clays grading to brown medium to heavy clays at depth. Calcium carbonate and manganese concretions occur at depth. Ug 5.15. Alkaline soil reaction trend.	Queensland blue gum, silver-leaved ironbark grassy woodland with scattered pink bloodwood, Moreton Bay ash, narrow-leaved ironbark frequently present.	Mid to lower slopes. 1-3% slope.	Basaltic colluvium.	II k ₂ , e ₂

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
61	Deep soils. Some surface stone. Brownish black to very dark brown clays becoming brown or dark reddish brown with depth. Calcium carbonate may occur at depth. Ug 5.38, 5.34, Uf 6.31. Alkaline soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood Moreton Bay ash/pink bloodwood woodland.	Mid to upper slopes. 3-6% slope.	Basaltic colluvium.	III k ₂ , e ₃
62	Deep to very deep soils. Areas with weak linear gilgai. Dark brown to brownish black clays becoming browner with depth. Calcium carbonate and manganese concretions may occur at depth. Ug 5.34, 5.15. Alkaline soil reaction trend.	Narrow-leaved ironbark grassy woodland with scattered Moreton Bay ash, pink bloodwood, Queensland blue gum frequently present. Occasional patches of brigalow open forest.	Lower slopes and broad low rises. 0-3% slope.	Basaltic colluvium.	II k ₂ , e ₂
63	Moderately deep to deep soils. Brownish black to dark reddish brown clays becoming dark brown or dark reddish brown with depth. Ug 5.13, 5.34, areas Uf 6.31. Alkaline soil reaction trend.	"Softwood scrub" species closed scrub.	Upper slopes below scarps. 3-8% slope.	Basaltic colluvium.	III m ₂ , e ₃
64	Very deep soils. Brownish black to black clays. Calcium carbonate and manganese concretions occur at depth. Ug 5.15, 5.24. Alkaline soil reaction trend.	Queensland blue gum/Moreton Bay ash/silver-leaved ironbark open woodland to woodland.	Lower slopes and drainage depressions. 0-3% slope.	Basaltic colluvium.	IV k ₃ , w ₄ , e ₃
65	Deep to very deep soils. Moderate gilgai occur. Brownish black to greyish yellow brown clays, frequently gravelly, becoming greyish yellow brown with depth. Calcium carbonate and ferromanganese concretions frequently occur at depth. Ug 5.24, 5.21, 5.16. Occasional yellowish brown texture contrast soils. Dy 2.13. Alkaline soil reaction trend.	Brigalow, belah, wilga shrubby open forest with scattered Queensland blue gum, poplar box occasionally present.	Lower slope positions. 1-5% slope.	Tertiary clays.	III m ₃ , p ₂ , s ₃ , g ₃ , e ₃
66	Very deep soils. Weakly gilgaied areas occur. Brownish black to greyish brown self mulching clays becoming yellowish brown with depth. Ug 5.16, 5.24, 5.34. Alkaline soil reaction trend.	Brigalow/Queensland blue gum/silver-leaved ironbark/wilga low open forest.	Mid slopes. 1-4% slope.	Tertiary clays.	III p ₂ , k ₂ , e ₃
67	Very deep soils. Areas with strong gilgai occur. Brownish black to greyish yellow hardsetting brown clays becoming brownish grey to brown with depth. Calcium carbonate occurs at depth. Ug 5.24, 5.34. Occasional brown texture contrast soils. Dd 1.33, Db 1.43. Alkaline soil reaction trend.	Brigalow/belah/wilga shrubby open forest. Occasional areas of poplar box, Queensland blue gum open forest and black tea-tree low open forest.	Lower slopes, drainage areas. 0-1% slope.	Tertiary clays.	IV m ₃ , s ₃ , g ₃ , w ₄
68	Shallow to moderately deep gravelly soils. Brownish black to dark reddish brown clay loams to light clays grading to dark brown light to medium clays. Gn 3.12, Uf 6.31. Neutral soil reaction trend.	"Softwood scrub" species open scrub.	Upper slopes and outwash fans. 2-4% slope.	Tertiary clays.	IV m ₄ , p ₂ , e ₃
69	Moderately deep soils. Stony areas occur. Very dark reddish brown to dark reddish brown light clays grading to dark reddish brown light to medium clays. Uf 6.31, Gn 3.12. Neutral to acid soil reaction trend.	Silver-leaved ironbark, Queensland blue gum, Moreton Bay ash woodland with narrow-leaved ironbark, "softwood scrub" species associated in some areas.	Mid and lower slopes. 1-3% slope.	Barambah Basalt.	II m ₂ , e ₂
70	Moderately deep soils. Stony areas occur. Dark reddish brown clay loams to light clays grading to dark reddish brown to light medium clays over decomposing rock. Gn 3.12, Uf 6.31. Neutral to acid soil reaction trend.	"Softwood scrub" species closed scrub. Areas of Queensland blue gum woodland.	Upper slopes, flat-topped rises. 1-6% slope.	Barambah Basalt.	III m ₂ , r ₂ , e ₃
71	Shallow soils. Frequent rock outcrop. Very dark reddish brown clay loams to light clays grading to dark reddish brown light to medium clays. Stone throughout. Gn 3.13, Uf 6.31. Neutral to alkaline soil reaction trend.	"Softwood scrub" species closed to open scrub with areas of Moreton Bay ash, Queensland blue gum open forest on margins.	Margins of stony flows. 2-6% slope.	Barambah Basalt.	V - VI m ₂ , r ₅ , e ₃
72	Moderately deep to deep soils. Areas with surface stone. Very dark reddish brown clay loams grading to dark reddish brown light clays. Gn 3.11, 3.12. Acid to neutral soil reaction trend.	Moreton Bay ash, Queensland blue gum/kurrajong woodland to open forest.	Mid and lower slopes. 1-3% slope.	Barambah Basalt.	V - VI m ₂ , r ₅ , e ₂

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
73	Moderately deep soils. Minor areas with surface stone or weak gilgai. Black to brownish black self mulching clays becoming browner at depth, over decomposing rock. Calcium carbonate occurs at depth. Ug 5.13, 5.32. Occasional gradational soils. Gn 3.12. Alkaline soil reaction trend.	Brigalow/"softwood scrub" species low open forest.	Mid slopes. 3-8% slope.	Barambah Basalt.	III - IV m ₂ , r ₃ , e ₃
74	Shallow stony soils. Brownish black to black clay loams to clays becoming browner with depth. Ug 5.32, 5.12, Uf 6.32. Neutral to alkaline soil reaction trend.	"Softwood scrub" species closed scrub with brigalow associated on lower slopes.	Slopes of volcanic cones. 15-30% slope, some as steep as 45%.	Barambah Basalt.	VII m ₆ , d ₆ , t ₇ , r ₅ , e ₇
75	Deep soils. Black self mulching clays becoming brownish black or bark brown with depth. Calcium carbonate occurs at depth. Ug 5.15, 5.34, minor areas Gn 3.23. Alkaline soil reaction trend.	Brigalow low open forest.	Lower slopes, gently sloping valley floors. 1-4% slope.	Barambah Basalt.	II k ₂ , e ₂
76	Deep to very deep soils. Black self mulching clays becoming browner at depth. Calcium carbonate occurs at depth. Ug 5.15, 5.34. Alkaline soil reaction trend.	Brigalow/Queensland blue gum/black tea-tree open forest.	Valley floors. 0-2% slope.	Barambah Basalt.	II k ₂ , w ₂
77	Moderately deep soils. Frequent rock outcrop. Brownish black to very dark brown clay loams to light clays grading to dark brown or brown clay loams to medium clays over decomposing rock. Ferromanganese nodules may occur at depth. Uf 6.31, Um 6.32, areas Ug 5.32. Neutral to alkaline soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark grassy woodland with scattered gum-topped bloodwood, Queensland blue gum frequently present. Patches of "softwood scrub" species.	Broad stony flows.	Barambah Basalt.	V m ₂ , d ₂ , r ₅ , e ₂
78	Shallow stony soils. Brownish black light clays grading to dark brown light to medium clays over decomposing rock. Ferromanganese concretions may occur at depth. Uf 6.31, Ug 5.32. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum open woodland with scattered Moreton Bay ash, silver-leaved ironbark occasionally present.	Lower slopes. 1-2% slope.	Barambah Basalt.	V - VI m ₂ , d ₂ , r ₅ , e ₂
79	Shallow soils. Frequent rock outcrop. Brownish black self mulching clays becoming greyish yellow with depth. Ug 5.13, 5.32. Alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark/Moreton Bay ash grassy open forest. "Softwood scrub" species on drop offs and stream banks.	Broad level flows. 0-1% slope.	Barambah Basalt.	V - VII m ₃ , d ₄ , r ₅
80	Moderately deep soils. Areas of rock outcrop. Black to brownish black self mulching clays becoming brownish grey with depth. Calcium carbonate and ferromanganese concretions occur at depth. Ug 5.14, 5.23. Alkaline soil reaction trend.	Queensland blue gum, silver-leaved ironbark woodland with scattered Moreton Bay ash, narrow-leaved ironbark, poplar box occasionally present. Minor areas of black tea-tree and brigalow.	Lower areas and drainage depressions. 0-1% slope.	Barambah Basalt.	V r ₅ , w ₃ , e ₂
81	Shallow to moderately deep soils. Minor rock outcrops and surface stone. Brownish black to black self mulching clays becoming dark reddish brown to brown at depth over decomposing rock. Calcium carbonate occurs at depth. Ug 5.13, 5.32. Alkaline soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood, silver-leaved ironbark woodland.	Mid and lower slopes, some broad ridge crests. 8-15% slopes, minor areas as steep as 20%.	Tertiary basalt.	IV - VI m ₄ , d ₂ , r ₂ , e ₄
82	Shallow to moderately deep soils. Occasional areas of rock outcrop. Brownish black to black gravelly clay loams to light clays going to brown light to medium clays over decomposing rock. Gn 3.22, Uf 6.32, Ug 5.13. Neutral to alkaline soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark, gum-topped bloodwood woodland.	Mid and upper slopes, some ridge crests. 12-30% slopes, some as steep as 60% slope.	Tertiary basalt.	VI - VII m ₄ , d ₂ , t ₆ , r ₄ , e ₆
83	Very shallow to shallow soils. Minor rock outcrop. Black to brownish black light clay grading to dark brown or brownish black light to medium clays over decomposing rock. Stony throughout. Ug 5.13, 5.12, Uf 6.32. Neutral to alkaline soil reaction trend.	Narrow leaved ironbark, gum-topped bloodwood/silver-leaved ironbark grassy open forest.	Upper slopes and steep ridge crests. 10-20% slope, some scarp areas up to 60% slope.	Tertiary basalt.	VII m ₆ , d ₆ , t ₆ , r ₅ , e ₇
84	Moderately deep to deep soils. Occasional rock outcrops. Black clays becoming browner with depth. Calcium carbonate occurs at depth. Ug 5.15, 5.16. Alkaline soil reaction trend.	Queensland blue gum, silver-leaved ironbark open forest with scattered Moreton Bay ash, narrow-leaved ironbark, broad-leaved apple frequently present.	Lower slopes and narrow drainage lines. 2-5% slope.	Tertiary basalt.	IV k ₄ , w ₄ , e ₂

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
85	Moderately deep to deep soils. Minor surface stone. Brownish black to dark reddish brown clays becoming dark brown or reddish brown with depth over decomposing rock. Calcium carbonate occurs at depth. Ug 5.12, 5.32, 5.37. Alkaline soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/Moreton Bay ash grassy woodland. Some scattered areas of brigalow open forest.	Lower slopes and low rises. 1-4% slope.	Triassic basalt (Abernethy Basalt).	II - III m ₂ , k ₃ , e ₂
86	Shallow to moderately deep soils. Areas with surface stone or weak gilgai. Brownish black clays becoming dull reddish brown or brown with depth. Manganese concretions may occur at depth. Ug 5.13, 5.32, Uf 6.31. Neutral to alkaline soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark, Moreton Bay ash/gum-topped bloodwood, grassy woodland with scattered pink bloodwood, kurrajong frequently present.	Mid and upper slopes. 4-10% slope.	Triassic basalt (Abernethy Basalt).	III d ₃ , k ₂ , r ₃ , e ₃
87	Shallow soils. Some very stony areas occur. Black to dark reddish brown light to medium clays grading to gravelly brownish black to dark reddish brown medium to heavy clays over decomposing rock. Calcium carbonate may occur at depth. Uf 6.31, 6.32. Ug 5.12, 5.32. Alkaline to neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/narrow-leaved ironbark/Queensland blue gum, corkwood grassy open forest.	Upper slopes and broad ridge crests. 1-3% slope.	Triassic basalt (Abernethy Basalt).	IV - VI m ₄ , d ₄ , r ₃ , e ₂
88	Deep soils. Dark reddish brown light clays grading to reddish brown light clays. Ferromanganese nodules occur at depth. Uf 6.31. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood/silver-leaved ironbark/Moreton Bay ash woodland.	Upper slopes and broad ridge crests. 0-2% slope.	Triassic basalt (Abernethy Basalt).	II m ₂ , e ₂
89	Deep to very deep soils. Weakly gilgaied areas occur. Brownish black clays becoming dark greyish yellow to olive brown at depth. Calcium carbonate and ferromanganese concretions occur at depth. Ug 5.15, 5.24, 5.34. Alkaline soil reaction trend.	Queensland blue gum, silver-leaved ironbark/poplar box/Morton Bay ash grassy open forest. Occasional areas of brigalow, belah open forest.	Lower slopes and broad drainage lines. 0-2% slope.	Triassic basalt (Abernethy Basalt).	III p ₂ , k ₃ , w ₃ , e ₂
90	Shallow soils. Frequent areas with rocky surface. Brownish black clays becoming brown or dull reddish brown with depth over decomposing rock. Calcium carbonate segregations may occur at depth. Ug 5.13, 5.32. Alkaline soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood, narrow-leaved ironbark grassy woodland with scattered Moreton Bay ash, pink bloodwood frequently present.	Mid and upper slopes, broad ridge crests. 4-15% slope.	Triassic basalt (Abernethy Basalt).	VI m ₃ , d ₂ , r ₅ , e ₆
91	Shallow soils. Frequent rock outcrop. Dark brown clays becoming browner with depth. Calcium carbonate segregations may occur at depth. Ug 5.32, 5.12, Uf 6.31. Alkaline soil reaction trend.	"Softwood scrub" species open scrub with bottle tree emergents.	Upper slopes and ridge crests. 10-15% slopes.	Triassic basalt (Abernethy Basalt).	VII m ₃ , d ₄ , r ₅ , e ₇
92	Shallow soils. Frequent rock outcrop. Brownish black clays becoming browner with depth over decomposing rock. Ug 5.32, 5.12, Uf 6.31. Occasional areas of Gn 3.22. Neutral to alkaline soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark, gum-topped bloodwood grassy woodland.	Steep midslope positions. 15-25% slope with some areas as steep as 35%.	Triassic basalt (Abernethy Basalt).	VII m ₃ , d ₄ , r ₅ , t ₆ , e ₇
93	Shallow soils. Areas with surface rock. Brownish black self mulching clays becoming browner with depth over decomposing rock. Ug 5.13, 5.32, areas Uf 6.31. Neutral to alkaline soil reaction trend.	"Softwood scrub" species closed scrub.	Mid and lower slopes, some scarps. 14-30% slope, minor areas as steep as 60% slope.	Triassic basalt (Abernethy Basalt).	VII - VIII m ₄ , t ₇ , r ₅ , e ₇
94	Moderately deep to deep texture contrast soils. Frequently gravelly throughout. Moderately deep hardsetting greyish yellow brown loamy fine sands to sandy clay loams, frequently bleached A ₂ , overlying dull reddish brown to dull yellowish brown medium to heavy clays. Dy 3.41, 3.21. Acid soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered spotted gum, silver-leaved ironbark, bull oak, wattle frequently present.	Mid and upper slopes on low ridges. 2-6% slope.	Biggenden Beds (Good Night Beds).	IV - VI m ₃ , p ₄ , r ₃ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
95	Deep texture contrast soils. Moderately deep hardsetting brownish black clay loams, frequently bleached A ₂ , overlying mottled brown to dull yellowish brown medium to heavy clays. Calcium carbonate may occur at depth. Db 2.43, Dy 3.42, 2.33. Alkaline soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum grassy open forest to woodland with scattered Moreton Bay ash, silver-leaved ironbark frequently present.	Lower slope positions. 1-4% slope.	Biggenden Beds (Good Night Beds).	IV - VI m ₄ , p ₃ , s ₂ , e ₄
96	Shallow to very shallow soils. Occasional rock outcrop. Hardsetting brownish black to dull yellowish brown gravelly clay loams. Um 1.43, 1.41, 1.23. Occasional areas of yellow texture contrast soils. Dy 3.31. Neutral soil reaction trend.	Spotted gum, narrow-leaved ironbark open forest with pink bloodwood, "softwood scrub" species occasionally present. Minor areas with understorey of brush box, bull oak, dogwood, quinine berry, wattle.	Mid and upper slopes, narrow ridges. 14-40% slope, some areas as steep as 80% slope.	Biggenden Beds (Good Night Beds).	VII - VIII m ₆ , d ₆ , t ₇ , e ₇
97	Shallow soils. Occasional rock outcrop. Dark brown to dark reddish brown light to medium clays grading to reddish brown to dull yellowish brown medium to heavy clays. Calcium carbonate segregations may occur at depth. Uf 6.31, 4.1, 1.43. Neutral to alkaline soil reaction trend.	"Softwood scrub" species open scrub.	Mid and upper slopes, broad ridge crests. 15-30% slope with some slopes as steep as 60%.	Biggenden Beds (Good Night Beds).	VII m ₆ , d ₄ , t ₇ , r ₄ , e ₆
98	Moderately deep gradational and texture contrast soils. Gravelly throughout. Hardsetting dark brown to brownish black clay loams overlying reddish brown to dull yellowish brown light to medium clays. Ferromanganese nodules may occur at depth. Gn 3.62, Dr 3.32, 2.22. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark woodland to open forest with scattered silver-leaved ironbark/spotted gum, Queensland blue gum frequently present.	Mid and lower slopes. 6-15% slopes, some as steep as 25%.	Biggenden Beds (Good Night Beds).	VI - VII m ₄ , t ₄ , e ₆
99	Shallow to moderately deep texture contrast soils. Hardsetting brownish black gravelly clay loams overlying dark reddish brown to brown light to medium clays over decomposing rock. Dr 3.11, 2.12, Dy 2.21, Gn 3.12. Acid to neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood grassy open forest with scattered silver-leaved ironbark, spotted gum, Moreton Bay ash, Queensland blue gum, quinine berry frequently present.	Mid and upper slopes. 10-25% slope, some as steep as 35%.	Biggenden Beds (Good Night Beds).	VII m ₄ , t ₆ , e ₇
100	Shallow stony soils. Frequent rock outcrop. Hardsetting brownish black or dark brown gravelly clay loams. Um 1.23, 1.43, areas Dy 2.31. Acid to neutral soil reaction trend.	Narrow-leaved ironbark/Queensland peppermint/spotted gum/pink bloodwood, wattles, quinine berry open forest.	Upper slopes and ridge crests. 4-15% slope.	Biggenden Beds (Good Night Beds).	VII m ₆ , d ₄ , r ₅ , e ₇
101	Shallow texture contrast soils. Occasional rock outcrop. Hardsetting brownish black clay loams, occasional bleached A ₂ , overlying brown to dull yellowish brown light to medium clays. Gravelly throughout. Db 2.31, Dy 2.31, 3.42, areas of stony loams. Um. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark woodland to open forest with scattered Queensland peppermint, pink bloodwood, wattle frequently present.	Lower and mid slopes. 6-15% slope with some slopes up to 20%.	Biggenden Beds (Good Night Beds).	VII m ₆ , d ₄ , p ₄ , t ₄ , e ₇
102	Deep texture contrast soils. Deep hardsetting dark brown fine sandy loam to clay loams, bleached A ₂ , overlying mottled greyish brown or dull yellowish brown medium to heavy clay. Manganese nodules and calcium carbonate frequently occur at depth. Dy 3.33, 3.43, Db 2.43. Alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark, Moreton Bay ash open forest with scattered kurrajong, spotted gum, wattle frequently present. Black tea-tree, paper barked tea-tree, swamp mahogany, weeping bottle brush occur along stream channels.	Lower slopes and valley floors. 0-2% slope.	Biggenden Beds (Good Night Beds).	IV - VI m ₄ , p ₄ , s ₂ , e ₄
103	Shallow texture contrast soils. Deep hardsetting brownish black to greyish yellow brown fine sandy loams or sandy clay loams, bleached A ₂ , overlying dull or bright yellowish brown light to medium clays. Dy 3.41, 2.41, areas Um 2.12. Acid soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum, Queensland peppermint open forest with scattered rusty gum, Moreton Bay ash, wattles/brush box/spotted gum frequently present.	Mid and lower slopes, low rises. 1-5% slope.	Brooweena Formation.	VI m ₆ , p ₄ , r ₃ , e ₄
104	Shallow to moderately deep texture contrast soils. Frequently gravelly throughout. Minor rock outcrop. Deep greyish brown sandy loams to sandy clay loams, bleached A ₂ , overlying mottled dull yellow orange light to medium clays. Dy 3.41, 3.42. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, Queensland peppermint open forest with scattered pink bloodwood, Queensland blue gum/gum-topped box, rusty gum, bull oak, dogwood frequently present.	Mid and upper slopes. 3-12% slope.	Brooweena Formation.	VII m ₆ , p ₄ , r ₃ , e ₇

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
105	Deep texture contrast soils. Moderately deep brown to dull reddish brown gravelly sandy loams to sandy clay loams, bleached A ₂ , overlying mottled dull brown to dull yellow orange light to medium clays. Manganese concretions may occur at depth. Dy 3.43, Db 2.42. Neutral to alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash/narrow-leaved ironbark/swamp mahogany/broad-leaved apple grassy open forest. Weeping bottle brush, river she-oak, paper barked tea-tree fringe watercourses.	Lower slopes and adjacent to drainage lines. 0-2% slope.	Brooweena Formation.	VI m ₆ , p ₄ , s ₂ , e ₃
106	Moderately deep texture contrast soils. Deep hardsetting brownish black fine sandy loams, frequently bleached A ₂ , overlying yellowish brown to dull yellow orange medium clays. Dy 3.42, 2.43, areas 2.41. Neutral to alkaline soil reaction trend.	Queensland blue gum, brown bloodwood, rusty gum open forest with scattered brush box, Queensland peppermint, narrow-leaved ironbark frequently present.	Mid and lower slopes. 2-5% slope.	Brooweena Formation.	VI m ₆ , p ₄ , e ₄
107	Very shallow to shallow soils. Frequent rock outcrop. Brownish black to greyish yellow brown gravelly sandy loams to clay loams. Um 1.23, Uc. Occasional yellow or brown texture contrast soils. Dy 3.21, Db 1.22. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark open forest with scattered brush box, brown bloodwood, white mahogany, wattle frequently present.	Mid and upper slopes, sharp ridge crests. 20-40% slope with areas as steep as 100% slope.	Brooweena Formation.	VIII m ₆ , t ₇ , t ₅ , e ₈
108	Shallow stony soils. Minor rock outcrop. Brownish black to yellowish brown gravelly clay loams. Um 6.41, 1.43, Dy. Acid soil reaction trend.	Small-fruited grey gum, narrow-leaved ironbark, broad-leaved ironbark/brush box/"softwood scrub" species shrubby open forest.	Upper slopes and ridge crests. 6-20% slope.	Brooweena Formation.	VII m ₆ , d ₄ , t ₆ , e ₇
109	Moderately deep texture contrast soils. Gravelly throughout. Deep hardsetting black sandy loams to sandy clay loams, frequently bleached A ₂ , overlying dull yellowish brown to bright brown light to medium clays. Dy 2.41, 3.41, Db 1.31. Acid soil reaction trend.	Broad-leaved ironbark, spotted gum, brown bloodwood/white mahogany/Queensland blue gum open forest.	Mid and upper slopes. 3-12% slope.	Brooweena Formation.	VI m ₆ , p ₃ , t ₄ , e ₄
110	Moderately deep to deep texture contrast soils. Moderately deep brownish black sandy loams or sandy clay loams, frequently bleached A ₂ , overlying yellowish brown light to medium clays. Dy 3.41, 3.43, 2.42, Db 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum open forest with spotted gum, rusty gum, brush box, brown bloodwood, Queensland peppermint, wattle frequently present.	Lower slope positions. 6-15% slope.	Brooweena Formation.	VI m ₆ , p ₃ , e ₄
111	Shallow soils, gravelly throughout. Brownish black sandy clay loams to clay loams grading to brown clay loams or light clays. Um 6.41, 6.32, Gn 3.71. Acid to neutral soil reaction trend.	"Softwood scrub" species closed scrub with hoop pine emergents.	Mid and lower slopes, along drainage lines. 8-20% slope.	Brooweena Formation.	VI m ₄ , t ₆ , e ₆
112	Shallow to moderately deep texture contrast soils. Occasional rock outcrop. Black to greyish yellow brown loamy coarse sands to sandy loams, frequently bleached A ₂ , overlying greyish brown to yellowish brown sandy clays to medium clays. Dy 2.41, 5.42, 5.21. Small areas of uniform sands. Uc 2.12. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood, rusty gum open forest with scattered Moreton Bay ash, Queensland peppermint, white mahogany, wattle, bull oak, quinine berry frequently present and occasional swamp mahogany/coast banksia/grass trees.	Mid and upper slopes, low ridges. 2-8% slope.	Broomfield Granite.	VI m ₆ , p ₄ , e ₃
113	Deep texture contrast and gradational soils. Brownish grey loamy sands, occasional bleached A ₂ , overlying bright yellowish brown light to medium clays. Dy 5.41, 5.61, Gn 2.64, minor Uc 1.43. Acid soil reaction trend.	Rusty gum, brown bloodwood, swamp mahogany open forest with scattered pink bloodwood, Queensland blue gum, black she-oak, paper barked tea-tree, quinine berry, wattles frequently present.	Upper slopes and crests of low rises. 0-3% slope.	Broomfield Granite.	VI m ₆ , p ₃ , e ₂
114	Moderately deep to deep texture contrast soils. Deep greyish yellow brown fine sandy loams to clay loams, occasionally bleached A ₂ , overlying brown to bright yellowish brown light to medium clays over decomposing rock. Dy 3.22, 3.42, Db 2.22, 3.42. Neutral to acid soil reaction trend.	Spotted gum, gum-topped box shrubby open forest with scattered narrow-leaved ironbark, white mahogany, bull oak, beefwood frequently present.	Lower slopes. 2-8% slope.	Broomfield Granite.	VI m ₆ , p ₄ , e ₄
115	Shallow to moderately deep texture contrast soils. Moderately deep brownish black sandy loams to fine sandy clay loams, occasional bleached A ₂ , overlying dark brown to greyish brown light to medium - heavy clays. Dy 5.41, 5.82, 3.41, Db 2.12. Acid soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum, Moreton Bay ash/pink bloodwood/Queensland peppermint/rusty gum open forest.	Mid and upper slopes on low rises. 3-7% slope.	Broomfield Granite.	VI m ₆ , p ₃ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
116	Shallow texture contrast soils. Frequent rock outcrop. Brownish black to greyish brown sandy loams to sandy clay loams overlying dull yellowish brown sandy to medium clays. Db 2.21, 2.41, Uc 1.23, 4.22. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/brush box/rusty gum open forest.	Mid and upper slopes, ridge crests. 10-25% slope with some as steep as 40%.	Broomfield Granite.	VII m ₆ , t ₆ , r ₅ , e ₇
117	Deep texture contrast soils. Deep hardsetting brownish black coarse sands to clay loams, bleached A ₂ , overlying mottled brownish grey to yellowish grey medium to heavy clays. Dy 3.41, Db 2.43. Occasional uniform dark clays. Ug 5.16. Acid to neutral soil reaction trend.	Queensland blue gum, swamp mahogany shrubby open forest with scattered gum-topped box, paper barked tea-tree, Moreton Bay ash, grass tree frequently present.	Lower slopes and drainage lines. 0-2% slope.	Broomfield Granite.	VI m ₆ , p ₄ , e ₃
118	Moderately deep texture contrast soils. Moderately deep brownish black clay loams to sandy clay loams, frequently bleached A ₂ , overlying yellowish brown to brown light to medium clays. Dy 3.41, Db 2.41, Gn 3.21. Acid soil reaction trend.	Narrow-leaved ironbark pink bloodwood, Moreton Bay ash/silver-leaved ironbark/beefwood open woodland to open forest.	Mid and lower slopes. 3-10% slope.	Gayndah Beds.	VI m ₆ , p ₄ , e ₄
119	Shallow to moderately deep texture contrast soils. Occasional rock outcrop. Moderately deep brownish black to dark brown clay loams overlying dark brown to yellowish brown medium to heavy clays. Db 2.23, 2.43, areas Uf 6.31. Alkaline soil reaction trend.	Narrow-leaved ironbark woodland with scattered silver-leaved ironbark, poplar box, Moreton Bay ash, beefwood, wattle frequently present.	Mid and upper slopes, broad ridge crests. 3-8% slope some as steep as 15%.	Gayndah Beds.	IV - VI m ₄ , d ₄ , p ₃ , e ₄
120	Shallow to moderately deep soils. Some rock outcrops. Hardsetting brownish black to greyish brown gravelly sandy loams and clay loams, occasional bleached A ₂ , overlying dull yellowish brown clay loam to medium clays. Um 1.42, Dy 3.21, Db 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, spotted gum, rusty gum layered open forest with scattered Queensland peppermint, Moreton Bay ash, black she-oak, dogwood frequently present.	Upper slopes and broad ridge crests. 1-3% slope.	Gayndah Beds.	VI m ₆ , p ₄ , e ₄
121	Moderately deep to deep texture contrast soils. Deep brownish black clay loams frequently bleached A ₂ , overlying mottled yellowish brown or greyish brown medium to heavy clays. Calcium carbonate and manganese nodules may occur at depth. Db 2.43, Dy 3.42, 2.33. Occasional uniform dark clays. Ug 5.15. Alkaline soil reaction trend.	Poplar box, Queensland blue gum/Moreton Bay ash/narrow-leaved ironbark open forest. Occasional patches of brigalow.	Lower slopes and drainage lines. 0-3% slope.	Gayndah Beds.	IV m ₄ , p ₄ , k ₂ , e ₃
122	Shallow to moderately deep soils. Some weakly gilgaied areas occur. Brownish black light to medium clays grading to dark brown to yellowish brown light to heavy clays over decomposing rock. Calcium carbonate often occurs at depth. Uf 6.31, 6.32, Ug 5.34. Alkaline soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy open forest with scattered narrow-leaved ironbark, Moreton Bay ash/poplar box frequently present.	Mid and upper slopes. 3-8% slope with areas as steep as 12%.	Aranbanga Beds.	III m ₃ , p ₂ , k ₂ , e ₃
123	Deep soils. Some weakly gilgaied areas. Brownish black to dark brown clay loams to medium clays grading to dark brown or greyish yellow brown medium to heavy clays. Calcium carbonate and ferromanganese concretions may occur at depth. Ug 5.34, 5.22, areas Dd 2.43, Dy 3.43. Alkaline soil reaction trend.	Poplar box open forest with scattered silver-leaved ironbark, narrow-leaved ironbark, Queensland blue gum frequently present.	Lower slopes. 2-4% slope.	Aranbanga Beds.	III m ₃ , p ₃ , k ₂ , e ₂
124	Shallow soils. Occasional rock outcrop. Brownish black to black clay loams to medium clays becoming browner with depth, over decomposing rock. Uf 6.32, Gn 3.12 areas Ug 5.13. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/narrow-leaved ironbark grassy woodland to open forest. Occasional areas with pink bloodwood, "softwood scrub" species.	Upper slopes and stony ridge crests. 2-6% slope.	Aranbanga Beds.	IV - VI m ₄ , d ₃ , p ₂ , r ₃ , e ₄
125	Deep texture contrast soils. Shallow brownish black hardsetting clay loams, frequently bleached A ₂ , overlying brownish black to brown light to medium clays. Calcium carbonate may occur at depth. Dd 1.33, Db 2.43, areas Ug 5.15. Alkaline soil reaction trend.	Poplar box, Queensland blue gum woodland.	Lower slopes and drainage lines. 0-3% slope.	Aranbanga Beds.	IV m ₄ , p ₄ , w ₂ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
126	Deep to very deep soils. Some weakly gilgaied areas. Dark self-mulching clays becoming slightly browner with depth. Calcium carbonate occurs at depth. Ug 5.16, 5.34, 5.35. Alkaline soil reaction trend.	Brigalow/belah shrubby open forest with scattered scrub wilga, poplar box, silver-leaved ironbark frequently present.	Mid and lower slopes. 1-7% slope.	Aranbanga Beds.	III m ₃ , p ₂ , k ₂ , e ₃
127	Deep to very deep soils. Brownish black to dark brown self mulching clay soils becoming browner with depth. Calcium carbonate may occur at depth. Uf 6.32, 6.31, Ug 5.15. Alkaline soil reaction trend.	"Softwood scrub" species open to closed scrub. Occasional areas of brigalow open forest.	Mid and lower slopes. 1-6% slope.	Aranbanga Beds.	III m ₃ , p ₂ , e ₃
128	Moderately deep soils. Some areas with surface stone. Dark brown to brownish black gravelly clay loams to light clays grading to brown light to medium clays over decomposing rock. Uf 6.31, 6.32, Gn 3.21, 3.84. Neutral to acid soil reaction trend.	"Softwood scrub" species open scrub. Occasional areas of brigalow open forest.	Mid and upper slopes, some low ridges. 8-15% slope, some areas as steep as 25%	Aranbanga Beds.	VI m ₄ , p ₃ , t ₄ , r ₄ , e ₆
129	Moderately deep to deep texture contrast soils. Moderately deep hardsetting brownish black to dark brown sandy loams to clay loams, bleached A ₂ , overlying brown to greyish yellow brown light to heavy clays. Calcium carbonate frequently occurs at depth. Db 2.43, Dy 3.43, 2.42, Dr 2.32. Alkaline to neutral soil reaction trend.	Narrow-leaved ironbark/pink bloodwood, Moreton Bay ash woodland to open forest with scattered silver-leaved ironbark, wattle, quinine berry, beefwood frequently present.	Mid and upper slopes. 3-10% slope, some as steep as 18%.	Aranbanga Beds.	VI m ₆ , d ₃ , p ₄ , e ₄
130	Shallow to moderately deep texture contrast soils. Occasional rock outcrop. Moderately deep brownish black to dark brown fine sandy clay loams, occasional bleached A ₂ , overlying brownish black to greyish yellow brown medium clays. Dd 2.13, Db 1.33, 1.43, Dy 2.41. Occasional gravelly loams. Um 2.12. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark grassy woodland with scattered silver-leaved ironbark, pink bloodwood, quinine berry, wattle, spotted gum occasionally present.	Upper slopes and low ridge crests. 0-4% slope.	Aranbanga Beds.	VI m ₆ , d ₃ , p ₃ , r ₃ , e ₄
131	Shallow texture contrast soils. Some areas with surface stone. Shallow brownish black silty loams overlying brownish black to bright brown medium to heavy clays. Calcium carbonate may occur at depth. Db 2.13, 2.32, Dd 2.13, Dr 2.13, areas Uf 6.31. Alkaline to neutral soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark woodland with scattered gum-topped bloodwood/grey bloodwood, Moreton Bay ash, wattle occasionally present.	Mid and lower slopes. 3-10% slope, with some as steep as 15%.	Aranbanga Beds.	IV m ₄ , p ₃ , e ₃
132	Deep texture contrast soils. Moderately deep to deep brownish black to greyish brown sandy loams to light clays, occasional bleached A ₂ , overlying dark brown to dull yellow sandy clays to heavy clays. Calcium carbonate and ferromanganese nodules may occur at depth. Db 2.13, 4.42, Dy 3.43, areas Gn 3.23, Ug 5.34. Alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark/Moreton Bay ash/pink bloodwood/silver-leaved ironbark/broad-leaved ironbark/poplar box woodland to open forest. Weeping bottle brush, black tea-tree, river she-oak occur along stream channels.	Lower slopes and minor drainage lines. 0-3% slope.	Aranbanga Beds.	III m ₃ , p ₃ , e ₃
133	Deep texture contrast soils. Shallow hardsetting brownish black to greyish brown fine sandy loams to clay loams, frequently bleached A ₂ , overlying brownish black to greyish yellow brown medium to heavy clays. Calcium carbonate and ferromanganese nodules occur at depth. Dy 3.43, Db 2.43, 3.13, Dd 1.43. Alkaline soil reaction trend.	Gum-topped box open forest with scattered Queensland blue gum, poplar box occasionally present.	Lower slope positions. 2-4% slope.	Aranbanga Beds.	IV m ₄ , p ₄ , e ₃
134	Moderately deep texture contrast soils. Frequent rock outcrop. Deep brownish black sandy loams to fine sandy clay loams, occasional bleached A ₂ , overlying greyish yellow brown gravelly sandy to medium clays. Dy 3.43, Db 1.33, areas Um 1.42. Alkaline soil reaction trend.	Spotted gum, narrow-leaved ironbark shrubby open forest with scattered Queensland blue gum, rusty gum, bull oak, wattle, quinine berry, dogwood frequently present.	Mid and upper slopes. 10-25% slope, with areas as steep as 60% slope.	Aranbanga Beds.	VII m ₆ , p ₄ , t ₆ , r ₅ , e ₇
135	Moderately deep to deep texture contrast soils. Moderately deep brownish black to dark brown sandy loams to gritty clay loams, frequently bleached A ₂ , overlying dark brown to yellowish brown light to medium clays. Calcium carbonate and manganese concretions may occur at depth. Db 2.43, 1.13, Dr 2.23. Alkaline soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered gum-topped bloodwood Moreton Bay ash, pink bloodwood frequently present.	Lower and mid slopes, some low ridges. 8-15% slope, some areas as steep as 30%.	Aranbanga Beds.	VI m ₄ , p ₃ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
136	Very shallow to shallow soils. Rock outcrops common. Brownish black coarse sandy loams grading to sandy clay loams. Uc 4.13, 1.42, Gn 3.94, areas Dy 2.22. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark shrubby woodland to open forest with scattered pink bloodwood, Queensland peppermint, rusty gum, quinine berry, black she-oak frequently present.	Upper slopes and rocky ridge crests. 1-8% slope.	Aranbanga Beds.	VII m ₆ , d ₄ , t ₁ , r ₅ , e ₇
137	Shallow to moderately deep soils. Frequent rock outcrop. Brownish black to greyish brown, gravelly, fine sandy loams to clay loams grading to reddish or yellowish brown light clays. Gn 3.12, Um 1.42. Occasional yellow texture contrast soils. Dy 2.22, 2.41. Acid to neutral soil reaction trend.	Spotted gum, narrow-leaved ironbark/Queensland blue gum/pink bloodwood/Moreton Bay ash layered open forest.	Mid and upper slopes. 20-40% slope, some slopes up to 100%.	Aranbanga Beds.	VIII m ₆ , d ₃ , t ₇ , r ₅ , e ₈
138	Shallow stony soils. Frequent rock outcrop. Very dark brown to brownish black gravelly loamy coarse sands to sandy clay loams overlying greyish brown sandy loams or medium clays. Uc 1.23, areas Dy 2.41. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/wattle/quinine berry/dogwood open forest.	Upper slopes and stony ridge crests. 0-10% slope.	Aranbanga Beds.	VIII m ₆ , d ₃ , t ₇ , r ₅ , e ₈
139	Shallow texture contrast soils. Occasional rock outcrop. Brownish black to greyish brown fine sandy clay loams to clay loams overlying dark reddish brown to dull yellowish brown light to medium clays. Calcium carbonate segregations may occur at depth. Db 1.12, 2.22, Dr 2.13. Occasional uniform soils. Uf 6.32. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark/gum-topped bloodwood silver-leaved ironbark grassy woodland to open forest.	Mid and lower slopes. 12-30% slope, some slopes as steep as 60%.	Aranbanga Beds.	VII m ₆ , d ₂ , t ₇ , r ₅ , e ₇
140	Shallow texture contrast soils. Some rock outcrops. Brownish black to greyish yellow brown sandy loams to clay loams, frequently bleached A ₂ , overlying bright brown to dull yellowish brown sandy to medium clays. Dy 2.81, 5.81, Db 1.31. Occasional stony loams. Um. Acid soil reaction trend.	Brown bloodwood, small-fruited grey gum, brush box open forest with scattered white mahogany, pink bloodwood, narrow-leaved ironbark, forest she-oak, grass tree frequently present.	Ridge crests and upper slopes. 10-25% slope, areas up to 35% slope.	Aranbanga Beds.	VII m ₆ , d ₂ , t ₆ , e ₇
141	Moderately deep texture contrast soils. Occasional rock outcrop. Deep brownish black clay loams, bleached A ₂ , overlying brown to greyish yellow brown light to medium clays. Dy 2.43, 3.43, Db 2.43. Alkaline soil reaction trend.	Spotted gum, narrow-leaved ironbark layered open forest with scattered Queensland blue gum, poplar box/gum-topped box, wattle, bull oak frequently present.	Lower colluvial slopes. 3-8% slope.	Aranbanga Beds.	VI m ₆ , p ₄ , e ₆
142	Shallow to moderately deep gravelly soils. Brownish black clay loams to light clays grading to brown or yellowish brown light to medium-heavy clays. Uf 6.31, 6.32, Gn 3.23, 3.84. Neutral to alkaline soil reaction trend.	"Softwood scrub" species/brigalow open to closed scrub.	Mid and lower slopes. 15-30% slope, some areas as steep as 60%.	Aranbanga Beds.	VII m ₄ , t ₇ , r ₃ , e ₆
143	Shallow to moderately deep texture contrast soils. Some rock outcrops. Deep hardsetting brownish black to brown sandy loams to clay loams, frequently bleached A ₂ , overlying dark reddish brown to greyish brown light to heavy clays. Dr 3.41, 2.41, Dy 2.51, Db 2.43. Occasional gravelly loams. Um 1.23. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark layered open forest with scattered pink bloodwood, Queensland peppermint, silver-leaved ironbark, rusty gum, Moreton Bay ash, black she-oak, black cypress pine frequently present.	Mid to upper slopes, ridge crests. 3-15% slope, areas up to 25%.	Partly lateritised Aranbanga Beds.	VI m ₄ , p ₄ , r ₂ , e ₆
144	Shallow texture contrast soils. Moderately deep brownish black sandy clay loams to clay loams, frequently bleached A ₂ , overlying dark brown to yellowish brown light to medium clays. Db 2.41, 2.21. Occasional areas of stony loams. Um 1.21. Acid soil reaction trend.	Broad-leaved ironbark, rusty gum, pink bloodwood/spotted gum/white mahogany/Queensland peppermint, black she-oak shrubby open forest.	Upper slopes and broad ridge crests. 2-6% slope.	Partly lateritised Aranbanga Beds.	VI m ₆ , d ₃ , p ₃ , e ₄
145	Shallow to moderately deep texture contrast soils. Shallow brownish black gravelly clay loams, bleached A ₂ , overlying greyish brown medium to heavy clays. Ironstone nodules may occur on surface. Dy 2.41, 3.41. Acid soil reaction trend.	Gum-topped box grassy open forest with scattered narrow-leaved ironbark, spotted gum, bull oak frequently present.	Mid and upper slopes. 2-4% slope.	Partly lateritised Aranbanga Beds.	VI m ₆ , p ₄ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
146	Deep to moderately deep soils. Very dark reddish brown clay loams to light clays grading to dark reddish brown light to medium clays. Ferruginous nodules occur at depth. Gn 3.11, 2.11, Uf 6.31. Acid soil reaction trend.	Spotted gum/narrow-leaved ironbark/Queensland peppermint, pink bloodwood shrubby open forest.	Upper slopes and broad ridge crests. 1-5% slope.	Partly lateritised Aranbanga Beds.	III - IV m ₂ , p ₂ , e ₄
147	Moderately deep to deep texture contrast soils. Shallow hardsetting brownish black to greyish brown fine sandy clay loams, bleached A ₂ , overlying dark brown or yellowish brown medium clays. Ferromanganese concretions occur at depth. Db 2.43, Dy 2.42, 3.43. Occasional uniform clay soils. Ug 5.32. Alkaline soil reaction trend.	Gum-topped box open forest with scattered silver-leaved ironbark, Queensland blue gum, Moreton Bay ash occasionally present.	Lower slope positions. 2-6% slope.	Partly lateritised Aranbanga Beds.	IV m ₄ , p ₃ , k ₃ , e ₃
148	Deep texture contrast soils. Moderately deep brownish black clay loams, frequently bleached A ₂ , overlying yellowish brown medium to heavy clays. Calcium carbonate and manganese concretions may occur at depth. Db 2.43, 2.32, Dy 3.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, broad-leaved apple open forest with scattered gum-topped box, swamp mahogany, silver-leaved ironbark frequently present.	Lower slopes and adjacent drainage lines. 0-4% slope.	Partly lateritised Aranbanga Beds.	IV m ₃ , p ₄ , e ₃
149	Shallow to moderately deep soils. Brownish black fine sandy loams to sandy clay loams grading to dull yellowish brown light clays. Gn 3.51, areas Gn 2.11. Acid soil reaction trend.	Budgeroo, brown bloodwood/thready bark she-oak/rusty gum/wattle/dogwood shrubby open forest.	Upper slope positions. 8-15% slope.	Partly lateritised Aranbanga Beds.	VI m ₆ , p ₄ , e ₆
150	Moderately deep soils. Occasional rock outcrop. Brownish black to dark brown coarse sandy loams grading to dull reddish brown or yellowish brown coarse sandy clay loams. Uc 1.23, 1.43. Occasional areas of texture contrast soils. Dy 2.21, Dr 2.21. Acid soil reaction trend.	Narrow-leaved ironbark, Moreton Bay ash open forest with scattered pink bloodwood, brush box, quinine berry, coast banksia, bitterbark frequently present.	Mid and lower slopes. 7-15% slope.	Tawah Granite.	VII m ₇ , p ₄ , e ₄
151	Shallow to very shallow soils. Frequent rock outcrop. Brownish black loamy coarse sands grading to dull yellowish brown clayey coarse sands. Uc 1.23. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood/spotted gum/brush box/wattle open forest.	Mid and upper slopes, sharp ridge crests. 15-25% slope, some up to 40%.	Tawah Granite.	VII m ₇ , d ₄ , t ₆ , r ₅ , e ₇
152	Shallow soils. Some rock outcrops. Brownish black coarse sandy loams to loamy coarse sands grading to yellowish brown clayey coarse sands. Uc 1.23. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood/Moreton Bay ash/bitterbark, wattle open forest.	Upper slopes and broad ridge crests. 1-6% slope.	Tawah Granite.	VII m ₇ , e ₄
153	Shallow to moderately deep soils. Brownish black to greyish brown loamy sands to coarse sandy loams grading to orange or reddish brown clayey coarse sands. Uc 1.22, 1.42. Occasional red and yellow texture contrast soils. Dy 2.21, Dr 2.22. Acid soil reaction trend.	Narrow-leaved ironbark, spotted gum, pink bloodwood/Moreton Bay ash/black she-oak/red ash/quinine berry shrubby open forest.	Mid and upper slope positions, some low ridge crests. 8-20% slope, areas up to 30% slope.	Tawah Granite.	VII m ₆ , t ₆ , e ₇
154	Very shallow to shallow soils. Some boulder outcrop. Brownish black to brown loamy sands grading to orange coarse sandy loams. Uc 1.22, 1.21. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/wattle/quinine berry open forest.	Upper slopes and sharp ridge crests. 20-40% slope, areas up to 60% slope.	Chowey Granite.	VII - VIII m ₇ , d ₆ , t ₇ , e ₇
155	Deep soils. Dark brown coarse sands to loamy sands grading to dull yellow orange clayey coarse sands or coarse sands. Uc 2.21, 1.22. Occasional yellow texture contrast soils. Dy 3.41. Acid soil reaction trend.	Rusty gum, narrow-leaved ironbark, pink bloodwood open forest with scattered spotted gum, Queensland peppermint, Queensland blue gum, dogwood, wattle frequently present.	Lower slopes. 4-8% slope.	Chowey Granite.	VI - VII m ₆ , p ₄ , e ₄
156	Deep to very deep soils. Very dark brown loamy coarse sands to coarse sandy loams grading to brown clayey coarse sands or loamy sands. Uc 1.23, 1.43, 2.21. Acid to neutral soil reaction trend.	White mahogany, pink bloodwood, rusty gum/Queensland blue gum, swamp mahogany/coast banksia/quinine berry, wattle shrubby open forest.	Lower slopes. 2-5% slope.	Chowey Granite.	VI - VII m ₆ , p ₄ , e ₄
157	Moderately deep to deep texture contrast soils. Deep brownish black sandy loams, frequently bleached A ₂ , overlying brown to dull yellowish brown sandy to medium clays. Dy 3.41, 2.42, Db 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood, Queensland blue gum/Moreton Bay ash/spotted gum/wattle/quinine berry grassy open forest.	Lower slopes 3-10% slope.	Chowey Granite.	VI m ₆ , k ₄ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
158	Deep to very deep soils. Brownish black to dark brown coarse sands or coarse sandy loams, frequently bleached A ₂ , overlying brown to bright brown loamy coarse sands or sandy clays. Uc 2.21, areas Dy 2.41. Acid soil reaction trend.	Moreton Bay ash, Queensland blue gum, pink bloodwood/narrow-leaved ironbark/quinine berry open forest. Swamp mahogany, river she-oak, paper barked tea-tree, weeping bottle brush occur along stream channels.	Narrow valley floors. 0-2% slope.	Chowey Granite.	VI - VII m ₆ , e ₃
159	Shallow to moderately deep soils. Black crusting clays becoming browner with depth. Ug 5.12, 5.32. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/narrow-leaved ironbark grassy woodland.	Mid and lower slopes. 2-6% slope.	Wateranga Gabbro.	IV m ₄ , d ₃ , k ₂ , e ₃
160	Shallow soils. Brownish black clay loams to light clays overlying dark brown to reddish brown light to medium clays. Uf 6.31, Ug 5.12, areas Dr 2.12. Neutral soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood/Queensland blue gum woodland to open forest.	Mid and upper slopes. 7-12% slope.	Wateranga Gabbro.	VI m ₄ , d ₄ , e ₆
161	Shallow to moderately deep soils. Brownish black stony sandy loams grading to brownish grey or greyish yellow brown clayey coarse sands and coarse sandy loams. Uc 2.21. Occasional yellow texture contrast soils. Dy 3.41. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood, rusty gum/Queensland blue gum/quinine berry woodland to open forest.	Upper slopes and broad ridge crests. 2-10% slope, areas up to 15% slope.	Wateranga Gabbro.	VI - VII m ₆ , d ₄ , r ₄ , e ₄
162	Very shallow stony soils. Frequent rock outcrop. Brownish black to dull yellowish brown clay loams to light clays. Um 1.43, Uf 6.31. Neutral to acid soil reaction trend.	Narrow-leaved ironbark, spotted gum open forest with scattered areas of "softwood scrub" species.	Mid and upper slopes. 10-20% some slopes up to 40%.	Wateranga Gabbro.	VII m ₆ , d ₆ , t ₆ , r ₅ , e ₇
163	Deep to very deep soils. Brownish black silty clay loams to light clays grading to brown or dull yellowish brown light to medium clays. Gn 3.31, areas Ug 5.15. Neutral to alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark, Moreton Bay ash grassy open forest.	Lower slopes and drainage lines. 0-2% slope.	Wateranga Gabbro.	III - IV m ₂ , p ₃ , w ₃ , e ₃
164	Shallow soils. Frequent rock outcrop. Brown to dark brown gravelly loamy coarse sands to sandy loams. Uc 2.21, 2.12, 4.12, Dy 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, spotted gum, pink bloodwood/Moreton Bay ash open forest.	Mid and upper slopes, ridge crests. 10-25% slope, some up to 40%.	Mungore Complex.	VII - VIII m ₇ , d ₃ , t ₆ , e ₇
165	Shallow to moderately deep texture contrast soils. Occasional rock outcrop. Deep brownish black loamy coarse sands to sandy clay loams, occasional bleached A ₂ , overlying brown to dull yellowish brown sandy to medium clays. Dy 3.42, 2.41, Uc 1.23. Acid to neutral soil reaction trend.	Spotted gum, narrow-leaved ironbark grassy open forest with scattered swamp mahogany, Queensland blue gum, rusty gum, Moreton Bay ash, pink bloodwood Queensland peppermint, quinine berry frequently present.	Lower slopes. 10-15% slope.	Mungore Complex.	VI m ₄ , d ₃ , p ₄ , e ₆
166	Moderately deep to deep texture contrast soils. Moderately deep greyish yellow brown to brownish black sandy loams to fine sandy clay loams, bleached A ₂ , overlying dark brown to greyish yellow brown sandy to medium clays. Ferromanganese nodules may occur at depth. Db 2.33, Dy 3.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, narrow-leaved ironbark open forest with scattered pink bloodwood, swamp mahogany, broad leaved apple frequently present. River she-oak, weeping bottle brush broad leaved paper barked tea-tree along stream channels.	Narrow valley floors adjacent drainage lines. 0-2% slope.	Mungore Complex.	IV - VI m ₄ , p ₃ , e ₃
167	Very shallow stony soils. Frequent rock outcrop. Brownish black to greyish yellow brown loamy coarse sands to sandy loams. Uc 1.23, 1.43, Um 1.43. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark open forest with scattered brush box, pink bloodwood, grey gum frequently present.	Mid and upper slopes. 25-60% slope, some as steep as 100%.	Mungore Complex.	VIII m ₇ , d ₆ , t ₈ , r ₅ , e ₈
168	Shallow to moderately deep soils. Occasional rock outcrop. Brownish black to dull yellowish brown loamy coarse sands to sandy loams. Uc 1.23. Acid soil reaction trend.	White mahogany, brown bloodwood, brush box/small-fruited grey gum/grey gum/narrow-leaved ironbark shrubby open forest.	Upper slopes and ridge crests. 10-30% slope, areas as steep as 60%.	Mungore Complex.	VII - VIII m ₇ , d ₆ , t ₇ , r ₅ , e ₇
169	Moderately deep soils. Brownish black to dull brown loamy coarse sands grading to dull yellowish brown coarse sands. Uc 1.23, 1.43, 4.13. Acid soil reaction trend.	Pink bloodwood, white mahogany, forest she-oak/swamp mahogany/brush box/small-fruited grey gum/long-fruited grey gum open forest to woodland.	Upper slopes. 8-15% slope.	Mungore Complex.	VII m ₇ , t ₇ , e ₆
170	Shallow soils. Frequently with stony surface. Brownish black to dull yellowish brown sandy loams to fine sandy clay loams. Uc 1.44, 1.43, areas Um 1.43. Acid soil reaction trend.	"Softwood scrub" species closed scrub.	Mid and upper slopes. 30-60% slope, some as steep as 80% slope.	Mungore Complex.	VIII m ₇ , d ₆ , t ₈ , e ₈

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
171	Very shallow rocky soils. Frequent rock outcrop. Brownish black to yellowish brown coarse sands to loamy sands. Uc 1.23, 1.22. Acid soil reaction trend.	New England blackbutt, red bloodwood, white mahogany/black she-oak/wattles shrubby woodland. Areas of shrubland with scattered hakea. Coochin Hills grevillea, golden candlesticks banksia, tea tree, and bare rocky areas occur.	Upper slopes and ridge crests. 2-10% slope.	Mungore Complex.	VIII m ₇ , d ₆ , t ₈ , r ₅ , e ₈
172	Very deep soils. Very dark reddish brown to dark reddish brown clay loams to light clays grading to dark reddish brown light to medium clays. Lateritic gravel commonly occurs. Gn 3.11, Uf 6.31. Acid soil reaction trend.	Gympie messmate, brown bloodwood, large-fruited grey gum shrubby open to closed forest with scattered pink bloodwood, narrow-leaved ironbark, spotted gum, forest she-oak, red ash frequently present.	Upper slopes and broad low ridges of plateau surface. 0-10% slope.	Lateritised Tertiary basalt.	III m ₃ , e ₃
173	Very deep soils. Very dark to dark reddish brown clay loams to light clays grading to dark reddish brown light to medium clays. Uf 6.31, Gn 3.12, 3.11. Neutral soil reaction trend.	Spotted gum, narrow-leaved ironbark open forest with scattered pink bloodwood, large-fruited grey gum/Gympie messmate frequently present.	Lower slopes and margins of plateau surface. 1-12% slope.	Lateritised Tertiary basalt.	III m ₃ , e ₃
174	Very deep soils. Very dark to dark reddish brown light clays and clay loams, occasionally snuffy, grading to dark reddish brown medium clays. Uf 6.31, Gn 3.11. Neutral to acid soil reaction trend.	"Softwood scrub" species open scrub.	Upper slopes and broad ridge crests. 1-6% slope, some areas up to 12% slope.	Lateritised Tertiary basalt	II - III m ₃ , e ₂
175	Very deep soils. Dark reddish brown, snuffy clay loams to light clays grading to dull reddish brown light to medium clays. Uf 6.31, Gn 3.11, areas Gn 2.11. Acid soil reaction trend.	Spotted gum, Gympie messmate open forest with scattered narrow-leaved ironbark, rusty gum, large-fruited grey gum/brown bloodwood, forest she-oak frequently present.	Lower slopes or plateau margins. 1-3% slope, some up to 6% slope.	Lateritised Tertiary basalt.	IV m ₄ , p ₄ , k ₂ , e ₃ , a ₂
176	Very deep soils. Brownish black to dark reddish brown light clays or clay loams grading to dull reddish brown light to medium clays. Uf 6.31, Gn 3.11. Acid soil reaction trend.	Queensland blue gum, pink bloodwood, narrow-leaved ironbark/Moreton Bay ash/kurrajong, wattle woodland to open forest.	Lower slopes and drainage lines. 1-4% slope.	Lateritised Tertiary basalt.	III m ₂ , e ₃
177	Very deep soils. Very dark reddish brown light clay grading to dark reddish brown light to medium clays. Lateritic gravel commonly occurs. Uf 6.31, Gn 3.12, 3.11. Neutral soil reaction trend.	"Softwood scrub" species closed scrub.	Mid and upper slopes. 3-10% slope, up to 15% below scarps.	Colluvium from lateritised Tertiary basalt.	III - IV m ₃ , e ₃
178	Deep soils. Weak gilgai may occur. Brownish black self mulching medium clays becoming browner with depth over decomposing basalt rock. Calcium carbonate and manganese concretions may occur. Ug 5.34, 5.32, 5.15. Alkaline soil reaction trend.	Brigalow, wilga/"softwood scrub" species shrubby open forest.	Mid and lower slopes, low rises. 2-6% slope.	Colluvium from lateritised Tertiary basalt.	II - III m ₂ , e ₂
179	Deep to very deep soils. Dark reddish brown to dark brown light clays grading to brown or reddish brown medium to heavy clays. Calcium carbonate and ferromanganese nodules occur at depth. Uf 6.31, areas Ug 5.34. Alkaline soil reaction trend.	"Softwood scrub" species/brigalow open forest to open scrub.	Mid slopes. 3-6% slope.	Colluvium from lateritised Tertiary basalt.	II - III m ₂ , e ₂
180	Deep to very deep soils. Brownish black to dark brown self mulching clays. Calcium carbonate occurs at depth. Ug 5.15, 5.34. Occasional yellowish brown texture contrast soils. Dy 3.43. Alkaline soil reaction trend.	Brigalow, belah/wilga open forest. Black tea-tree may occur along drainage lines.	Lower slopes and drainage lines. 0-3% slope.	Colluvium from lateritised Tertiary basalt.	III m ₃ , p ₂ , s ₂ , k ₃ , e ₂
181	Deep soils. Brownish black to dark brown light to medium clays becoming dark reddish brown or brown with depth. Lateritic gravel and ferromanganese nodules commonly occur. Ug 5.38, 5.34, some Uf 6.31. Alkaline soil reaction trend.	Brigalow, "softwood scrub" species open scrub to low open forest. Occasional areas of black tea-tree.	Minor drainage lines. 2-5% slope.	Colluvium from lateritised Tertiary basalt.	IV p ₂ , s ₃ , k ₃ , e ₄
182	Very shallow to shallow soils. Rock outcrop common. Black to dark reddish brown clay loams grading to dull reddish brown or brownish black light clays. Lateritic gravel occurs throughout. Gn 3.41, 3.11, areas Um 6.42. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/pink bloodwood/wattles, grass tree shrubby open forest.	Steep scarps. 20-50% slopes, some as steep as 100%.	Lateritised Tertiary basalt.	VII - VIII m ₆ , d ₆ , t ₇ , r ₅ , e ₇

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
183	Shallow gravelly soils. Frequent rock outcrop. Brownish black weakly self mulching clays becoming browner with depth. Calcium carbonate may occur at depth. Ug 5.13, 5.32, areas Um 6.41. Alkaline soil reaction trend.	Silver-leaved ironbark, variable barked bloodwood/Moreton Bay ash, grass tree, wattle grassy open forest.	Lower slopes. 10-18% slope, some areas up to 25% slope.	Lateritised Tertiary basalt.	VII m ₄ , d ₄ , t ₄ , r ₄ , e ₇
184	Shallow to moderately deep soils. Gravelly throughout, minor rock outcrop. Brownish black to dark reddish brown clay loams to light clays. Uf 6.31, Gn 3.12. Neutral soil reaction trend.	"Softwood scrub" species closed scrub.	Steep scarps. 15-40% slope, some as steep as 100%.	Lateritised Tertiary basalt.	VII - VIII m ₆ , p ₂ , t ₇ , e ₇
185	Shallow to moderately deep soils. Very dark brown clays becoming dark brown or dark reddish brown with depth. Ug 5.32, areas Uf 6.31. Neutral soil reaction trend.	Brigalow, wilga/"softwood scrub" species low open forest.	Upper slopes. 8-15% slope.	Lateritised Tertiary basalt.	VI m ₄ , d ₃ , e ₆
186	Moderately deep to deep soils. Brownish black to dark reddish brown, occasionally snuffy, gravelly loams to sandy clay loams grading to dark reddish brown clay loams to medium clays. Lateritic gravel and ferruginous nodules commonly occur throughout. Gn 2.11, 3.11. Occasional loams. Um. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/pink bloodwood/rusty gum layered open forest with scattered Gympie messmate, brown bloodwood, gum-topped ironbark, large-fruited grey gum/forest she-oak occasionally present.	Upper slopes and plateau margins. 0-6% slope, some areas as steep as 10%	Duricrusted sediments.	IV - VI m ₄ , p ₃ , e ₃ , a ₃
187	Moderately deep texture contrast and gradational soils. Black to dark reddish brown sandy clay loams to clay loams overlying dark reddish brown to bright yellowish brown medium clays. Lateritic gravel may occur at depth. Dr 2.21, Dy 2.21, Gn 3.71, 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, spotted gum, broad leaved ironbark layered open forest with scattered yellowjacket, long-fruited bloodwood, gum-topped ironbark occasionally present.	Upper slopes. 1-5% slope.	Duricrusted sediments.	VI m ₆ , p ₃ , e ₄
188	Deep soils. Brownish black to very dark reddish brown, frequently snuffy, fine sandy loams to sandy clay loams grading to light brown or reddish brown light to medium clays. Lateritic gravel commonly occurs. Gn 2.11, 3.75. Acid soil reaction trend.	Broad leaved ironbark, budgeroo shrubby open forest with scattered narrow-leaved ironbark, white mahogany, large-fruited yellowjacket, forest she-oak, thready bark she-oak frequently present.	Upper slopes and broad crests. 0-6% slope.	Duricrusted sediments.	VI m ₆ , p ₄ , e ₆ , a ₃
189	Shallow to moderately deep texture contrast soils. Shallow brownish black to brownish grey sandy loams to gritty clay loams, occasional bleached A ₂ , overlying reddish brown to light grey medium to heavy clays. Dg 2.31, Dr 2.11, Dy 2.21. Acid soil reaction trend.	Spotted gum, Gympie messmate/narrow-leaved ironbark/broad-leaved ironbark/gum-topped ironbark shrubby open forest.	Mid and lower slopes. 0-10% slope.	Duricrusted sediments.	VI - VII m ₆ , d ₃ , p ₄ , e ₆
190	Shallow texture contrast soils. Frequent rock outcrop. Brownish black to dull yellowish brown sandy loams overlying dull yellowish brown sandy to heavy clays. Frequently gravelly throughout. Dy 3.31, 3.32, 3.21, areas Gn 3.91. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, lancewood/brown bloodwood/rusty gum/wattle open forest.	Upper slopes and scarps. 8-15% slope, some as steep as 25% slope.	Duricrusted sediments.	VII - VIII m ₆ , p ₄ , r ₅ , e ₇
191	Shallow to moderately deep soils. Brownish black to dark brown sandy clay loams to light clays grading to brownish grey gritty sandy to medium clays. Gn 3.51, 3.22. Occasional brown texture contrast soils. Db 1.12. Acid to neutral soil reaction trend.	Spotted gum, lancewood, narrow-leaved ironbark shrubby open forest with scattered pink bloodwood, Queensland peppermint, thready bark she-oak, wattle, dogwood frequently present.	Lower slopes. 2-4% slope.	Duricrusted sediments.	VI - VII m ₆ , p ₄ , e ₆
192	Moderately deep gradational soils. Occasional rock outcrops. Dark reddish brown to brownish black sandy loams to clay loams grading to bright brown clay loams to medium clays. Lateritic gravel commonly occurs. Gn 3.11, 2.11, 3.22. Acid soil reaction trend.	"Softwood scrub" species closed scrub.	Lower slopes and plateau margins. 3-10% slope, minor scarp areas up to 40% slope.	Duricrusted sediments.	VI - VII m ₄ , p ₃ , e ₆
193	Shallow to moderately deep soils. Brownish black sandy clay loams grading to brown or reddish brown gritty light to medium clays. Gn 3.24, 3.31. Occasional red and yellow texture contrast soils. Dr 2.21, Dy 3.21. Acid soil reaction trend.	Gum-topped box, spotted gum, narrow-leaved ironbark/black she-oak/wattle grassy open forest.	Lower slopes and drainage depressions. 4-8% slope.	Duricrusted sediments.	IV m ₄ , d ₂ , p ₄ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
194	Shallow to moderately deep texture contrast soils. Some rock outcrops. Moderately deep brownish black gravelly sandy loams to clay loams, frequently bleached A ₂ , overlying brown to yellowish brown light to medium clays. Db 1.43, 1.33, Dy 2.42. Occasional stony loams. Um 1.43. Alkaline soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark/pink bloodwood/kurrajong/beefwood woodland to open forest.	Mid and lower slopes. 5-12% slope, some as steep as 20%.	Wandilla Formation.	VI m ₆ , p ₄ , r ₂ , e ₆
195	Moderately deep soils. Brownish black gritty clay loams to light clays grading to brown or bright brown light to medium clays. Uf 6.31, Db 1.12, Dy 2.33. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood/silver-leaved ironbark/wattle grassy open forest.	Mid and lower slopes. 8-16%.	Wandilla Formation.	VI m ₄ , p ₃ , e ₆
196	Shallow soils. Some rock outcrops. Frequently gravelly throughout. Brownish black to dark brown sandy loams to clay loams grading to bright brown light to medium clays. Gn 2.21, Um 1.43. Acid soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered gum-topped bloodwood, silver-leaved ironbark, kurrajong/spotted gum frequently present.	Upper slopes and ridge crests. 1-4% slope.	Wandilla Formation.	VII m ₇ , d ₃ , r ₄ , e ₄
197	Shallow texture contrast soils. Occasional rock outcrop. Dark brown sandy loams to fine sandy clay loams overlying yellowish brown clay loams to medium clays. Dy 2.22, Um 1.43, areas Gn 3.72. Acid to neutral soil reaction trend.	Narrow-leaved ironbark/pink bloodwood/spotted gum open forest.	Upper slopes and ridge crests. 1-6% slope.	Wandilla Formation.	VI m ₆ , d ₃ , r ₄ , e ₄
198	Deep texture contrast soils. Moderately deep brownish black to greyish yellow brown fine sandy clay loams, frequently bleached A ₂ , overlying dark brown to dull yellowish brown medium to heavy clays. Ferromanganese nodules and calcium carbonate may occur at depth. Db 2.43, 1.22, Dy 3.43. Occasional uniform dark clays. Ug 5.15. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, silver-leaved ironbark/narrow-leaved ironbark/false sandalwood open forest. Poplar box dominant in some areas. Black tea-tree, weeping bottle brush, river she-oak, broad leaved apple occur along stream channels.	Lower slopes and valley floors. 0-3% slope.	Wandilla Formation.	IV - VI m ₄ , p ₃ , s ₂ , e ₂ , k ₃
199	Shallow soils. Frequent rock outcrops. Brownish black sandy loams to clay loams grading to bright brown to dull yellow gravelly clay loams. Um 1.43, 1.42, areas Gn 2.22. Neutral soil reaction trend.	Spotted gum/narrow-leaved ironbark open forest.	Upper slopes and strike ridges. 20-40% slope, some areas as steep as 60%.	Wandilla Formation.	VII - VIII m ₆ , t ₇ , r ₅ , e ₇
200	Shallow soils. Some rock outcrops. Dark brown gravelly sandy clay loams to clay loams grading to brown sandy clay loams. Um 1.42, 2.12. Neutral soil reaction trend.	Narrow-leaved ironbark/pink bloodwood/silver-leaved ironbark woodland to open forest.	Mid and lower slopes. 15-25% slope.	Wandilla Formation.	VII m ₆ , t ₆ , e ₇
201	Shallow to moderately deep soils. Dark brown to dark reddish brown sandy clay loams to light clays grading to yellowish brown medium clays. Um 1.42, Gn 2.21, areas Uf 6.31. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/Queensland blue gum/red ash/wattle shrubby open forest.	Lower slopes. 12-25% slope.	Wandilla Formation.	VII m ₆ , d ₃ , t ₆ , e ₇
202	Shallow soils. Some rock outcrops. Brown to bright brown gravelly clay loams. Um 1.21. Neutral soil reaction trend.	Narrow-leaved ironbark, pink bloodwood grassy woodland to open forest.	Ridge crests and upper slopes. 0-6% slope.	Wandilla Formation.	VI - VII m ₆ , t ₆ , r ₅ , e ₆
203	Shallow soils. Brown to dark reddish brown gravelly clay loams to light clays grading to reddish brown or bright brown light to medium clays. Uf 6.32, 4.1, Um 1.42. Neutral to acid soil reaction trend.	"Softwood scrub" species open scrub.	Mid and upper slopes. 8-18% slope, some as steep as 30%.	Wandilla Formation.	VI m ₆ , d ₄ , e ₆
204	Shallow to moderately deep soils. Brownish black to dark brown clay loams to light clays grading to dark reddish brown to dull brown light to medium clays. Uf 6.31, Gn 3.21, 3.12. Occasional areas brown texture contrast and clay soils. Db 2.42, Ug 5.32. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/narrow-leaved ironbark, wattle grassy woodland.	Mid and lower slopes. 3-8% slope, areas as steep as 15%.	Pumpkin Hut Mudstone.	IV - VI m ₄ , d ₃ , p ₃ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
205	Shallow to moderately deep texture contrast soils. Moderately deep dark brown clay loams, frequently bleached A ₂ , overlying brown to yellowish brown medium to heavy clays. Calcium carbonate and ferromanganese nodules may occur at depth. Db 2.43, 1.42, areas Dr 2.32, Dy 3.43. Alkaline soil reaction trend.	Narrow-leaved ironbark/silver-leaved ironbark/kurrajong grassy woodland.	Mid and upper slopes, broad ridge crests. 2-7% slope.	Pumpkin Hut Mudstone.	IV - VI m ₄ , p ₄ , e ₄
206	Shallow soils. Dark brown to very dark brown light clays grading to dark reddish brown to brown light to medium clays. Uf 6.31, areas Gn 3.23. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/narrow-leaved ironbark grassy woodland.	Upper slopes and broad hill crests. 0-3% slope.	Pumpkin Hut Mudstone.	VI m ₆ , d ₃ , p ₃ , e ₃
207	Deep to very deep soils. Weak linear gilgai may occur. Brownish black to dark brown light clays grading to dark brown to dull yellowish brown medium to heavy clays. Calcium carbonate and ferromanganese nodules occur at depth. Uf 6.31, Uf 3., Ug 3.3, Ug 5.34, areas Db 2.33. Alkaline soil reaction trend.	Poplar box/silver-leaved ironbark/Queensland blue gum woodland to open forest.	Lower slopes. 2-5% slope.	Pumpkin Hut Mudstone.	III m ₃ , p ₃ , k ₂ , e ₃
208	Deep texture contrast soils. Moderately deep brownish black clay loams, frequently bleached A ₂ , overlying dark brown to yellowish brown medium to heavy clays. Calcium carbonate and manganese concretions occur at depth. Db 2.42, 2.43, areas Ug 5.15. Alkaline soil reaction trend.	Poplar box, Queensland blue gum open forest with scattered silver-leaved ironbark, Moreton Bay ash, gum-topped box/false sandalwood frequently present. Occasional patches of brigalow, belah open forest.	Lower slopes and valley floors. 0-3% slope.	Pumpkin Hut Mudstone.	VI m ₄ , p ₄ , e ₆
209	Shallow to moderately deep soils. Hardsetting brownish black to dark brown clay loams to light clays grading to dark reddish brown or yellowish brown light to medium clays. Calcium carbonate may occur at depth. Uf 6.31, 6.32, Gn 3.22, minor areas Ug 5.3. Neutral to alkaline soil reaction trend.	"Softwood scrub" species closed scrub. Occasional patches of brigalow open forest.	Mid and lower slopes, some broad hill crests. 4-10% slope, some up to 15% slope.	Pumpkin Hut Mudstone and Caswell Creek Group.	IV m ₃ , d ₄ , p ₂ , e ₃
210	Moderately deep to deep soils. Weakly gilgaied areas occur. Self mulching brownish black to dark brown cracking clays becoming browner or grey with depth. Ug 5.24, 5.34. Occasional brown texture contrast soils. Db 1.22. Neutral to acid soil reaction trend.	Brigalow, belah, wilga open forest. Occasional areas of "softwood scrub" species closed scrub.	Upper slopes and low ridge crests. 1-5% slope.	Pumpkin Hut Mudstone and Caswell Creek Group.	III m ₂ , p ₂ , k ₃ , e ₃
211	Shallow soils. Occasional rock outcrops. Hardsetting brownish black to dark brown clay loams to light clays grading to dull reddish brown light to medium clays. Uf 6.31, Gn 3.22. Occasional red texture contrast soils. Dr 2.12. Neutral soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark/gum-topped bloodwood woodland to open forest.	Upper slopes and hill crests. 0-3% slope.	Pumpkin Hut Mudstone and Caswell Creek Group.	IV m ₃ , d ₄ , p ₂ , e ₃
212	Deep soils. Brownish black clays becoming browner with depth. Calcium carbonate may occur at depth. Ug 5.34, 5.15, minor Uf 6.31. Alkaline soil reaction trend.	Brigalow/"softwood scrub" species open scrub to low open forest.	Lower slopes and narrow drainage lines. 0-4% slope.	Pumpkin Hut Mudstone and Caswell Creek Group.	III p ₃ , k ₃ , e ₃
213	Moderately deep soils. Brownish black to dark brown clay loams to light clays grading to brown light to medium clays over decomposing rock. Ferromanganese nodules occasionally occur at depth. Uf 6.31, Gn 3.22, minor Ug 5.32. Neutral soil reaction trend.	Silver-leaved ironbark grassy woodland with scattered narrow-leaved ironbark, Moreton Bay ash, poplar box frequently present.	Mid and lower slopes. 2-8% slope, minor areas up to 15% slope.	Undifferentiated Devonian beds.	III m ₂ , p ₂ , e ₃
214	Moderately deep to deep soils. Dark reddish brown light to medium clays grading to reddish brown medium clays. Calcium carbonate occasionally may occur at depth. Uf 6.31. Neutral soil reaction trend.	Silver-leaved ironbark, Moreton Bay ash grassy woodland to open woodland with scattered gum-topped bloodwood, poplar box frequently present.	Lower slope positions. 2-5% slope.	Undifferentiated Devonian beds.	II m ₂ , p ₂ , e ₂
215	Shallow soils. Very dark reddish brown to very dark brown light to medium clays grading to brown light to medium clays. Uf 6.31, minor areas Ug 5.37. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy open woodland with scattered pink bloodwood, narrow-leaved ironbark/"softwood scrub" species occasionally present.	Upper slopes and broad ridge crests. 0-3% slope.	Undifferentiated Devonian beds.	III m ₃ , d ₃ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
216	Moderately deep to deep soils. Weakly gilgaied in places. Very dark brown to dark reddish brown fine sandy clay loams to light clays grading to brown or reddish brown medium to heavy clays. Calcium carbonate and manganese nodules occur at depth. Ug 5.32, areas Uf 6.31, Gn 3.13. Alkaline soil reaction trend.	Brigalow/"softwood scrub" species/belah/wilga low open forest.	Mid and lower slopes. 3-6% slope.	Undifferentiated Devonian beds.	III m ₃ , p ₃ , k ₂ , e ₃
217	Deep soils. Shallow gilgai may occur. Brownish black to dark brown cracking clays becoming brown to reddish brown with depth. Calcium carbonate may occur at depth. Ug 5.34, 5.32, 5.39, 5.15, minor Uf 6.31. Alkaline soil reaction trend.	Brigalow/belah/wilga open forest with occasional patches of "softwood scrub" species.	Mid and upper slopes, broad rises. 1-5% slope.	Undifferentiated Devonian beds.	II p ₂ , k ₂ , g ₂ , e ₂
218	Deep soils. Hardsetting brownish black to dark brown clays becoming browner with depth. Calcium carbonate segregations and manganese nodules may occur at depth. Ug 5.34, Uf 6.31, areas Db 1.33. Alkaline soil reaction trend.	Poplar box open forest or silver-leaved ironbark open forest. Occasional patches of brigalow open forest.	Mid and upper slopes. 2-7% slope, areas up to 12%.	Undifferentiated Devonian beds.	III m ₂ , p ₃ , e ₃
219	Deep texture contrast soils. Occasionally weakly gilgaied. Moderately deep brownish black clay loams to medium clays, frequently bleached A ₂ , overlying dark to dull brown sandy clays to heavy clays. Manganese nodules and calcium carbonate segregations may occur at depth. Db 2.43, Dy 3.43, Ug 5.15. Alkaline soil reaction trend.	Poplar box grassy woodland to open forest with scattered silver-leaved ironbark, gum-topped box, belah, wilga, brigalow frequently present.	Lower slopes and drainage lines. 0-3% slope.	Undifferentiated Devonian beds.	III m ₃ , p ₃ , k ₃ , e ₂
220	Very deep soils. Weakly gilgaied areas occur. Brownish black to very dark brown self mulching clays becoming browner with depth. Calcium carbonate and ferromanganese nodules occur at depth. Ironstone pans may occur. Ug 5.34, 5.15. Alkaline soil reaction trend.	Brigalow, belah open forest.	Lower slopes and broad drainage lines. 0-3% slope.	Undifferentiated Devonian beds.	III m ₃ , p ₃ , k ₂ , e ₂
221	Moderately deep texture contrast soils. Moderately deep brownish black to brown sandy loams to silty clay loams, frequently bleached A ₂ , overlying gritty dull yellowish brown to reddish brown light to medium clays. Ironstone gravel may occur. Db 3.42, 3.41, 5.43, Dr 3.32, 3.42. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark/silver-leaved ironbark grassy open forest with scattered pink bloodwood, gum-topped box, Queensland blue gum/red ash/wattle occasionally present.	Mid and lower slopes. 2-5% slope, areas as steep as 10% slope.	Derrarabungy Beds.	IV - VI m ₄ , p ₃ , e ₄
222	Shallow to moderately deep soils. Dark brown sandy clay loams and clay loams. Gravelly throughout. Um 2.12, areas Gn 3.74. Neutral soil reaction trend.	Narrow-leaved ironbark grassy woodland with scattered spotted gum pink bloodwood, wattle/"softwood scrub" species occasionally present.	Mid and upper slopes, broad hill crests. 2-8% slope.	Derrarabungy Beds.	VI - VII m ₆ , d ₄ , p ₃ , r ₄ , e ₆
223	Moderately deep to deep texture contrast soils. Brownish black to dark brown gravelly sandy clay loams to fine sandy clay loams, bleached A ₂ , overlying mottled dull yellowish brown to brown medium clays. Ferromanganese nodules may occur at depth. Dy 3.42, Db 2.43, 2.42, Ug 3.3. Neutral to alkaline soil reaction trend.	Gum-topped box shrubby open forest with scattered silver-leaved ironbark, Queensland blue gum, Moreton Bay ash, bull oak occasionally present. Occasional patches brigalow, belah open forest. Rough barked apple, river she-oak, black tea-tree occur along watercourses.	Lower slopes and valley floors. 0-4% slope.	Derrarabungy Beds.	VI m ₄ , p ₄ , e ₆
224	Moderately deep texture contrast soils. Deep brownish black to brown loamy sands to sandy loams, frequently bleached A ₂ , overlying dull yellowish brown clayey sands to medium clays. Dy 5.43, 5.32, Uc 2.21. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, rusty gum/Queensland blue gum/Moreton Bay ash/silver-leaved ironbark, wattle, bull oak shrubby open forest.	Mid and lower slopes. 1-4% slope.	Derrarabungy Beds.	VI m ₆ , p ₃ , e ₃
225	Moderately deep to deep soils. Brownish black to dark brown clays becoming browner with depth. Ug 5.32, 5.34. Occasional brown texture contrast soils. Db 1.13. Alkaline soil reaction trend.	Brigalow, black tea-tree/belah low open forest with scattered gum-topped box, narrow-leaved ironbark frequently associated.	Mid and lower slopes. 1-3% slopes.	Derrarabungy Beds.	III - IV m ₃ , p ₃ , k ₃ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
226	Deep soils. Very dark reddish brown clay loams to light clays grading to dark reddish brown medium to heavy clays. Ironstone gravel occurs throughout. Manganese concretions may occur at depth. Gn 3.13, Uf 6.31. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark grassy open woodland with scattered kurrajong, silver-leaved ironbark/spotted gum frequently present.	Lower slopes and broad drainage lines. 2-5% slope.	Derrarabungy Beds.	III m ₃ , p ₂ , e ₃
227	Moderately deep to deep soils. Very dark brown clay loams to light clays grading to dark reddish brown to reddish brown light to medium clays. Ironstone gravel often occurs at depth. Uf 6.31, Dr 2.12. Neutral soil reaction trend.	Brigalow/"softwood scrub" species low open forest.	Mid and upper slopes. 4-8% slope.	Derrarabungy Beds.	IV m ₃ , p ₃ , e ₄
228	Deep to very deep soils. Brownish black to dark brown clays becoming brown or reddish brown with depth. Ug 5.35, 5.34, minor areas Db 2.11. Acid to neutral soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum/Moreton Bay ash grassy woodland to open forest. Occasional patches of brigalow open forest.	Lower slopes and drainage lines. 0-3% slopes.	Derrarabungy Beds.	III m ₂ , p ₃ , k ₂ , e ₂
229	Moderately deep soils. Black to brownish black clay loams grading into dark reddish brown or yellowish brown light of medium clays. Gn 3.51, 3.71. Minor areas of shallow loams. Um. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/rosewood/wattle, red ash shrubby open forest.	Mid and upper slopes, broad ridge crests. 0-4% slope.	Derrarabungy Beds.	IV - VI m ₄ , p ₃ , e ₃
230	Shallow to moderately deep soils. Occasional areas of rock outcrop. Brownish black to dark brown sandy loams to fine sandy clay loams grading to dark reddish brown or yellowish brown light to heavy clays. Often gravelly throughout. Gn 3.22, 3.15, Uf 6.31, Dr 2.12, Db 2.43. Neutral soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark woodland to open forest with scattered gum-topped bloodwood, kurrajong occasionally present.	Mid and lower slopes. 8-25% slope, some areas as steep as 35%.	Caswell Creek Group.	VI - VII m ₄ , d ₂ , t ₆ , r ₃ , e ₆
231	Shallow to moderately deep texture contrast soils. Occasional rock outcrops. Brownish black to very dark brown loams to fine sandy clay loams, occasional bleached A ₂ , overlying dull reddish brown to dull yellow to medium clays. Dy 2.41, 2.42, Dr 2.21, Gn 3.15. Acid to neutral soil reaction trend.	Spotted gum, narrow-leaved ironbark/red ash/wattle grassy open forest with scattered gum-topped box, pink bloodwood, black she-oak, patches of "softwood scrub" species occasionally present.	Mid and lower slopes. 7-20% slope, some as steep as 50%.	Caswell Creek Group.	VII m ₆ , d ₂ , p ₄ , t ₆ , r ₃ , e ₇
232	Shallow texture contrast soils. Occasional rock outcrop. Moderately deep brownish black to brown sandy clay loams to fine sandy clay loams overlying reddish brown to brown light to medium clays. Dr 2.21, 2.11, 3.12, Db. Occasional stony loams. Um 1.43. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood open forest with scattered pink bloodwood, wattle, red ash, myrtle tree, quinine berry occasionally present.	Upper slopes and ridge crests. 2-8% slope.	Caswell Creek Group.	VI - VII m ₄ , d ₄ , p ₃ , t ₆ , r ₃ , e ₆
233	Shallow to moderately deep texture contrast soils. Occasional rock outcrops. Moderately deep brownish black loams to sandy clay loams, frequently bleached A ₂ , overlying yellowish brown medium clays. Db 2.41, Dy 2.21, Um. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, wattle open forest.	Upper slopes and ridge crests. 0-6% slope.	Caswell Creek Group.	VI - VII m ₆ , p ₃ , t ₆ , r ₃ , e ₄
234	Moderately deep to deep texture contrast soils. Moderately deep brownish black to brown fine sandy clay loams to clay loams, bleached A ₂ , overlying brown to dull yellowish brown medium to heavy clays. Db 1.43, 2.43, Dy 3.43. Alkaline soil reaction trend.	Gum-topped box grassy open forest with scattered poplar box, narrow-leaved ironbark, silver-leaved ironbark and patches of brigalow, belah occasionally present.	Lower slopes. 2-6% slope.	Caswell Creek Group.	IV - VI m ₄ , p ₄ , e ₃
235	Deep texture contrast soils. Brownish black clay loams, frequently bleached A ₂ , overlying brownish grey to yellowish brown medium to heavy clays. Ferromanganese nodules may occur at depth. Dy 3.43, Db 2.43, Ug 5.24. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash with scattered silver-leaved ironbark, gum-topped box, broad leaved apple frequently present. Swamp mahogany, black tea-tree, weeping bottle brush, river she-oak fringe watercourses.	Lower slopes and drainage lines. 0-4% slope.	Caswell Creek Group.	IV m ₃ , p ₄ , e ₃
236	Shallow to moderately deep soils. Hardsetting brownish black to dark brown clay loams to light clays grading to dark brown or reddish brown light to medium clays. Often gravelly throughout. Uf 6.31, Gn 3.22, areas Um 1.23. Neutral soil reaction trend.	"Softwood scrub" species closed scrub.	Mid and lower slopes. 10-25% slope, some slopes as steep as 40%.	Crana Beds, Caswell Creek Group.	VI m ₄ , d ₃ , t ₆ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
237	Shallow to moderately deep soils. Minor areas of rock outcrops. Very dark brown clay loams to light clays grading into dark brown to dull reddish brown light to medium clays. Uf 6.31, 6.34, Gn 3.11. Areas of stony loams. Um. Neutral to alkaline soil reaction trend.	"Softwood scrub" species closed scrub.	Upper slopes and ridge crests. 4-12% slope.	Crana Beds, Caswell Creek Group.	VI m ₄ , d ₃ , t ₆ , e ₆
238	Deep soils. Brownish black to dark brown self mulching clays becoming browner with depth. Ug 5.15, 5.34, Db 1.33. Alkaline soil reaction trend.	Brigalow, belah/gum-topped box/poplar box/Queensland blue gum, wilga open forest. Patches of "softwood scrub" species.	Lower slopes and narrow drainage lines. 1-5% slope.	Crana Beds, Caswell Creek Group.	III p ₂ , k ₂ , e ₃
239	Moderately deep soils. Dark brown light clays grading to brown to yellowish brown gravelly light to medium clays. Uf 6.31, Db 1.12, areas Ug 5.32. Neutral soil reaction trend.	Brigalow/wilga/"softwood scrub" species low open forest.	Mid and upper slopes. 4-12% slope.	Crana Beds, Caswell Creek Group.	IV p ₂ , e ₄
240	Shallow to moderately deep texture contrast soils. Moderately deep brownish black to dark brown sandy clay loams to clay loams, occasional bleached A ₂ , overlying dark reddish brown to yellowish brown medium clays. Dr 2.22, Dy 3.43, areas Ug 5.32. Neutral to alkaline soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark/poplar box, wattle grassy woodland to open forest.	Mid and upper slopes. 4-10% slope.	Cynthia Beds.	IV m ₃ , d ₂ , e ₄
241	Shallow to moderately deep soils. Weakly gilgaied areas occur. Brownish black to dark brown light to medium clays. Ug 5.32, 3.1. Areas of brown texture contrast soils. Db 1.13. Alkaline soil reaction trend.	Brigalow, belah, wilga/"softwood scrub" species shrubby low open forest.	Mid and lower slope positions. 4-8% slope.	Cynthia Beds.	III m ₃ , d ₂ , p ₂ , k ₂ , e ₃
242	Moderately deep soils. Occasional rock outcrops. Frequent areas with surface gravel. Brownish black to dark reddish brown sandy clay loams to medium clays grading to reddish to yellowish brown medium clays. Gn 3.21, Ug 5.37, 5.32. Neutral to alkaline soil reaction trend.	"Softwood scrub" species/brigalow closed scrub.	Mid and upper slopes, broad ridge crests. 2-6% slope.	Cynthia Beds.	IV m ₄ , d ₂ , k ₂ , r ₃ , e ₃
243	Deep soils. Weakly gilgaied areas occur. Brownish black to dark brown weakly self mulching clays becoming browner at depth. Calcium carbonate and manganese concretions occur at depth. Ug 5.15, 5.34, Db 2.43. Alkaline soil reaction trend.	Poplar box shrubby open forest with scattered Queensland blue gum, silver-leaved ironbark, wilga, false sandalwood frequently present. Occasional patches of brigalow, belah low open forest.	Lower slopes and valley floors. 0-4% slope.	Cynthia Beds.	III m ₃ , k ₂ , e ₃
244	Deep soils. Brownish black crusting clays becoming browner with depth. Calcium carbonate occurs throughout. Manganese nodules may occur at depth. Ug 5.34, 5.25. Occasional brown texture contrast soils. Db 1.33. Alkaline soil reaction trend.	Brigalow, belah, wilga low open forest with scattered poplar box, false sandalwood frequently present.	Lower slopes and drainage lines. 0-4% slope.	Cynthia Beds.	II p ₂ , k ₂ , e ₂
245	Shallow texture contrast soils. Occasional rock outcrops. Brownish black sandy loams to clay loams overlying reddish brown to yellowish brown clay loams to medium clays. Dr 2.22, Db 1.12. Occasional shallow loams. Um. Neutral soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark/poplar box grassy woodland.	Upper slopes and ridge crests. 0-4%.	Cynthia Beds.	VI m ₆ , d ₄ , r ₂ , e ₄
246	Shallow to moderately deep texture contrast and uniform clay soils. Occasional rock outcrops. Brownish black to dark reddish brown sandy loams to light clays overlying dark reddish brown to brown light to medium clays. Dr 3.22, 3.21, Uf 6.21, areas Ug 5.32. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/kurrajong/Moreton Bay ash, wattle grassy woodland to open forest.	Mid and lower slopes. 4-8% slope, areas as steep as 12%.	Delubra Quartz Gabbro, Hawkwood Gabbro.	IV - VI m ₄ , d ₂ , p ₂ , r ₂ , e ₄
247	Moderately deep to deep texture contrast and uniform clay soils. Brownish black to dark reddish brown clay loams, overlying dark reddish brown to dark brown medium to heavy clays. Calcium carbonate and ferromanganiferous concretions often occur at depth. Dr 2.23, Db 1.33. Frequent areas of brown clays. Ug 5.34, Uf 6.31. Alkaline soil reaction trend.	Poplar box, silver-leaved ironbark/false sandalwood/wilga grassy open forest to woodland.	Lower slope positions. 2-6% slope.	Delubra Quartz Gabbro, Hawkwood Gabbro.	III m ₃ , p ₃ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
248	Shallow soils. Dark brown to dark reddish brown clay loams to light clays grading to dull reddish brown medium clays. Uf 6.31, Gn 3.12. Neutral soil reaction trend	Silver-leaved ironbark/gum-topped bloodwood woodland with scattered kurrajong, narrow-leaved ironbark, "softwood scrub" species occasionally present.	Upper slopes and ridge crests. 1-4% slope.	Delubra Quartz Gabbro, Hawkwood Gabbro.	IV m ₄ , d ₄ , p ₂ , e ₂
249	Moderately deep to deep soils. Brownish black to very dark reddish brown clays becoming browner with depth. Ug 5.32, 5.34, 5.38, Uf 6.31. Occasional red gradational soils. Gn 2.11. Alkaline soil reaction trend.	Brigalow/"softwood scrub" species shrubby open forest. Occasional areas silver-leaved ironbark, poplar box open forest.	Mid and lower slopes. 2-6% slope.	Delubra Quartz Gabbro, Hawkwood Gabbro.	III p ₂ , s ₃ , k ₃ , e ₃
250	Deep to very deep soils. Brownish black self mulching clays becoming browner with depth. Calcium carbonate occurs at depth. Ug 5.38, 5.34. Alkaline soil reaction trend.	Poplar box open forest with scattered Queensland blue gum, silver-leaved ironbark, wilga frequently present.	Lower slopes and valley floors. 0-2% slope.	Delubra Quartz Gabbro, Hawkwood Gabbro.	III p ₂ , s ₃ , k ₂ , e ₂
251	Shallow soils. Frequent rock outcrop. Brownish black to dark brown loams to light clays grading to reddish brown or yellowish brown clay loams to medium clays. Uf 6.31, Um 6.12, 1.43. Neutral soil reaction trend.	Narrow-leaved ironbark open forest with scattered silver-leaved ironbark, spotted gum/gum-topped bloodwood grey present.	Mid and upper slopes. 12-30% areas as steep as 40%.	Delubra Quartz Gabbro.	VII m ₆ , d ₄ , t ₆ , r ₃ , e ₇
252	Moderately deep to deep soils. Brownish black to dark brown clay loams to light clays grading to dark reddish brown light to medium clays. Calcium carbonate segregations may occur at depth. Gn 3.13, Uf 6.31. Alkaline soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood/kurrajong, wattle grassy open forest.	Mid and lower slopes. 8-15% slope.	Delubra Quartz Gabbro.	VI m ₃ , p ₂ , e ₆
253	Shallow soils. Frequent rock outcrops. Brownish black to dark reddish brown loams to clay loams. Um 1.43, 5.41. Neutral soil reaction trend.	Narrow-leaved ironbark/spotted gum open forest.	Upper slopes and ridge crests. 2-10% slope, areas up to 15% slope.	Delubra Quartz Gabbro.	VII m ₆ , d ₄ , t ₇ , r ₃ , e ₆
254	Shallow to moderately deep soils. Brownish black to very dark brown light clay grading to reddish brown to brown light to medium clays over decomposing rock. Uf 6.31. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood/wattle grassy open forest.	Upper slopes and broad ridge crests. 2-8% slope.	Delubra Quartz Gabbro.	VI m ₄ , t ₆ , e ₄
255	Deep soils. Dark brown to brown clay loams or light clays overlying dark reddish brown to dark brown medium clays. Ferromanganese nodules may occur at depth. Uf 6.31, Dr 2.13, Db 2.23. Alkaline soil reaction trend.	Narrow-leaved ironbark, poplar box, false sandalwood, beefwood grassy woodland to open forest. Occasional areas of brigalow, poplar box open forest.	Upper slopes and broad ridge crests. 0-4% slope. Some slopes up to 10%.	Nogo Beds.	IV - VI m ₄ , p ₃ , e ₄
256	Shallow to moderately deep soils. Occasional rock outcrops. Dark reddish brown light to medium clays becoming slightly browner with depth. Uf 6.31, Ug 5.37. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy woodland with scattered poplar box, Moreton Bay ash occasionally present.	Mid and upper slopes, broad ridge crests. 4-12% slope.	Nogo Beds.	III - IV m ₄ , d ₂ , p ₃ , e ₃
257	Deep to very deep soils. Moderate gilgai often occur. Brownish black crusting clays becoming greyish yellow brown to dull yellowish brown with depth. Calcium carbonate concretions frequently occur. Ug 5.24, 5.34. Occasional brown texture contrast soils. Db 1.13. Alkaline soil reaction trend.	Brigalow, wilga layered open forest with scattered poplar box, belah, false sandalwood occasionally present.	Lower slopes and low rises. 0-4% slope.	Nogo Beds.	III p ₂ , g ₃ , e ₂
258	Deep soils. Brownish black hardsetting clays becoming browner with depth. Calcium carbonate and ironstone often occur at depth. Ug 5.15, 5.34. Alkaline soil reaction trend.	Poplar box/whitewood grassy open forest.	Lower slopes and drainage lines. 1-3% slope.	Nogo Beds.	III m ₃ , p ₃ , s ₂ , k ₂ , e ₂
259	Deep texture contrast soils. Moderately deep brownish black to brown coarse sandy loams to sandy clay loams, frequently bleached A ₂ , overlying brown to dull yellowish brown sandy to medium clays. Calcium carbonate and ferromanganese nodules may occur at depth. Dy 3.43, 2.43, Db 4.42, 4.22. Alkaline soil reaction trend.	Narrow-leaved ironbark, poplar box, silver-leaved ironbark/Queensland blue gum/Moreton Bay ash/pink bloodwood, false sandalwood grassy open forest.	Lower slopes. 2-8% slope, minor areas as steep as 12%.	Nogo Beds.	VI m ₆ , p ₄ , e ₄
260	Deep soils. Brownish black hardsetting clays becoming browner with depth. Calcium carbonate and ferromanganese nodules occur at depth. Ug 5.34, areas Uf 6.31. Alkaline soil reaction trend.	"Softwood scrub" species open scrub and occasional areas of brigalow, poplar box, kurrajong open forest.	Mid and lower slopes. 2-10% slope.	Nogo Beds.	III - IV m ₃ , p ₃ , k ₃ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
261	Very deep texture contrast soils. Brownish black clay loams, bleached A ₂ , overlying brown to dark brown medium to heavy clays. Ferromanganese nodules occur at depth. Db 2.43. Areas of cracking clay soils. Ug 5.34. Alkaline soil reaction trend.	Poplar box/Queensland blue gum open forest.	Drainage lines and valley floors. 0-2% slope.	Nogo Beds.	IV m ₃ , p ₄ , e ₂
262	Shallow to very shallow soils. Occasional rock outcrops. Brownish black to dark brown light clays grading to brown or reddish brown light to medium clays. Uf 6.31, 6.32. Neutral soil reaction trend.	Silver-leaved ironbark/gum-topped bloodwood/kurrajong/narrow-leaved ironbark grassy woodland.	Upper slopes and ridge crests. 4-12% slope. Some areas as steep as 20%.	Narayan Beds.	VI - VII m ₄ , t ₄ , n ₃ , e ₆
263	Moderately deep to deep soils. Brownish black to dark reddish brown gravelly, light to medium clays becoming reddish brown to dark brown at depth. Calcium carbonate may occur at depth. Ug 5.32, 5.34, Uf 6.31. Alkaline soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy woodland to open forest with scattered kurrajong, narrow-leaved ironbark/poplar box frequently present.	Mid and lower slopes. 2-6% slope.	Narayan Beds.	III m ₂ , p ₂ , e ₃
264	Deep texture contrast soils. Weakly gilgaied areas may occur. Shallow brownish black to dark brown sandy clay loams to clay loams, frequently bleached A ₂ , overlying brownish black to brown medium to heavy clays. Calcium carbonate and ferromanganiferous concretions may occur at depth. Dd 1.43, Db 2.43, 1.23. Areas of brown and dark cracking clays often occur. Ug 5.34, 5.15. Alkaline soil reaction trend.	Poplar box/silver-leaved ironbark grassy woodland.	Lower slopes and minor drainage lines. 1-4% slope.	Narayan Beds.	III - IV m ₃ , p ₃ , e ₃
265	Moderately deep to deep soils. Brownish black to dark brown light to medium clays grading to dark brown or reddish brown medium to heavy clays. Calcium carbonate may occur. Uf 6.31, areas Ug 5.34, 5.37. Alkaline soil reaction trend.	"Softwood scrub" species, brigalow open scrub.	Mid and upper slopes. 2 - 6% slope, areas up to 12% slope.	Narayan Beds.	IV m ₃ , p ₂ , e ₄
266	Deep to very deep soils. Weakly gilgaied areas may occur. Brownish black to dark brown clays becoming browner with depth. Ug 5.34, 5.15, 5.24. Alkaline soil reaction trend.	Brigalow, wilga open forest with scattered poplar box, false sandalwood, belah occasionally present.	Lower slopes and minor drainage lines. 1-5% slope.	Narayan Beds.	III - IV m ₃ , p ₂ , k ₃ , e ₃
267	Deep texture contrast and uniform clay soils. Brownish black clay loams to light clays overlying brown to reddish brown medium to heavy clays. Ferromanganiferous concretions may occur at depth. Db 2.43, 1.13, Uf 6.31, Ug 5.34. Alkaline soil reaction trend.	Poplar box grassy woodland with scattered Queensland blue gum, silver-leaved ironbark, wilga, false sandalwood/gum-topped box frequently present. Rough barked apple, Moreton Bay ash, river she-oak, black tea-tree occur along water-courses.	Lower slopes and drainage lines. 0-3% slope.	Narayan Beds.	IV m ₄ , p ₄ , k ₃ , e ₂
268	Shallow to moderately deep texture contrast soils. Brownish black to dark brown sandy clay loams overlying dark reddish brown to brown light to medium clays over decomposing rock. Calcium carbonate may occur at depth. Db 2.13, Dr 2.13, Gn 3.12. Alkaline to neutral soil reaction trend.	Silver-leaved ironbark, kurrajong/narrow-leaved ironbark grassy woodland.	Mid and upper slopes. 2-6% slope.	Narayan Beds.	III - IV m ₃ , d ₃ , p ₃ , e ₃
269	Shallow to moderately deep texture contrast soils. Moderately deep brownish black to dull brown gravelly clay loams, bleached A ₂ , overlying brown light to medium clays. Db 2.43, Dr 3.43. Alkaline soil reaction trend.	Narrow-leaved ironbark, false sandalwood/gum-topped box shrubby open forest.	Lower and mid slopes. 2-6% slope.	Narayan Beds.	IV m ₄ , p ₃ , e ₃
270	Deep to very deep soils. Brownish black to dark reddish brown clay loams to light clays grading to medium clays. Ironstone gravel occurs at depth. Gn 3.11, Uf 6.31, areas Gn 2.11. Acid soil reaction trend.	"Softwood scrub" species closed scrub.	Mid and upper slopes. 3-10% slope.	Lateritised Delubra Quartz Gabbro and Hawkwood Gabbro.	III m ₃ , p ₂ , e ₃
271	Deep soils. Very dark reddish brown to dark reddish brown light clays grading to dark red light to medium clays. Some ironstone gravel may occur. Uf 6.31. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood/kurrajong/quinine berry grassy woodland.	Mid and upper slopes. 2-4% slope.	Lateritised Delubra Quartz Gabbro and Hawkwood Gabbro.	II m ₂ , p ₂ , e ₂

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
272	Deep soils. Dark reddish brown clay loams to light clays grading to dark reddish brown or dark brown light to medium clays. Ironstone gravel often occurs throughout. Gn 3.12, Uf 6.31. Neutral soil reaction trend.	"Softwood scrub" species, brigalow/wilga shrubby open forest.	Lower slopes and on low rises. 0-4% slope.	Lateritised Delubra Quartz Gabbro and Hawkwood Gabbro.	III m ₃ , p ₃ , e ₂
273	Moderately deep to deep texture contrast soils. Deep brownish black to greyish yellow brown loamy coarse sands to coarse sandy loams, occasional bleached A ₂ , overlying dull brown to yellowish brown sandy to medium clays. Dy 5.41, 5.21, Dr 3.31. Occasional coarse sands. Uc 1.21. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood/rusty gum/spotted gum/Queensland blue gum, quinine berry, wattle, red ash shrubby open forest.	Mid and lower slopes. 4-10% slope, areas as steep as 15%.	Deeply weathered granite type parent materials.	VI m ₆ , p ₃ , e ₃
274	Moderately deep texture contrast soils. Brownish black to greyish yellow brown coarse sandy loams to sandy clay loams, occasional bleached A ₂ , overlying brown to dull yellowish brown sandy to medium clays. Dy 3.11, 2.21, Db 2.11, Dr 2.41. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, wattles, red ash open forest with scattered brown bloodwood, broad leaved ironbark, gum-topped ironbark, lancewood frequently present.	Upper slopes and ridge crests. 6-12% slope, areas as steep as 20%.	Deeply weathered granite type parent materials.	VI - VII m ₆ , p ₃ , e ₄
275	Shallow to moderately deep texture contrast soils. Moderately deep brownish black to dark reddish brown sandy loams or clay loams, occasional bleached A ₂ , overlying dark reddish brown to brown light to medium clays. Db 2.42, Gn 3.15. Neutral soil reaction trend.	Narrow-leaved ironbark, white cypress, wattle, red ash/bull oak/Queensland peppermint open forest.	Mid and lower slopes. 2-8% slope.	Deeply weathered granite type parent materials.	VI - VII m ₆ , p ₄ , e ₄
276	Shallow to moderately deep soils. Dark brown gravelly sandy clay loams grading to dark reddish brown light to medium clays. Gn 3.11, 3.14, Dr 2.21. Acid soil reaction trend.	Spotted gum, Queensland peppermint/narrow-leaved ironbark, quinine berry, red ash, dogwood, thready bark she-oak shrubby open forest.	Upper slopes and broad ridge crests. 0-3% slope.	Deeply weathered granite type parent materials.	VI m ₆ , d ₃ , p ₄ , e ₃
277	Shallow to moderately deep soils. Brownish black to dull brown, deep loamy coarse sands to coarse sandy loams overlying greyish brown to dull yellow orange sandy to medium clays. Gn 3.74, 2.81. Frequent yellow texture contrast soils. Dy 3.21, 3.41. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, Queensland peppermint/pink bloodwood, wattle, red ash, quinine berry layered open forest.	Mid and lower slopes. 3-8% slope.	Deeply weathered granite type parent materials.	VI m ₆ , p ₄ , e ₄
278	Moderately deep to deep texture contrast soils. Moderately deep dark brown sandy clay loams, frequently bleached A ₂ , overlying mottled brown to greyish yellow brown medium to heavy clays. Db 2.41, Dy 3.41. Acid soil reaction trend.	Spotted gum, pink bloodwood, narrow-leaved ironbark shrubby open forest with scattered Moreton Bay ash, kurrajong, bull oak, quinine berry, red ash, wattle frequently present.	Mid and lower slopes. 3-6% slope, some slopes as steep as 20%.	Deeply weathered granite type parent materials.	IV - VI m ₄ , p ₄ , e ₄
279	Deep texture contrast soils. Deep brownish black coarse sandy loams to sandy clay loams, bleached A ₂ , overlying mottled brown to greyish yellow brown gritty light to medium clays. Dy 3.43, Db 2.42, 2.31. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered rusty gum, pink bloodwood, Queensland blue gum, wattle, bull oak frequently present.	Lower slopes and rises. 1-4% slope.	Deeply weathered granite type parent materials.	IV-VI m ₄ , p ₄ , e ₃
280	Deep to very deep texture contrast soils. Deep brownish black sandy loams, frequently bleached A ₂ , overlying mottled brown to dark greyish yellow light to medium clays. Dy 3.41, Dr 3.41. Occasional brown or grey cracking clays. Ug 5.25. Acid to neutral soil reaction trend.	Queensland blue gum, rusty gum, swamp mahogany grassy open forest with scattered pink bloodwood, narrow-leaved ironbark, wattle, quinine berry frequently present.	Lower slopes and drainage depressions. 0-2% slope.	Deeply weathered granite type parent materials.	VI m ₆ , p ₄ , e ₃
281	Deep texture contrast soils. Shallow brownish black fine sandy clay loams, bleached A ₂ , overlying greyish brown to yellowish brown light to medium clays. Manganese nodules may occur at depth. Dy 3.41, 2.41. Acid soil reaction trend.	Gum-topped box grassy open forest with scattered narrow-leaved ironbark, spotted gum, wilga, wattle, red ash frequently present.	Lower slopes and broad drainage depressions. 0-2% slope.	Deeply weathered granite type parent materials.	IV - VI m ₄ , p ₄ , e ₃
282	Shallow to moderately deep soils. Brownish black to very dark reddish brown loams to clay loams fine sandy grading to dark reddish brown to brown clay loams or light clays. Gn 3.11, 3.21. Areas Um. Acid soil reaction trend.	"Softwood scrub" species closed scrub.	Upper slopes and scarps. 15-20% slope.	Deeply weathered granite type parent materials.	VI m ₄ , t ₆ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
283	Shallow to deep soils. Brownish black to dark reddish brown gravelly loams and clay loams, occasionally snuffy, grading to dull brown or reddish brown loams and light clays. Ironstone gravel may occur at depth. Gn 2.11, 2.14, Um 1.43. Acid soil reaction trend.	Narrow-leaved ironbark/spotted gum shrubby open forest with scattered pink bloodwood, brown bloodwood/rusty gum/budgeroo, dogwood frequently present.	Upper slopes and crests of low hills, some scarps. 3-8% slope, areas as steep as 10%.	Lateritised Derrarabungy Beds.	VI m ₆ , p ₃ , e ₆
284	Moderately deep to deep soils. Brownish black to dark brown sandy loams to clay loams grading to dark reddish brown to dull orange sandy clay loams. Ironstone gravel may occur. Gn 2.14, 2.24. Acid soil reaction trend.	Spotted gum, brown bloodwood, long-fruited grey gum shrubby open forest with scattered white mahogany, narrow-leaved ironbark, quinine berry, red ash, wattle frequently present. Areas of lancewood on scarps.	Upper slopes and ridge crests. 4-10% slope. Up to 20% slope near scarps.	Lateritised Derrarabungy Beds.	VI - VII m ₆ , p ₃ , e ₆
285	Shallow to moderately deep soils. Brownish black clay loams, frequently snuffy, grading to dark reddish brown gravelly light to medium clays. Gn 3.11, 2.24. Acid soil reaction trend.	Narrow-leaved ironbark, spotted gum grassy open forest with scattered silver-leaved ironbark, pink bloodwood, rusty gum occasionally present.	Lower slopes. 3-7% slope.	Lateritised Derrarabungy Beds.	III - IV m ₃ , d ₃ , p ₂ , e ₃
286	Moderately deep texture contrast soils. Moderately deep very dark brown to brown gritty clay loams overlying dark reddish brown medium clays. Gravelly throughout. Dr 3.21, Dy 2.21. Areas Gn 3.54. Acid soil reaction trend.	Broad-leaved ironbark, spotted gum, gum-topped ironbark/narrow-leaved ironbark/budgeroo shrubby open forest.	Upper slopes and ridge crests. 3-10% slope, some as steep as 15%.	Lateritised Derrarabungy Beds.	VI m ₆ , p ₄ , t ₄ , e ₄
287	Deep texture contrast soils. Very deep brownish black loamy sands to sandy loams, frequently bleached A ₂ , overlying dull yellowish orange to bright brown sandy clay loams or sandy clays. Dy 4.81. Occasional areas of uniform sands. Uc 1.23. Acid soil reaction trend.	Rusty gum, pink bloodwood, narrow-leaved ironbark, spotted gum layered open forest with scattered Bailey's stringybark, brown bloodwood, quinine berry frequently present.	Mid and lower slopes. 5-10% slope, some up to 20% slope.	Lateritised Derrarabungy Beds.	VI m ₆ , p ₄ , e ₃
288	Moderately deep to deep texture contrast soils. Moderately deep brownish black fine sandy clay loams overlying dull yellowish brown light to medium clays. Ironstone gravel at depth. Dy 3.31, areas Gn 3.01. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/Queensland peppermint, wattle, red ash layered open forest.	Mid and lower slopes. 2-5% slope.	Lateritised Derrarabungy Beds.	IV - VI m ₄ , p ₃ , e ₄
289	Deep texture contrast soils. Moderately deep brownish black sandy clay loams, bleached A ₂ , overlying mottled dull yellowish brown to reddish brown light to medium clays. Ironstone gravel may occur throughout. Dy 3.42, Db 2.33, 2.42. Neutral to alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash, pink bloodwood/gum-topped box open forest with scattered swamp mahogany, quinine berry frequently present.	Lower slopes and narrow drainage lines. 0-4% slope.	Lateritised Derrarabungy Beds.	IV - VI m ₄ , p ₄ , e ₃
290	Shallow to moderately deep texture contrast soils. Deep brownish black sandy loams to sandy clay loams overlying brown to yellowish brown sandy to medium clays. Dr 2.21, Db 2.22, 4.21, Dy 3.41. Neutral to acid soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark/pink bloodwood, quinine berry, wattle grassy open forest.	Mid and lower slopes. 5-12% slope.	Wigton Granite.	IV - VI m ₄ , p ₃ , e ₄
291	Shallow to moderately deep soils. Dark brown loamy coarse sands to coarse sandy loams grading to bright or dull brown clayey coarse sands or sandy clay loams. Gn 2.21, Uc 1.23, minor Dy 4.22. Acid to neutral soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered pink bloodwood, long-fruited pink bloodwood, Queensland blue gum, quinine berry, red ash frequently present.	Upper slopes and broad ridge crests. 2-5% slope.	Wigton Granite.	VI m ₆ , d ₂ , p ₃ , e ₂
292	Deep texture contrast soils. Deep brownish black sandy clay loams to loamy coarse sands, bleached A ₂ , overlying brown to dull yellowish brown medium to heavy clays. Manganese concretions may occur throughout. Calcium carbonate segregations occur at depth. Dy 3.43, 3.42. Alkaline soil reaction trend.	Narrow-leaved ironbark, pink bloodwood, Queensland blue gum, Moreton Bay ash, red ash, quinine berry, wattle grassy woodland to open forest.	Lower slopes and alluvial fans. 2-5% slope.	Wigton Granite.	IV m ₄ , p ₃ , e ₃
293	Moderately deep soils. Black to dark brown loamy coarse sands to coarse sandy loams grading to brown to dull yellow orange loamy coarse sands. Uc 2.21, 1.21, 4.21, minor Dy. Acid soil reaction trend.	Moreton Bay ash, Queensland blue gum, narrow-leaved ironbark, red ash, quinine berry grassy open forest with scattered pink bloodwood, swamp mahogany occasionally present.	Lower slope positions. 2-10% slope.	Wigton Granite.	VI - VII m ₆ , p ₃ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
294	Deep texture contrast soils. Moderately deep brownish black coarse sandy loams to sandy clay loams, bleached A ₂ , overlying dark brown to dull yellowish brown clayey sands to heavy clays. Dy 3.41, 3.42, areas Gn 2.42. Acid to neutral soil reaction trend.	Queensland blue gum, Moreton Bay ash, broad leaved apple grassy open forest with scattered silver-leaved ironbark, narrow-leaved ironbark, rough barked apple frequently present. River she-oak, weeping bottle brush occur along watercourses.	Lower slopes and drainage lines. 0-3% slope.	Wigton Granite.	IV - VI m ₄ , p ₄ , e ₃
295	Moderately deep to deep texture contrast soils. Occasional rock outcrops. Deep brownish black clayey coarse sands to sandy loams, frequently bleached A ₂ , overlying bright brown to dull yellowish brown light to heavy clays. Dy 3.41, 2.21, Dr 2.21, minor Uc 4.11. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood/rusty gum/Queensland blue gum, black she-oak, quinine berry, dogwood open forest.	Mid and lower slopes. 6-15% slope, areas as steep as 25%.	Wigton Granite.	VI m ₆ , p ₃ , e ₆
296	Shallow to moderately deep texture contrast soils. Rock outcrops common. Moderately deep brownish black loamy sands to coarse sandy loams, occasional bleached A ₂ , overlying bright brown to dull yellow orange sandy to medium clays. Dy 2.21, Dr 2.41, areas Uc 1.21. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/pink bloodwood/wattle open forest.	Mid and upper slopes. 10-25% slope, areas as steep as 40% slope.	Wigton Granite.	VII m ₆ , p ₃ , t ₆ , r ₄ , e ₇
297	Shallow to moderately deep soils. Occasional rock outcrops. Brownish black to dark brown coarse sandy loams to sandy clay loams grading to dark reddish brown or yellowish brown coarse sandy loam to medium clays. Gn 2.15, 2.42. Areas of red texture contrast soils. Dr 2.22. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood, pink bloodwood/Queensland blue gum, grassy open forest.	Mid slopes and ridges. 6-12% slope.	Wigton Granite.	IV m ₄ , p ₃ , e ₄
298	Shallow to moderately deep soils. Frequent rock outcrops. Brownish black loamy sands to coarse sandy loams grading to dull brown to dull yellow orange clayey coarse sands and sandy clays. Uc 4.11, 2.12, Dy 4.22, 5.41. Acid to neutral soil reaction trend.	Narrow-leaved ironbark, pink bloodwood, rusty gum, quinine berry, bull oak grassy open forest.	Upper slopes and ridge crests. 2-10% slope.	Wigton Granite.	VI - VII m ₆ , p ₃ , e ₆
299	Shallow to moderately deep texture contrast soils. Scattered areas of rock outcrop. Moderately deep dark brown sandy loams, frequently bleached A ₂ , overlying dull yellowish brown sandy to medium clays. Dy 3.42, areas Uc 1.21. Neutral soil reaction trend.	Narrow-leaved ironbark, spotted gum/pink bloodwood/rusty gum shrubby open forest.	Upper slopes and rocky ridge crests. 2-8% slope, areas up to 20% slope.	Wigton Granite.	VI m ₄ , p ₃ , r ₃ , e ₆
300	Shallow to moderately deep texture contrast soils. Frequent areas of rock outcrop. Moderately deep brownish black loamy sands to sandy loams, occasional bleached A ₂ , overlying reddish brown to yellowish brown sandy clays. Dy 5.21, 3.41, Dr 2.21. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark layered open forest with scattered rusty gum, cypress pine, black she-oak, wattle frequently present.	Mid and upper slopes. 10-25% slope, areas as steep as 35%.	Toondahra Granite.	VII m ₆ , d ₃ , t ₆ , r ₅ , e ₇
301	Shallow soils. Frequent rock outcrop. Greyish yellow brown to reddish brown sands to sandy loams over decomposing rock. Uc 1.21, 1.22, minor Gn 2.11. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, pink bloodwood/Queensland peppermint, black she-oak shrubby open forest.	Upper slopes and rocky ridge crests. 10-30% slope, minor areas up to 70%.	Toondahra Granite.	VII - VIII m ₆ , d ₄ , t ₇ , r ₅ , e ₇
302	Shallow to moderately deep texture contrast soils. Scattered areas of rock outcrop. Brownish black to greyish brown loamy sands to sandy loams, bleached A ₂ , overlying yellowish brown and brown medium to heavy clays. Dy 3.41, 5.31, 3.42, minor Um, Uc. Acid soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum, rusty gum, pink bloodwood, wattle, black she-oak, quinine berry layered open forest.	Mid to lower slopes. 10-20% slope.	Toondahra Granite.	VI m ₆ , p ₂ , t ₆ , e ₆
303	Shallow soils. Frequent rock and boulders. Brownish black to greyish brown loamy sand to sand overlying decomposing rock. Uc 1.21, 1.22. Occasional uniform medium textured soils. Um. Acid soil reaction trend.	Narrow-leaved ironbark. Queensland blue gum shrubby open forest with scattered pink bloodwood, grass trees, rusty gum, quinine berry and wattle frequently present.	Ridge crests and steep upper slopes. 20-40% slope. Minor areas as steep as 60% slope.	Toondahra Granite.	VII - VIII m ₆ , d ₄ , t ₇ , r ₅ , e ₇

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
304	Moderately deep to deep texture contrast soils. Scattered areas of rock outcrop. Brownish black to dark brown loamy sand, bleached A ₂ , overlying dull yellowish brown to yellowish brown medium to heavy clay. Dy 3.41, 5.41, 5.42, 2.43. Occasional uniform coarse textured soil. Uc. Acid to neutral soil reaction trend.	Narrow-leaved ironbark, rusty gum grassy open forest with scattered Queensland blue gum, silver-leaved ironbark frequently present.	Lower slopes and broad ridges. 4-8% slope.	Toondahra Granite.	IV m ₄ , d ₃ , p ₂ , e ₄
305	Moderately deep to deep texture contrast soils. Brownish black to greyish brown sandy loam to loamy sands, often bleached A ₂ , overlying dull yellowish brown to yellowish brown medium to heavy clay. Dy 3.21, 3.41. Occasional uniform coarse textured soils. Uc 1.22. Acid soil reaction trend.	Narrow-leaved ironbark, Queensland blue gum, broad leaved apple, bull oak/silver-leaved ironbark grassy open forest.	Lower slopes and valley floors. 3-6% slope. Minor areas as steep as 12% slope.	Toondahra Granite.	III m ₃ , d ₂ , e ₃
306	Shallow to moderately deep texture contrast soils. Moderately deep to deep brown to dull brown loamy coarse sands to sandy loams overlying dull brown to dull yellowish brown light to medium clays over decomposing rock. Dy 3.21, Dr 3.21, Db 1.22. Acid soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered silver-leaved ironbark, rusty gum, Queensland blue gum/pink bloodwood frequently present.	Mid and upper slopes, low ridge crests. 3-8% slope.	Cheltenham Creek Adamellite.	VI m ₆ , p ₃ , e ₄
307	Deep texture contrast soils. Very deep brownish black to greyish yellow brown loamy sands, bleached A ₂ , overlying mottled dull yellow orange to bright brown sandy clays. Dy 5.41, 3.31. Acid soil reaction trend.	Rusty gum, Moreton Bay ash/Queensland blue gum grassy open forest with scattered narrow-leaved ironbark, pink bloodwood/white cypress pine occasionally present.	Mid and lower slopes, adjacent drainage lines. 2-4% slope.	Cheltenham Creek Adamellite.	VI m ₆ , p ₃ , e ₃
308	Moderately deep to deep texture contrast soils. Occasional rock outcrops. Hardsetting, deep, very dark brown and greyish brown gritty coarse sandy loams to loamy sands, bleached A ₂ , overlying reddish brown, bright brown or dull brown gravelly medium clays often grading into decomposing rock. Dr 2.41, Dy 2.42, 3.41. Acid soil reaction trend.	Silver-leaved ironbark grassy open forest with scattered narrow-leaved ironbark, Moreton Bay ash/pink bloodwood frequently present.	Mid and upper slopes, ridge crests. 4-8% slope.	Cheltenham Creek Adamellite.	IV - VI m ₄ , p ₂ , r ₂ , e ₄
309	Deep texture contrast soils. Hardsetting shallow to moderately deep dull to greyish yellow brown sandy loams to fine sandy clay loams, bleached A ₂ , overlying mottled brownish grey to dull yellow orange heavy clays. Manganese nodules frequently occur at depth. Dy 3.43, Db 2.33, 2.43. Alkaline soil reaction trend.	Queensland blue gum, Moreton Bay ash grassy woodland to open forest with scattered silver-leaved ironbark, rough-barked apple, swamp mahogany, rusty gum occasionally present. River she-oak, paper barked tea-tree fringe watercourses.	Lower slopes and adjacent drainage lines. 1-4% slope.	Cheltenham Creek Adamellite.	IV m ₄ , p ₂ , e ₃
310	Deep texture contrast soils. Hardsetting shallow brownish black to greyish brown sandy clay loams to fine sandy loams, bleached A ₂ , overlying mottled brown or greyish brown light to medium clays. Db 2.43, Dy 2.43, minor Ug 3.1. Alkaline soil reaction trend.	Gum-topped box grassy open forest with scattered Queensland blue gum occasionally present.	Broad drainage depressions and some lower slopes. 0-3% slope.	Cheltenham Creek Adamellite.	IV m ₃ , p ₂ , k ₂ , e ₄
311	Shallow to moderately deep texture contrast soils. Occasional rock outcrops. Moderately deep brownish black to dark brown sandy loams to sandy clay loams, occasional gravelly bleached A ₂ , overlying greyish brown to yellowish brown gritty medium clays. Db 2.32, 2.12, Dy 3.42, 2.43, minor Uc 1.23. Neutral soil reaction trend.	Narrow-leaved ironbark grassy woodland with scattered silver-leaved ironbark, pink bloodwood, kurrajong, Moreton Bay ash, quinine berry frequently present.	Mid and upper slopes, low ridge crests. 4-12% slope. Minor areas as steep as 20%.	Mount Saul Adamellite, minor acid flows and pyroclastics.	VI m ₆ , d ₃ , r ₂ , e ₆
312	Moderately deep to deep texture contrast soils. Moderately deep to deep brownish black to dull brown sandy clay loams, bleached A ₂ , overlying mottled brown to dull yellowish brown medium or sandy clays. Db 2.43, Dy 3.42. Neutral to alkaline soil reaction trend.	Narrow-leaved ironbark woodland with scattered silver-leaved ironbark, kurrajong, red ash frequently present.	Mid and lower slopes. 4-8% slope.	Mount Saul Adamellite, minor acid flows and pyroclastics.	VI m ₄ , d ₂ , p ₃ , e ₆
313	Deep texture contrast soils. Shallow dark brown sandy clay loams, bleached A ₂ , overlying mottled brown to dull yellowish brown light to medium clays. Db 2.43, Dy 3.43. Alkaline soil reaction trend.	Poplar box, Queensland blue gum, Moreton Bay ash shrubby open forest with scattered narrow-leaved ironbark, silver-leaved ironbark, sandalwood, beefwood, wattle frequently present.	Lower slopes and drainage lines. 2-4% slope.	Mount Saul Adamellite, minor acid flows and pyroclastics.	VI m ₄ , p ₄ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
314	Deep to very deep texture contrast soils. Very deep brownish black sandy loams to loamy sands, bleached A ₂ , overlying mottled reddish brown to bright yellowish brown sandy clays. Dy 5.82, 3.43, Dr 5.42. Neutral soil reaction trend.	Rusty gum, Queensland blue gum, rough-barked apple grassy woodland with scattered silver-leaved ironbark, kurrajong, quinine berry occasionally present.	Lower slopes and adjacent drainage lines. 0-4% slope.	Mount Saul Adamellite, minor acid flows and pyroclastics.	VI m ₆ , p ₃ , e ₃
315	Shallow soils. Frequent areas of rock outcrop. Brownish black to brown loamy sands to sandy loams grading to gravelly yellowish brown sandy loams. Uc 1.23, 1.42. Acid soil reaction trend.	Narrow-leaved ironbark woodland with scattered silver-leaved ironbark, pink bloodwood occasionally present.	Upper slopes and stony ridge crests. 0-4% slope.	Mount Saul Adamellite, minor acid flows and pyroclastics.	VI - VII m ₆ , d ₄ , p ₂ , r ₅ , e ₃
316	Moderately deep to deep texture contrast soils. Areas of boulder or rock outcrop may occur throughout. Deep hardsetting brownish black to greyish yellow brown loamy sands, bleached A ₂ , overlying brown to dark brown sandy or gritty clays grading into decomposing rock. Db 1.42, 1.41, Dy 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark open forest with scattered long-fruited bloodwood, Queensland blue gum, Moreton Bay ash/rough barked apple occasionally present.	Mid and lower slopes. 5-12% slope. Minor areas up to 20% slope.	Coonambula Grandiorite.	VI m ₆ , p ₂ , r ₅ , e ₆
317	Moderately deep to deep texture contrast soils. Deep brownish black to brown coarse sandy loams, bleached A ₂ , overlying mottled greyish yellow brown to dull yellowish brown gritty medium clays grading to decomposing rock. Dy 5.41, 3.41. Acid soil reaction trend.	Narrow-leaved ironbark, long-fruited bloodwood/silver-leaved ironbark grassy open forest.	Mid and lower slopes, low ridge crests. 4-10% slope.	Coonambula Grandiorite	VI m ₆ , d ₂ , p ₃ , e ₄
318	Shallow to moderately deep texture contrast soils. Frequent rock or boulder outcrop. Shallow to moderately deep brownish black sandy loams, frequently gravelly, overlying greyish yellow brown to dark brown sandy clays grading into decomposing rock. Dy 2.21, Uc 1.21. Acid soil reaction trend.	Narrow-leaved ironbark, long-fruited bloodwood/silver-leaved ironbark grassy open forest.	Upper slopes and ridge crests. 8-15% slope, minor areas steeper.	Coonambula Grandiorite.	VII m ₆ , d ₄ , r ₅ , e ₇
319	Moderately deep to deep texture contrast soils. Moderately deep to deep brownish black to dull reddish brown loamy coarse sands to sandy loams, bleached A ₂ , overlying brown to dull brown sandy clays grading into decomposing rock. Db 3.41, 1.41, Dy 3.41. Occasional sands. Uc 1.23. Acid soil reaction trend.	Queensland blue gum, Moreton Bay ash grassy open forest with scattered pink bloodwood, silver-leaved ironbark, narrow-leaved ironbark frequently present. Rough barked apple, weeping bottle brush/black tea-tree often fringe watercourses.	Mid and lower slopes. 3-8% slope.	Coonambula Grandiorite.	VI m ₆ , p ₃ , e ₄
320	Moderately deep texture contrast soils. Occasional rock outcrops. Moderately deep dark brown to brown coarse sandy loams overlying brown to dull brown light to medium clays grading into decomposing rock. Db 2.22, 1.22, Dr 3.22. Neutral soil reaction trend.	Silver-leaved ironbark, gum-topped bloodwood grassy woodland with scattered Moreton Bay ash, quinine berry occasionally present.	Mid and lower slopes 4-10% slope.	Coonambula Grandiorite.	IV - VI m ₄ , p ₃ , e ₄
321	Deep texture contrast soils. Occasional areas of rock or boulder outcrop. Moderately deep brownish black to dark reddish brown sandy loams to loamy sands, bleached A ₂ , overlying reddish brown to brownish red, mottled, sandy clays to gritty sandy clays grading into decomposing rock. Dr 3.41, Dy 3.41. Acid soil reaction trend.	Narrow-leaved ironbark, Moreton Bay ash grassy open forest with scattered pink bloodwood occasionally present.	Mid and upper slope positions. 4-8% slope.	Coonambula Grandiorite.	IV m ₄ , p ₃ , e ₄
322	Moderately deep to deep texture contrast soils. Occasional rock or boulder outcrops occur. Moderately deep to very deep brownish black to dark brown loamy coarse sands to sandy loams, frequently bleached A ₂ , overlying brown to dull yellowish brown sandy clay loams to medium clays grading into decomposing rock. Dy 3.41, 3.42, Db 2.41. Acid soil reaction trend.	Narrow-leaved ironbark, pink bloodwood/quinine berry shrubby open forest with scattered Queensland blue gum, silver-leaved ironbark, kurrajong, spotted gum frequently present.	Mid and upper slopes. 4-12% slope.	Granite of undifferentiated Triassic intrusions and Cadarga Creek Grandiorite.	Vi - VII m ₆ , p ₄ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
323	Moderately deep to deep texture contrast soils. Scattered rock or boulder outcrops may occur. Moderately deep brownish black to dark brown loamy sands to sandy clay loams overlying brown to reddish brown gritty light to medium clays. Manganese nodules may occur at depth. Db 1.12., 3.22, 2.12, Dr 2.12. Neutral soil reaction trend.	Silver-leaved ironbark grassy woodland to open woodland with scattered Queensland blue gum, narrow-leaved ironbark/gum-topped bloodwood/Moreton Bay ash frequently present.	Mid and lower slope positions. 4-9% slope.	Granites of undifferentiated Triassic intrusions and Cadarga Creek Granodiorite.	IV m ₄ , p ₃ , e ₄
324	Shallow coarse textured soils. Areas of rock or boulder outcrop frequently occur. Brownish black to very dark reddish brown loamy sands to coarse sandy loams grading into dull reddish brown to bright brown gravelly coarse sands to coarse sandy clay loams grading into decomposing rock. Uc 1.23, 1.43, Gn 2.14, areas Db 1.12. Acid to neutral soil reaction trend.	Narrow-leaved ironbark grassy woodland to open forest with scattered pink bloodwood/spotted gum Queensland peppermint, red ash, wattle occasionally present.	Upper slopes and ridge crests. 4-10% slope.	Granites of undifferentiated Triassic intrusions and Cadarga Creek Granodiorite.	VII m ₆ , d ₄ , p ₃ , r ₅ , e ₇
325	Moderately deep to deep texture contrast soils. Moderately deep brownish black to brown loamy sands to sandy clay loams, bleached A ₂ , overlying dull reddish brown to greyish brown sandy clays to medium clays. Manganese nodules and calcium carbonate concretions may occur at depth. Dy 3.43, 2.41, Dr 2.43. Alkaline soil reaction trend.	Poplar box grassy open forest with scattered Queensland blue gum, silver-leaved ironbark, Moreton Bay ash, false sandalwood, wattle, black she-oak, beefwood/white cypress pine frequently present. Areas of gum-topped box open forest occur.	Lower slope positions and adjacent drainage lines. 0-4% slope.	Granites of undifferentiated Triassic intrusions and Cadarga Creek Granodiorite.	IV m ₄ , p ₄ , e ₄
326	Moderately deep texture contrast soils. Deep dark brown loamy sands to sandy loams, bleached A ₂ , overlying mottled brown to yellowish brown medium clays over decomposing rock. Db 2.42, Dy 3.42, 5.41. Neutral to acid soil reaction trend.	Narrow-leaved ironbark, rusty gum grassy woodland with scattered Queensland blue gum, silver-leaved ironbark, pink bloodwood, black she-oak frequently present.	Lower slope positions and local alluvia. 2-5% slope.	Granites of undifferentiated Triassic intrusions and Cadarga Creek Granodiorite.	VI m ₆ , p ₄ , e ₄
327	Moderately deep texture contrast soils. Occasional rock outcrops may occur. Deep very dark brown loamy coarse sands to sandy loams overlying dark reddish brown to brown sandy clays over decomposing rock. Dr 3.21, 2.22, Db 1.12. Acid to neutral soil reaction trend.	Narrow-leaved ironbark, pink bloodwood shrubby open forest with scattered quinine berry, wattle, red ash frequently present.	Upper slopes and ridge crests. 0-3% slope.	Granites of undifferentiated Triassic intrusions and Cadarga Creek Granodiorite.	VI m ₆ , p ₃ , e ₃
328	Deep texture contrast soils. Deep very dark brown to brownish black coarse sands to sandy clay loams, frequently bleached A ₂ , overlying greyish yellow brown to yellowish brown sandy to medium clays. Dy 3.41, 3.43, Dd 3.43, minor areas Uc 4.11. Acid to alkaline soil reaction trend.	Queensland blue gum, narrow-leaved ironbark grassy open forest with scattered Moreton Bay ash, pink bloodwood, rough barked apple/swamp mahogany, quinine berry frequently present.	Lower slopes and minor drainage lines. 0-4% slope, minor areas up to 7% slope.	Granites of undifferentiated Triassic intrusions and Cadarga Creek Granodiorite.	VI m ₆ , p ₄ , e ₄
329	Deep texture contrast soils. Moderately deep brownish black sandy loams, bleached A ₂ , overlying dull brown to greyish yellow brown medium clays. Manganese concretions often occur. Dy 3.42, 3.31. Neutral to acid soil reaction trend.	Narrow-leaved ironbark grassy open forest with scattered pink bloodwood, spotted gum, bull oak, Moreton Bay ash frequently present.	Mid and upper slopes, some low ridge crests. 2-8% slope.	Evergreen Formation.	VI m ₄ , d ₃ , p ₄ , e ₆
330	Deep to very deep texture contrast soils. Moderately deep brownish black to greyish brown sandy clay loams to light clays, bleached A ₂ , overlying brownish grey to bright brown medium to heavy clays grading into decomposing rock. Manganese concretions and calcium carbonate segregations may occur at depth. Dy 3.42, Db 2.33, areas Uf 6.31. Neutral to alkaline soil reaction trend.	Poplar box grassy open forest with scattered narrow-leaved ironbark, silver-leaved ironbark, Queensland blue gum frequently present. Occasional areas brigalow, belah low open forest.	Lower slopes and valley floors. 0-4% slope.	Evergreen Formation.	IV - VI m ₄ , p ₄ , e ₄
331	Deep texture contrast soils. Deep brownish black to brown sandy clay loams, bleached A ₂ , overlying yellowish brown to brown light to medium clays. Dy 3.43, 3.32, Db 2.43. Alkaline soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark grassy woodland to open woodland with scattered bull oak, beefwood frequently present.	Mid and lower slope positions. 2-6% slope.	Evergreen Formation.	VI m ₆ , p ₄ , e ₄

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
332	Moderately deep to deep texture contrast soils. Shallow dark brown sandy clay loams, bleached A ₂ , overlying dull yellowish brown to brown medium to heavy clays. Db 1.41, Db 3.41. Acid soil reaction trend.	Narrow-leaved ironbark, rusty gum open forest with scattered bull oak, pink bloodwood frequently present.	Mid and lower slopes. 1-3% slope.	Evergreen Formation.	VI m ₄ , p ₄ , e ₆
333	Very deep texture contrast soils. Moderately deep to deep brownish black to greyish brown sandy to fine sandy clay loams, bleached A ₂ , overlying greyish yellow brown to yellowish brown sandy to heavy clays. Manganese segregations may occur at depth. Dy 2.41, 3.42. Acid to neutral soil reaction trend.	Gum-topped box grassy open forest with scattered narrow-leaved ironbark, Queensland blue gum, Moreton Bay ash, silver-leaved ironbark frequently present. Areas of brigalow low open forest may occur.	Lower slopes and valley floors. 0-3% slope.	Evergreen Formation.	VI m ₄ , d ₃ , p ₄ , s ₂ , e ₆
334	Deep gradational textured and texture contrast soils. Dark reddish brown sandy loams to fine sandy clay loams grading to reddish brown light to medium clays. Ironstone gravel may occur throughout. Gn 3.11, 3.12, Dr 2.21. Acid soil reaction trend.	Silver-leaved ironbark, narrow-leaved ironbark grassy open forest with scattered Moreton Bay ash, pink bloodwood, Queensland blue gum, kurrajong frequently present.	Lower slope positions. 1-3% slope.	Evergreen Formation.	IV m ₄ , p ₄ , e ₃
335	Moderately deep to deep texture contrast soils. Deep brownish black to brownish grey sandy clay loams, frequently bleached A ₂ , often with ferromanganese nodules, overlying dull yellowish brown to brownish grey gritty light to medium clays. Dy 3.41, 5.41, Dr 2.21. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark shrubby open forest with scattered rusty gum, pink bloodwood, Queensland blue gum, wattle, red ash, frequently present.	Mid and upper slopes, broad ridge crests. 4-10% slope, minor areas up to 20%.	Evergreen Formation.	VI m ₆ , p ₄ , e ₆
336	Shallow to moderately deep texture contrast soils. Moderately deep dark brown to dull yellowish brown sandy loams to silty clay loams, frequently bleached A ₂ , overlying brown to bright yellowish brown light to medium clays. Dy 3.32, 3.41 areas Gn 2.41, 3.74. Acid to neutral soil reaction trend.	Narrow-leaved ironbark grassy open forest to woodland with scattered silver-leaved ironbark, long-fruited bloodwood, pink bloodwood, Queensland blue gum, Moreton Bay ash, kurrajong frequently present.	Mid and lower slopes. 2-8% slope.	Evergreen Formation.	VI m ₆ , d ₃ , p ₄ , e ₄
337	Deep texture contrast soils. Deep brownish black sandy loams, bleached A ₂ , overlying bright yellowish brown sandy clay loams to sandy clays. Dy 4.82, 3.41. Acid soil reaction trend.	Rusty gum shrubby open forest with scattered narrow-leaved ironbark, swamp mahogany, pink bloodwood, Moreton Bay ash, dogwood, wattle frequently present.	Mid and lower slopes. 1-4% slope.	Evergreen formation.	VI m ₆ , p ₄ , e ₄
338	Shallow texture contrast soils. Moderately deep to deep dull brown to greyish yellow brown sandy loams, bleached A ₂ , overlying dark greyish yellow to brownish grey gravelly light to medium clays. Dy 2.41, 2.21, minor Uc 1.23. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark shrubby open forest with scattered areas of Queensland peppermint, budgeroo, lancewood, red ash, wattle frequently present.	Broad ridge crests and upper slopes. 2-6% slope.	Evergreen Formation.	VI - VII m ₆ , d ₄ , p ₄ , e ₄
339	Deep texture contrast soils. Moderately deep brownish black sandy loams, bleached A ₂ , overlying reddish brown to yellowish brown light to medium clays becoming sandy with depth. Dy 3.42, 3.31, Dr 3.42. Acid to neutral soil reaction trend.	Queensland blue gum, Moreton Bay ash grassy open forest with scattered silver-leaved ironbark, pink bloodwood, gum-topped box frequently present. Swamp mahogany, rough barked apple often fringe watercourses.	Lower slopes and drainage lines. 0-3% slope.	Evergreen Formation.	VI m ₆ , p ₄ , e ₄
340	Deep texture contrast soils. Shallow to moderately deep dark reddish brown sandy clay loams overlying reddish brown to brown light to medium clays. Dr 2.12, 2.22, Db 1.12. Neutral soil reaction trend.	Narrow-leaved ironbark open forest with scattered Moreton Bay ash, pink bloodwood frequently present.	Mid and upper slopes, small plateau remnants. 2-6% slope.	Evergreen Formation.	IV m ₄ , p ₃ , e ₄
341	Moderately deep texture contrast soils. Occasional rock outcrop. Moderately deep to deep brownish black sandy loams to sandy clay loams overlying yellowish brown to reddish brown sandy to medium clays grading to decomposing rock. Ferruginous gravel may occur throughout. Dy 3.41, D 2.21, minor areas Gn 2.11. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark, pink bloodwood, rusty gum layered open forest with scattered brown bloodwood, Queensland peppermint, Queensland blue gum, yellowjacket, Gympie messmate/white mahogany/large-fruited grey gum/bull oak frequently present.	Mid and upper slopes, low ridge crests. 6-15% slope, areas up to 20% slope.	Partly lateritised Evergreen Formation.	VII m ₆ , p ₄ , n ₃ , e ₇

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
342	Shallow gradational textured soils. Brownish black to dark reddish brown sandy loams to loams grading to light brown to dark brown clay loams or light clays. Gravelly throughout. Gn 3.14, 2.41, minor Gn 2.11. Acid soil reaction trend.	Broad leaved ironbark, spotted gum, Gympie messmate, yellowjacket shrubby open forest with scattered large-fruited yellowjacket/gum-topped ironbark/white mahogany frequently present.	Upper slopes and ridge crests. 1-3% slope.	Partly lateritised Evergreen Formation.	VI m ₆ , d ₆ , p ₃ , e ₆
343	Moderately deep to deep uniform sands. Black to greyish brown loamy sands to sandy loams becoming reddish brown to bright yellowish brown with depth. Uc 2.31, 2.21. Occasional yellow texture contrast soils. Dy 3.41, 5.21. Acid soil reaction trend.	Rusty gum, narrow-leaved ironbark, pink bloodwood shrubby open forest with scattered long-fruited bloodwood, Moreton Bay ash frequently present. Gympie messmate, budgeroo, lancewood, bull oak, quinine berry may occur.	Lower and mid slope positions. 2-5% slope.	Partly lateritised Evergreen Formation.	VI m ₆ , p ₄ , e ₆
344	Shallow uniform coarse textured soils. Occasional rock outcrop. Gravelly throughout. Brownish black to very dark reddish brown sandy loams grading to dark reddish brown to brown sandy loams. Uc 1.43, 1.23. Acid soil reaction trend.	Budgeroo, spotted gum, lancewood/narrow-leaved ironbark open forest with scattered red ash, wattle, quinine berry frequently present.	Upper slopes and scarp margins. 8-20% slope, areas as steep as 40%.	Partly lateritised Evergreen Formation.	VII m ₆ , d ₄ , t ₆ , r ₄ , e ₇
345	Shallow to moderately deep gradational textured soils. Occasional rock outcrop. Dark brown sandy loams grading to dull yellowish brown sandy clay loams. Ferruginous gravel may occur throughout. Gn 2.41. Acid soil reaction trend.	Brown bloodwood, lancewood, rusty gum shrubby open forest with scattered budgeroo, Queensland peppermint, white mahogany, spotted gum, yellowjacket, quinine berry, red ash, grass trees frequently present.	Upper slopes and ridge crests. 2-5% slope.	Partly lateritised Evergreen Formation.	VI m ₆ , p ₄ , n ₃ , r ₄ , e ₆
346	Deep gradational textured soils. Dark brown sandy loams to light sandy clay loams grading to reddish brown fine sandy clay loams to light clays. Gn 2.11. Occasional yellow earths. Gn 2.21. Acid soil reaction trend.	Narrow-leaved ironbark open forest with scattered large-fruited grey gum, spotted gum, Moreton Bay ash frequently present.	Mid and lower slope positions. 2-6% slope.	Partly lateritised Evergreen Formation.	VI m ₆ , p ₃ , e ₄
347	Deep gradational textured soils. Very dark reddish brown clay loams to fine sandy clay loams grading to dark reddish brown to dark red gritty light to medium clays. Ferruginous gravel frequently present. Gn 3.11. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark open forest with scattered pink bloodwood, rusty gum, red ash/large-fruited grey gum frequently present.	Mid and lower slopes. 3-8% slopes.	Lateritised Evergreen Formation.	III m ₃ , p ₂ , n ₃ , e ₃
348	Deep gradational textured soils. Dark brown hardsetting clay loams to fine sandy clay loams grading to mottled yellowish brown to dark reddish brown light to medium clays. Ferromanganese concretions occur at depth. Gn 3.54, 3.71. Occasional yellowish brown texture contrast soils. Dy 3.41. Acid soil reaction trend.	Spotted gum, narrow-leaved ironbark/Queensland blue gum/pink bloodwood grassy open forest.	Lower slope positions. 1-3% slope.	Lateritised Evergreen Formation.	IV - VI m ₄ , p ₄ , e ₃
349	Deep gradational textured soils. Brownish black to very dark reddish brown gravelly clay loams, frequently snuffy, grading to dark reddish brown clay loams. Lateritic gravel increases with depth. Gn 2.11, minor Gn 3.11. Acid soil reaction trend.	Spotted gum, pink bloodwood layered open forest with scattered brown bloodwood, large-fruited grey gum, Gympie messmate, rusty gum frequently present.	Upper slopes and below scarps. 4-8% slope.	Lateritised Evergreen Formation.	IV m ₄ , p ₄ , e ₄
350	Deep to very deep gradational and uniform textured soils. Dark reddish brown clay loams to light clays grading to reddish brown to dark red light to medium clays. Gn 3.11, Uf 6.31. Acid soil reaction trend.	"Softwood scrub" species closed scrub with scattered bottle tree, yellow wood frequently present.	Mid and lower slopes. 3-6% slope.	Partly lateritised Evergreen Formation.	III m ₃ , p ₂ , e ₃
351	Moderately deep to deep gradational textured soils. Some surface stone. Very dark reddish brown gritty, sandy loams and clay loams to light clays grading to dark to dull reddish brown light to medium clays. Ferruginous concretions and lateritic gravel may occur at depth. Gn 2.11, 3.11. Uf 1.43. Acid soil reaction trend.	"Softwood scrub" species open to closed scrub with bottle tree, yellow wood emergents. Occasional areas silver-leaved ironbark, Moreton Bay ash open forest.	Mid and upper slopes, ridge crests. 2-6% slope.	Partly lateritised Evergreen Formation	III - IV m ₃ , p ₃ , e ₃
352	Moderately deep to deep uniform and gradational textured soils. Dark reddish brown to dark brown fine sandy clay loams to light clays, occasionally hardsetting, grading to reddish brown light to medium clays. Lateritic and ferruginous gravel may occur. Uf 6.31, Gn 3.12, minor areas Ug 5.34. Neutral soil reaction trend.	"Softwood scrub" species closed scrub with small areas of brigalow, belah open forest.	Lower slopes and valley floors. 1-5% slope.	Partly lateritised Evergreen Formation.	III - IV m ₃ , p ₃ , e ₃

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

Appendix II (continued)

Land Unit	Soils	Vegetation	Landform	Geology +	Land Capability Class
353	Deep gradational textured soils. Very dark brown to dark reddish brown loams, frequently snuffy, grading to reddish brown clay loams to silty clay loams. Lateritic gravel occurs at depth. Gn 2.11. Acid soil reaction trend.	Large-fruited grey gum, spotted gum/gum-topped ironbark, wattle, red ash shrubby open forest.	Mid and upper slope positions. 3-6% slope.	Partly lateritised Evergreen Formation.	VI m ₆ , p ₄ , e ₄ , a ₃
354	Deep gradational textured soils. Very dark reddish brown clay loams grading to dark reddish brown light to medium clays. Manganese segregations may occur at depth. Ferruginous gravel on surface. Gn 3.12, 3.52. Occasional red and yellow texture contrast soils. Dr 2.21, Dy 3.42. Neutral to acid soil reaction trend.	Spotted gum, narrow-leaved ironbark shrubby open forest with scattered Gympie messmate, large-fruited grey gum, rusty gum, wattle, red ash frequently present.	Mid and lower slopes. 3-8% slope.	Partly lateritised Evergreen Formation.	III m ₃ , p ₂ , e ₃
355	Moderately deep to deep uniform fine textured soils. Areas of shallow gilgai may occur. Brownish black to very dark reddish brown hardsetting light to medium clays grading to brownish grey to dull yellow orange medium to heavy clays over decomposing rock. Calcium carbonate concretions occur at depth. Ug 5.32, 5.13, Uf 6.31, areas Db 2.43. Alkaline soil reaction trend.	Brigalow, belah, poplar box/wilga open forest with scattered "softwood scrub" species.	Lower slope positions and broad valley floors. 0-4% slope.	Partly lateritised Evergreen Formation.	IV m ₄ , p ₄ , s ₂ , e ₃
356	Shallow to moderately deep gradational and texture contrast soils. Brownish black hardsetting clay loams, occasional bleached A ₂ , overlying brown to yellowish brown gravelly light to medium clays. Gn 2.54, Dy 2.21. Acid soil reaction trend.	Narrow-leaved ironbark/silver-leaved ironbark/kurrajong, wattle, red ash shrubby woodland.	Upper slopes of low hills on plateau remnants. 2-6% slope.	Partly lateritised Evergreen Formation.	VI m ₆ , d ₃ , p ₄ , e ₄
357	Shallow uniform and gradational textured soils. Occasional rock outcrop and surface stone. Very dark reddish brown gritty clay loams to light clays grading to dark reddish brown to reddish brown light to medium clays. Frequently gravelly throughout. Uf 1.43, Gn 2.11. Acid soil reaction trend.	Gum-topped ironbark, Gympie messmate, spotted gum, red ash, wattle shrubby open forest.	Upper slope positions and crests of flat-topped remnants. 1-4% slope.	Lateritised Evergreen Formation.	VI m ₆ , d ₃ , p ₄ , e ₄
358	Moderately deep to deep gradational textured soils. Very dark reddish brown sandy loams to clay loams grading to dark reddish brown light to medium clays. Lateritic gravel may occur at depth. Gn 3.11. Acid soil reaction trend.	Silver-leaved ironbark, Moreton Bay ash, narrow-leaved ironbark grassy woodland with scattered kurrajong, poplar box, red ash frequently present.	Mid and upper slopes of low rises. 1-4% slope.	Partly lateritised Evergreen Formation.	III m ₃ , e ₃
359	Shallow stony loams. Occasional rock outcrop. Brownish black, hardsetting, sandy clay loams becoming dull yellowish brown with depth. Often gravelly on surface. Um 1.43, 1.42. Areas of yellow texture contrast soils. Dy 3.23, Db 1.33. Neutral to alkaline soil reaction trend.	Spotted gum, narrow-leaved ironbark/kurrajong/wattle grassy open forest.	Mid and upper slopes. 4-12% slope.	Undifferentiated Lower Triassic granite and granodiorite.	VI - VII m ₆ , d ₆ , p ₄ , e ₆
360	Shallow texture contrast soils. Minor rock outcrop. Moderately deep brownish black, gravelly sandy loams overlying dark reddish brown to brown light to medium clays over decomposing rock. Dr 2.12, Db 1.22. Neutral soil reaction trend.	Narrow-leaved ironbark, silver-leaved ironbark, gum-topped bloodwood grassy woodland with scattered emu apple, kurrajong, quinine berry frequently present.	Mid and upper slopes. 6-15% slope.	Undifferentiated Lower Triassic granite and granodiorite.	VI m ₄ , d ₄ , p ₃ , e ₆
361	Shallow to moderately deep texture contrast soils. Moderately deep very dark reddish brown to dark brown sandy loams to clay loams overlying dark reddish brown to dull yellowish brown medium clays grading into decomposing rock. Dr 2.12, 3.12, Dy 3.42. Neutral soil reaction trend.	Narrow-leaved ironbark, gum-topped bloodwood, silver-leaved ironbark grassy woodland to open forest with scattered Moreton Bay ash, kurrajong, quinine berry frequently present.	Mid and upper slopes of low ridges. 2-8% slope.	Undifferentiated Lower Triassic granite and granodiorite.	IV m ₃ , d ₂ , p ₂ , t ₄ , e ₃
362	Deep texture contrast soils. Brownish black hardsetting clay loams, occasional bleached A ₂ , overlying dark brown to dull yellowish brown medium to heavy clays. Db 1.13, 1.43, minor Ug 5.13.	Queensland blue gum, Moreton Bay ash grassy open forest with scattered silver-leaved ironbark, narrow-leaved ironbark frequently present.	Lower slopes and drainage lines. 1-4% slope.	Undifferentiated Lower Triassic granite and granodiorite.	IV m ₃ , p ₂ , e ₄
363	Unconsolidated sands and gravels. Areas of sandy soils. Uc 1.22.	Queensland blue gum, Moreton Bay ash/paper barked tea-tree/weeping bottle brush/river she-oak woodland.	Stream channel. 10-40% slope, mainly channel banks.	Recent alluvia.	VI - VII f ₅ , e ₆

+ Formation names in brackets are those proposed following remapping of the Maryborough 1:250 000 geology sheet.

APPENDIX III

Common names of native tree and shrub species

Botanical Name	Common Name
<i>Acacia aulacocarpa</i>	Hickory wattle
<i>A. bidwillii</i>	Corkwood wattle
<i>A. blakei</i>	A wattle
<i>A. complanata</i>	Fine stemmed wattle
<i>A. concurrans</i>	Late flowering black wattle
<i>A. decora</i>	Pretty wattle
<i>A. excelsa</i>	Ironwood
<i>A. harpophylla</i>	Brigalow
<i>A. rhodoxylon</i>	Rosewood
<i>A. salicina</i>	Doolan, cooba
<i>A. shirleyi</i>	Lancewood
<i>A. tenuinervis</i>	A wattle
<i>A. spp.</i>	Wattles
<i>Allocasuarina inophloia</i>	Thready bark she-oak
<i>A. littoralis</i>	Black she-oak
<i>A. luehmannii</i>	Bull oak
<i>A. torulosa</i>	Forest she-oak
<i>Alphitonia excelsa</i>	Red ash
<i>Alstonia constricta</i>	Bitterbark
<i>Angophora costata</i>	Rusty gum, smooth bark apple
<i>A. floribunda</i>	Rough barked apple
<i>A. subvelutina</i>	Broad leaved apple
<i>Araucaria cunninghamii</i>	Hoop pine
<i>Atalaya hemiglauc</i>	Whitewood
<i>Banksia spinulosa</i> var. (<i>collina</i>)	Golden candlesticks banksia
<i>B. integrifolia</i>	Coast banksia
<i>Brachychiton populneum</i>	Kurrajong
<i>B. rupestre</i>	Bottle tree
<i>B. australis</i>	Broad-leaved bottle tree
<i>Callitris columellaris</i>	White cypress pine
<i>C. endlicheri</i>	Black cypress pine
<i>Callistemon viminalis</i>	Weeping bottle brush
<i>Canthium attenuatum</i>	-
<i>C. oleifolium</i>	Myrtle tree
<i>Capparis canescens</i>	Wild orange, wild pomegranate
<i>Carissa ovata</i>	Currant bush
<i>Cassia brewsteri</i>	Leichhardt bean
<i>Cassinia laevis</i>	Wild rosemary, or cough bush
<i>Casuarina cristata</i>	Belah
<i>C. cunninghamiana</i>	River she-oak
<i>Corymbia citriodora</i>	Lemon scented gum/Spotted gum
<i>C. erythrophloia</i>	Gum-topped bloodwood, variable-barked bloodwood
<i>C. gummifera</i>	Red bloodwood
<i>C. intermedia</i>	Pink bloodwood
<i>C. polycarpa</i>	Long-fruited bloodwood, grey bloodwood
<i>C. tessellaris</i>	Moreton Bay ash
<i>C. trachyphloia</i>	Brown bloodwood

APPENDIX III (continued)

Botanical Name	Common Name
<i>Eremophilamitchellii</i>	False sandalwood, budda
<i>Erythrina vespertilio</i>	Bat's-wing coral tree
<i>Eucalyptus acmenoides</i>	White mahogany, yellow stringybark
<i>E. andrewsii</i>	New England blackbutt
<i>E. baileyana</i>	Bailey's stringybark
<i>E. bloxsomei</i>	Yellowjacket
<i>E. cloeziana</i>	Gympie messmate
<i>E. crebra</i>	Narrow-leaved ironbark
<i>E. decorticans</i>	Gum-topped ironbark
<i>E. exserta</i>	Queensland peppermint
<i>E. melanophloia</i>	Silver-leaved ironbark
<i>E. moluccana</i>	Gum-topped box, grey box
<i>E. phaeotricha</i>	Queensland white stringybark
<i>E. populnea</i>	Poplar box
<i>E. propinqua</i>	Small-fruited grey gum
<i>E. punctata</i>	Grey gum
<i>E. punctata</i> var. <i>longirostrata</i>	Long-fruited grey gum
<i>E. siderophloia</i>	Broad leaved ironbark
<i>E. tereticornis</i>	Queensland blue gum
<i>E. watsoniana</i>	Large-fruited yellowjacket
<i>Flindersia australis</i>	Crow's ash
<i>F. xanthoxyla</i>	Yellow wood
<i>Geijera parviflora</i>	Wilga, tree wilga
<i>G. salicifolia</i>	Scrub wilga
<i>Grevillea striata</i>	Beefwood
<i>G. spp.</i> (Coochin Hills)	Coochin Hills grevillea
<i>G. spp.</i>	A grevillea
<i>Hakea spp.</i>	A hakea
<i>Jacksonia scoparia</i>	Dogwood
<i>Leptospermum attenuatum</i>	A wild may
<i>L. spp.</i>	A tea-tree
<i>Lophostemon confertus</i>	Brush box
<i>L. suaveolens</i>	Swamp mahogany
<i>Lysicarpus angustifolius</i>	Budgeroo
<i>Melaleuca bracteata</i>	Black tea-tree, river tea-tree
<i>M. decora</i>	A paper barked tea-tree
<i>M. linariifolia</i>	Flaxleaf tea-tree, river tea-tree, paper barked tea-tree
<i>M. nervosa</i>	A paper barked tea-tree
<i>M. quinquinervia</i>	Broad leaf paper barked tea-tree
<i>Myoporum montanum</i>	Water bush
<i>Notelaea microcarpa</i>	Native olive
<i>Owenia acidula</i>	Emu apple
<i>Petalostigma pubescens</i>	Quinine berry, or quinine bush
<i>Pleurostyla opposita</i>	-
<i>Xanthorrhoea spp.</i>	Grass tree

APPENDIX IV

Land capability classification for agriculture

Type of Limitation	Limiting Factor	Degree of Limitation	Sub-Class
	Climatic limitation other than rainfall "c"	Slight restriction to choice of crops or slightly restricted production potential. Moderate restriction to choice of crops or moderately restricted production potential. Severely restricted choice of crops and severely reduced production potential. Climatic limitation too severe to allow cropping.	c2 c3 c4 c6
	Moisture availability for crop growth "m"	Occasional limitation to crop production: 7-8 crops possible in 10 years. Regular limitation to crop production: 5-7 crops possible in 10 years. Occasional cropping possible. Less than 5 crops possible in 10 years. Water availability too unreliable to allow cropping.	m2 m3 m4 m6
Factors limiting choice of crops or crop productivity	Effective soil depth "d"	Effective soil depth 60-100 cm Effective soil depth 45-60 cm Effective soil depth 25-45 cm Effective soil depth <25 cm	d2 d3 d4 d6
	Soil physical factors affecting crop growth "p"	Degree of limitation imposed. Slight restriction on crop production from soil physical factors Moderate restriction affecting the growth of crop plants e.g. surface crusting, hard pans, cementation etc. Severe restriction	p2 p3 p4
	Soil nutrient fertility "n"	Moderate deficiencies which may be economically corrected with careful management. Severe deficiencies, difficult to correct and which require special management practices. Very low fertility: continuous cultivation precluded by structural decline.	n2 n3 n4
	Soil salinity or sodicity	Soil water availability slightly restricted or slight structure decay affecting crop production. Soil water availability moderately restricted or moderate structural decay with some toxic effect on crops. Soil water availability severely restricted or severe structural decay with moderate to severe toxicity. Salinity or alkalinity too severe most crops. Tolerant improved species available. Salinity or alkalinity too severe for pasture improvement: tolerant herbage available. Bare salt pan: not practical to vegetate.	s2 s3 s4 s6 s7 s8

Appendix IV (continued)

Type of Limitation	Limiting Factor	Degree of Limitation	Sub-Class
	Topography "t"	Severe relief or major gullies preclude contour cultivation. Occasional cropping possible. Slopes 15-20% or severe relief or gullyng preventing cultivation. Slopes 20-45% or extreme gullyng but accessible to grazing animals. Slopes on topography too severe for grazing animals.	t4 t6 t7 t8
Factors limiting the use of agricultural machinery	Soil workability "k"	Soil properties affecting machinery and thus reducing average production potential eg stiff clay, columnar structure, compaction, narrow moisture range for working. Slight restriction Moderate restriction Severe restriction	k2 k3 k4
	Rockiness or stoniness "r"	Tillage restricted with some types of machinery. Tillage restricted with most types of machinery. Tillage difficult with all machinery; occasional use possible. Use of all machinery for cropping impractical.	r2 r3 r4 r5
	Surface microrelief Gilgai and gullyng "g"	Tillage restricted with some types of machinery. Tillage restricted with most types of machinery. Tillage difficult with all machinery; occasional use possible. Use of all machinery for cropping impractical.	g2 g3 g4 g5
	Wetness "w"	Use of implements delayed occasionally and slightly reduced production potential. Use of implements delayed regularly and moderately reduced production potential. Use of implements very difficult and occasional crops only possible. Permanently wet; use for cultivation impractical.	w2 w3 w4 w5

Appendix IV (continued)

Type of Limitation	Limiting Factor	Degree of Limitation	Sub-Class		
Factors controlling land deterioration	Susceptibility to water erosion "e"	Simple practices required to reduce water erosion under cultivation to the acceptable level.	e2		
		Intensive practices required to reduce water erosion under cultivation to the acceptable level.	e3		
		Requires inclusion of a pasture phase to reduce average water erosion losses to the acceptable level.	e4		
		Continuous pasture required to reduce water erosion losses to the acceptable level.	e6		
		Special practices or grazing restrictions required to reduce water erosion losses to the acceptable level.	e7		
		Under grazing water erosion losses are in excess of the acceptable level.	e8		
			Susceptibility to flooding "f"	Subject to occasional overflow flooding.	f2
				Subject to regular overflow flooding.	f3
Subject to severe overflow flooding; permanent cultivation not possible.	f4				
Flood frequency and/or severity precludes any cropping.	f5				
	Susceptibility to wind erosion "a"			Slightly susceptible to wind erosion.	a2
		Moderately susceptible to wind erosion.	a3		
		Severely susceptible to wind erosion.	a4		
		Potential for wind erosion too severe to allow cropping.	a6-8		

APPENDIX V

Soil chemical ratings

1. Nitrogen categories

Total Nitrogen (%) (Kjeldahl)

Very low	<0.05
Low	0.05 – 0.09
Fair	0.10 – 0.14
Very fair	0.15 – 0.24
High	0.25 – 0.49
Very high	>0.50

Source : Bruce and Rayment (1982)

2. Extractable phosphorus

Acid extractable P (ppm)		Bicarbonate extractable P (ppm)	
Very low	<10	Very Low	<10
Low	10 – 20	Low	10 - 20
Fair	20 – 35	Fair	20 - 30
Very fair	35 – 45	Very fair	30 - 40
High	45 – 100	High	>40
Very high	>100		

Source: Bruce and Rayment (1982)

3. Potassium ratings

m equiv. per 100g	Rating
<0.15	Very low
0.15 – 0.20	Low
0.20 – 0.30	Fair
0.30 – 0.50	Very fair
>0.50	High

Crack and Isbell (1970) use the value of 0.2 m equiv. per 100g of exchangeable potassium as the critical deficiency level.

4. Soil salinity categories (after Northcote and Skene 1972)

- Category 0 Non-saline; no chloride salinity in either the surface soil or subsoil as defined for categories 1 and 2.
- Category 1 Surface salinity; soils containing in their A horizons, or in the surface 20 cm if either the A and B horizons are undifferentiated or the A horizon is less than 10 cm thick, more than 0.1% sodium chloride in loams and coarse soils and more than 0.2% in clay loams and clays.
- Category 2 Subsoil salinity; soils lacking surface salinity but containing more than 0.3% sodium chloride in the B horizon, or below 20 cm if the A and B horizons are undifferentiated.

5. Soil sodicity categories (after Northcote and Skene 1972) for the top metre of soil

- Category 0 - Non sodic : ESP < 6
 Category 1 - Sodic : ESP 6 – 14
 Category 2 - Strongly Sodic : ESP > 14

6. Available water rating

Available water %	Rating
>15	Very high
12.1 – 15	High
8.1 – 12	Medium
5.1 – 8	Low
<5.1	Very low

7. Soil depth criteria

Very Shallow	<25 cm
Shallow	25 – 75 cm
Moderately deep	75 – 125 cm
Deep	125 – 150 cm
Very deep	>150 cm

APPENDIX VI

Data recorded for each map unit and land unit

(A) Map Units

- Zone – Australian 1:250 000 Zone Number
- Australian Map Grid Reference – central location of each map unit
- Land Units present and percentage of map unit area
- Landform
- Water Balance Zone
- Slope Range – most common slope range
- Present Land Use
- Recommended Land Use
- Land Capability Class – dominant class
- Clearing – approximate level of clearing
- Existing Landslip
- Potential Landslip
- Water Erosion – type and percentage of map unit affected
- Map Unit Code
- Shires – shire and percentage of map unit in each
- Map Unit Number – identifying number for each map unit
- Survey Code

(B) Land Units

- Sites – number of each site recorded within land unit
- Principal Profile Form – dominant soil
- Great Soil Group
- Nitrogen Rating
- Phosphorus Rating
- Potassium Rating
- Water Holding Capacity
- Soil Physical Restrictions
- Position in Landscape
- Geology
- Slope – most common range
- Vegetation – dominant species and formation
- Recommended Land Use
- Land Capability Sub-Classes
- Land Unit Number
- Survey Code

APPENDIX VII

Natural Resource Assessment Studies in the Burnett Region

Prior to 1980, the natural resources of the 3 000 000 ha of the Burnett Region in south-east Queensland were inadequately known or assessed. Since then a variety of studies have been undertaken and these are listed here for the convenience of users. The list is not exhaustive — rather it represents studies undertaken which are accompanied by maps of portions of the region.

MAJOR STUDIES

Report name	Author	Maps
Land Resources of the Burnett Region: Part 1 South Burnett	Vandersee BE and Kent DJ (1983)	Mapping Units 1: 250 000 Land Capability – Land Suitability 1: 250 000 Current Land Use 1: 250 000
Land Resources of the Burnett Region Part 2 Central Burnett	Kent DJ (2002)	Mapping Units 1: 250 000 Land Capability 1: 250 000
Land Resources of the Burnett Region Part 3 North Burnett	Donnollan TE and Searle RD (1999)	Land Systems 1: 250 000 Land Capability Classes 1:250 000

ASSOCIATED STUDIES

Report name	Author	Maps
Land resource survey of the soils and irrigation potential of the alluvial flats of the Byee area.	Reid RE (1979)	Soils 1: 50 000
Soils of the Brian Pastures Research Station, Gayndah, Queensland	Reid RE <i>et al.</i> (1986)	Soils 1: 25 000 Vegetation 1: 25 000
Vegetation survey of Brian Pastures Research Station, Gayndah, Queensland	Neldner VJ and Paton CJ (1986)	Vegetation 1: 25 000
Soils and Irrigation Potential of the Ceratodus Area Eidsvold, Qld	Kent DJ (1989)	Soils 1: 50 000
Soil Attributes and Agricultural Suitability of the Burnett River riparian Lands, Ceratodus – Auburn river	Brough DM Wilson PR and Burt SM (2002)	Eidsvold Section Soil Units Eidsvold Section Improved Pastures Eidsvold Section Irrigated Citrus Suitability
Soils of the Riparian Lands of the Burnett River between Mundubbera and Gayndah, Queensland - Suitability for Irrigated Agriculture	Tucker RJ and Sorby P (1996)	Soils 1: 50 000
Auburn River Irrigation Suitability Study	Wilson PR and Sorby P (1991)	Soils 1: 50 000 Irrigated Crop Suitability 1: 50 000
Understanding and managing soils in the Inland Burnett District	Smith GK and Kent DJ Edited Maher JM (1993)	Land Resource Areas 1: 500 000
Coastal Burnett Land Management Manual	Glanville TJ Macnish SE and Scarborough RC (1991)	Land Resource Areas 1: 500 000
Soil Attributes and Agricultural Suitability of the Burnett River Riparian Lands, Gayndah – Perry River	Mc Carroll SM and Brough DM (2000)	Mingo Section Pedon Mingo Section Improved Pastures Gayndah Section Pedon Gayndah Section Improved Pastures
Agricultural Land Resource Assessment of Coalstoun Lakes, Queensland	Mc Carroll SM and Brough DM (2000)	Soils 1: 50 000
Soils and Agricultural Suitability of the South Burnett Agricultural Lands	Sorby P and Reid RE (2001)	Soils 1: 100 000 Suitability for Dryland Crops 1: 100 000

