FOREST ECOSYSTEM MAPPING AND ANALYSIS OF SOUTH-EASTERN QUEENSLAND BIOGEOGRAPHIC REGION

A. VEGETATION SURVEY AND MAPPING

QUEENSLAND HERBARIUM
DEPARTMENT OF ENVIRONMENT AND HERITAGE

QUEENSLAND CRA/RFA STEERING COMMITTEE

VEGETATION SURVEY AND MAPPING

QUEENSLAND HERBARIUM
DEPARTMENT OF ENVIRONMENT AND HERITAGE

QUEENSLAND CRA/RFA STEERING COMMITTEE

For more information contact:

Regional Forest Assessments, Department of Natural Resources

Block C, 80 Meiers Road
INDOOROOPILLY QLD 4068

phone: 07 3896 9836
fax: 07 3896 9858

Forests Taskforce, Department of Prime Minister and Cabinet

3-5 National Circuit
BARTON ACT 2600

phone**:** 02 6271 5181
fax: 02 6271 5511

This project has been jointly funded by the Queensland and Commonwealth Governments. The work undertaken within this project has been managed by the joint Queensland / Commonwealth CRA RFA Steering Committee and overseen by the Environment and Heritage Technical Committee.

Recommended Citation:
Bean, A.R., Sparshott, K.M., McDonald, W.J.F. and Neldner, V.J. (Eds) (1998). *Forest Ecosystem Mapping And Analysis Of South-Eastern Queensland Biogeographic Region. A.Vegetation Survey And Mapping.* Report for Queensland CRA/RFA Steering Committee. Queensland Herbarium, Queensland Department of Environment and Heritage, and Environment Australia, Commonwealth Department of the Environment, Sport and Territories, Brisbane.

Version 2. Statistics and nomenclature updated to be current as of 1st January 1999.

For further copies of this document write to:
The Chief Botanist
Queensland Herbarium
Brisbane Botanic Gardens Mt Coot-tha
Mt Coot-tha Road, Toowong, 4066

ACKNOWLEDGMENTS

The authors of the various 1:100 000 map sheets are given in the metadata attached to each coverage. Botanists who conducted survey and mapping which contributed to this project are Tony Bean, Ralph Dowling, Paul Grimshaw, Derek Johnson, Bill McDonald, Les Pedley, Tim Ryan, Carolyn Sandercoe, Kym Sparshott, Peter Stanton, Kathy Stephens, John Thompson, Miriam Watson and Peter Young. Technical assistance for the vegetation mapping component of the project was provided by Daryl Baumgartner, Helen Cartan, Robbie Price, Christine Shewell, Shelley Sullivan, Gerry Turpin and Kaori van Baalen. Peter Amos produced the database that assisted in the relating of vegetation community units to regional ecosystems. Kym Sparshott and Tony Bean, in consultation with other botanists, formed the seamless legend for the study area, from the legend units constructed for each individual map sheet. The geographic information system support for the all Queensland Herbarium mapping projects was provided by Arnon Accad, Troy Honeman, Jack Kelley, Rosemary Niehus, Robbie Price and Dale Richter. Merilyn Hosking and Leanne Carrick entered the CORVEG site data. Robbie Price was responsible for maintaining and upgrading the CORVEG database. The vegetation survey and mapping of south-eastern Queensland would not have been possible without their dedicated efforts. Staff at the Queensland Herbarium provided invaluable assistance in plant identification, specimen curation, project planning and administration. Special thanks to Yvonne Smith for her efficient administration of the numerous logistic and resource requirements of the project. Gordon Guymer, Trevor Stanley, John Neldner and Ralph Dowling provided efficient and understanding management.

The vegetation map unit descriptions in chapter 3 were written by Kym Sparshott and Tony Bean, with Bill McDonald writing the descriptions for the rainforest map units. These botanists coordinated the production of the seamless vegetation map unit coverage for the south-eastern Queensland Regional Forest Agreement area, although extensive input came from all staff involved in the project. Chapters 1, 2 and 3.1 were written by John Neldner.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY

This project produces the first comprehensive vegetation ecosystem survey and mapping across the whole South-eastern Queensland RFA study area. The survey and mapping is not restricted to forests but encompasses all terrestrial vegetation ecosystems, and covers all tenures. The mapping is at a scale of 1:100 000, with a minimum polygon size of 20 hectares.

Two seamless digital coverages of vegetation ecosystems have been produced, (1) existing remnant native vegetation, and (2) pre-clearing vegetation. The vegetation coverages have been derived through photointerpretation of black and white aerial photographs, while consulting with other data sources for geology, land system, vegetation and soils maps (where available) and Landsat imagery. Extensive field work involving traverses and site sampling have been used to ground truth the coverages.

The vegetation mapping is underpinned by a total of 2500 secondary and tertiary level detailed sites based on 0.1 hectare plots. Thousands of quaternary sites for ground truthing purposes were also collected during the project. The sites and traverses are distributed so as to sample as much as is possible the environmental variability across the landscape, given the time and accessibility constraints.

A total of 170 vegetation ecosystems are defined and mapped for the South-eastern Queensland RFA study area, comprising 32 open-forest, 71 woodland and 10 open-woodland ecosystems, 37 rainforest and vine thicket and 20 non-forest ecosystems.

A comprehensive technical report provides detailed descriptions and distribution data for each of the forest ecosystems. A small map showing the pre-clearing and existing distributions is provided for each forest ecosystem, together with a listing of the characteristic species in each stratum, ecological notes on the environmental and landscape conditions where it occurs, and statistics on the areas in current conservation reserves. The statistics for pre-clearing, 1995 remnant, 1997 remnant and reserved area for each of the vegetation ecosystems are summarised in the Summary Table 1 below.

The regional ecosystems coverage was derived from the vegetation ecosystem coverages. The JANIS (1996) criteria have been applied to the regional ecosystems, and the results of this analysis is discussed in the regional ecosystems report.

Summary Table. Statistics for vegetation communities of the South-eastern Queensland RFA region. Total protected areas includes National Parks, National Parks (scientific), Conservation Parks and Resources Reserves.

Vege-tation Unit	Pre-clearing Area (ha)	Remnant 1995 Area (ha)	Remnant 1997 Area (ha)	% Remain-ing in 1997 Remnants	Total Protected Area (ha)	Area in National Park	Area in Conserva-tion Park	Area in Resource Reserves
A1	51671	46072	46011	89.0	5750	3834	1738	178
A2	3270	1425	1389	42.5	118	54	64	0
A3	22820	20461	20375	89.3	2495	1586	836	73
B1	2377	141	141	5.9	112	101	11	0
B2	3913	3842	3842	98.2	3819	3819	0	0
B3	9822	9759	9759	99.4	9709	9709	0	0
B4	2435	2427	2427	99.7	2419	2419	0	0
B5	1374	1098	1098	79.9	566	314	0	252
B6	2202	180	180	8.2	0	0	0	0
B7	35324	22509	22462	63.6	6970	5961	562	447
B8	22431	21581	21580	96.2	19110	19110	0	0
B9	75352	73559	73350	97.3	63365	63364	1	0
B10	6355	5778	5758	90.6	4204	3735	469	0
B11	698	628	628	90.0	72	61	3	8
B12	66264	64883	64790	97.8	58205	58205	0	0
B14	19328	18704	18698	96.7	15791	15535	225	31
B17	389	371	371	95.4	7	2	5	0
B20	98	98	98	100.0	85	76	9	0
B21	8725	8542	8542	97.9	6410	6191	188	31
C1	3204	336	336	10.5	137	132	5	0
C2	64597	22700	21848	33.8	6130	5715	415	0
C3	23621	13741	13647	57.8	6216	6065	139	12
C4	45691	15042	14714	32.2	5334	4848	463	23
C5	1503	45	27	1.8	0	0	0	0
C6	9360	7811	7742	82.7	4154	4154	0	0
C7	33961	19391	19264	56.7	13289	13186	101	2
C8	8659	8591	8592	99.2	8402	8391	0	11
C9	5145	4150	4150	80.7	592	592	0	0
C10	9678	9587	9587	99.1	3997	3899	0	98
D1	1961	1573	1573	80.2	929	924	0	5
D2	6996	4648	4507	64.4	1259	1257	2	0
D3	2515	1233	1228	48.8	111	86	25	0
D4	5957	1443	1357	22.8	0	0	0	0
D6	16362	10090	9992	61.1	1826	1826	0	0
D7	3903	1698	1692	43.4	0	0	0	0
D8	130698	43090	42467	32.5	16817	16781	23	13
D9	167179	88176	86070	51.5	4528	4080	448	0
D10	10334	7164	6875	66.5	2252	2252	0	0
D11	34712	26043	25914	74.7	12978	12941	37	0
D12	1022	424	424	41.5	293	293	0	0

Vege-tation Unit	Pre-clearing Area (ha)	Remnant 1995 Area (ha)	Remnant 1997 Area (ha)	% Remain-ing in 1997 Remnants	Total Protected Area (ha)	Area in National Park	Area in Conserva-tion Park	Area in Resource Reserves
E1	6725	245	240	3.6	0	0	0	0
E3	1939	1129	1126	58.1	0	0	0	0
E4	684	468	468	68.4	0	0	0	0
E5	5390	1861	1822	33.8	11	0	11	0
E6	96	33	29	30.2	10	10	0	0
E7	241968	72524	71105	29.4	915	680	235	0
E8	25983	236	224	0.9	0	0	0	0
E9	312573	68343	66544	21.3	1404	1211	192	1
E10	447875	59031	58425	13.0	3078	2813	120	145
E11	27961	11101	10978	39.3	179	103	5	71
E12	576	576	568	98.6	0	0	0	0
E13	5806	5493	5489	94.5	64	64	0	0
E14	26	23	23	88.5	0	0	0	0
F1	492	334	334	67.9	0	0	0	0
G1	31927	13746	13744	43.0	5892	5892	0	0
G2	23957	20779	20771	86.7	12960	12960	0	0
G3	28871	9692	9681	33.5	4273	4228	45	0
G4	691	691	691	100.0	661	661	0	0
G5	1401	1377	1377	98.3	880	880	0	0
G7	30241	5631	5548	18.3	936	935	1	0
G8	11931	5672	5557	46.6	1253	1206	0	47
G9	51861	15368	15239	29.4	933	933	0	0
G10	97110	42670	42547	43.8	290	225	65	0
G11	23054	21713	21695	94.1	177	177	0	0
G13	25938	5148	5146	19.8	4268	4081	0	187
G16	1894	1675	1675	88.4	1037	1026	11	0
G17	9274	6229	6229	67.2	1804	1804	0	0
G18	130276	40427	40166	30.8	1913	1680	233	0
G19	12379	10299	10285	83.1	5423	5423	0	0
G20	1063	403	403	37.9	0	0	0	0
G21	285	200	200	70.2	71	71	0	0
G22	55510	31439	31214	56.2	3529	3399	126	4
G23	20590	11552	11508	55.9	66	2	64	0
G24	6667	6306	6306	94.6	105	105	0	0
G25	5166	2123	2123	41.1	1	1	0	0
G26	41592	34847	34794	83.7	8739	8739	0	0
G27	5359	5267	5247	97.9	3314	3292	22	0
G28	121	112	112	92.6	12	10	0	2
G29	7341	4435	4325	58.9	0	0	0	0
G30	685	448	442	64.5	0	0	0	0
G31	28383	23145	23009	81.1	3031	2955	76	0
G32	86794	37583	37325	43.0	3483	3311	172	0
G33	510	133	133	26.1	0	0	0	0
G34	2539	2080	2080	81.9	0	0	0	0
Vege-	Pre-clearing	Remnant	Remnant	% Remain-	Total	Area in	Area in	Area in

tation Unit	Area (ha)	1995 Area (ha)	1997 Area (ha)	ing in 1997 Remnants	Protected Area (ha)	National Park	Conserva-tion Park	Resource Reserves
G35	4753	900	862	18.1	0	0	0	0
G36	1777	951	945	53.2	7	6	1	0
G38	1598	1554	1554	97.2	0	0	0	0
G39	35913	6761	6709	18.7	9	9	0	0
G41	245029	76106	73558	30.0	436	371	0	65
G42	671	617	617	92.0	144	144	0	0
G43	4528	2459	2459	54.3	928	926	0	2
H1	30554	5255	5230	17.1	98	98	0	0
H4	1294	1249	1249	96.5	0	0	0	0
H5	24615	4419	4383	17.8	80	0	80	0
H6	109	103	103	94.5	0	0	0	0
H7	147	96	80	54.4	0	0	0	0
H9	21710	21710	21710	100.0	11162	11162	0	0
H10	12970	12970	12970	100.0	8602	8602	0	0
H11	33799	22466	22287	65.9	945	880	63	2
H12	19826	12811	12802	64.6	636	636	0	0
H13	656	656	656	100.0	117	117	0	0
H14	41130	9355	9271	22.5	699	699	0	0
H16	54395	35278	34941	64.2	302	199	0	103
H17	63	63	63	100.0	61	61	0	0
H19	1065695	598210	593217	55.7	11837	11157	567	113
H20	6054	5035	5017	82.9	31	31	0	0
H21	9489	5090	5036	53.1	32	32	0	0
H22	6217	6202	6202	99.8	0	0	0	0
H23	9115	9090	9090	99.7	2712	2712	0	0
H24	106703	90485	89249	83.6	3908	3870	37	1
H25	13471	11417	11395	84.6	0	0	0	0
H26	1684	1684	1684	100.0	0	0	0	0
H27	177668	35617	35308	19.9	1091	972	119	0
H28	589	389	377	64.0	3	3	0	0
H29	110537	77337	76756	69.4	136	39	97	0
H30	1809	1040	1032	57.0	0	0	0	0
H32	3318	3318	3318	100.0	1280	1280	0	0
H34	1100	1100	1098	99.8	0	0	0	0
H35	801	797	797	99.5	0	0	0	0
H36	2467	802	765	31.0	0	0	0	0
H37	3710	3710	3710	100.0	35	35	0	0
H39	179269	46066	45697	25.5	2133	1255	878	0
H40	102	102	102	100.0	35	35	0	0
H41	958	934	929	97.0	0	0	0	0
H43	1081	1080	1080	99.9	1080	1080	0	0
H44	245	245	245	100.0	245	245	0	0
H45	4972	4211	4211	84.7	3724	3724	0	0
H46	155	155	155	100.0	0	0	0	0
Vege-tation	Pre-clearing Area (ha)	Remnant 1995 Area	Remnant 1997 Area	% Remain-ing in	Total Protected	Area in National	Area in Conserva-	Area in Resource

Unit		(ha)	(ha)	1997 Remnants	Area (ha)	Park	tion Park	Reserves
H47	28315	2141	2104	7.4	1	0	1	0
I1	5374	2400	2400	44.7	0	0	0	0
I3	2814	2530	2530	89.9	83	83	0	0
I4	1741	1645	1645	94.5	232	232	0	0
I5	787	638	635	80.7	0	0	0	0
I6	7807	4504	4460	57.1	43	43	0	0
I7	39276	23760	23679	60.3	2852	2804	41	7
I8	17188	5104	5082	29.6	11	0	11	0
I10	17940	15581	15560	86.7	0	0	0	0
I11	75051	13274	13227	17.6	11	11	0	0
I12	238955	162255	161613	67.6	5063	4916	145	2
I13	590717	107616	106206	18.0	1200	1058	142	0
J1	534	534	533	99.8	157	157	0	0
J2	15725	14450	14412	91.7	438	438	0	0
J3	310	301	291	93.9	0	0	0	0
J4	6562	6388	6373	97.1	0	0	0	0
J5	369	369	369	100.0	369	369	0	0
J6	1705	1692	1692	99.2	169	169	0	0
J7	4782	4689	4689	98.1	1591	1548	0	43
J8	1044	1013	1013	97.0	218	218	0	0
J9	3099	2565	2549	82.3	0	0	0	0
J11	3750	3714	3714	99.0	173	173	0	0
J12	19947	18187	18137	90.9	2406	2406	0	0
J13	10544	10206	10206	96.8	0	0	0	0
J14	1598	1052	1035	64.8	0	0	0	0
J15	1614	1592	1592	98.6	324	324	0	0
J16	16898	14140	14068	83.3	2566	2566	0	0
J17	33489	11505	11498	34.3	626	626	0	0
J18	922	922	922	100.0	650	650	0	0
J19	4828	4828	4828	100.0	139	139	0	0
J20	65	65	65	100.0	0	0	0	0
J21	2207	2197	2193	99.4	0	0	0	0
J22	10	9	9	90.0	9	9	0	0
J23	32937	24064	23720	72.0	933	933	0	0
J24	2912	2614	2614	89.8	1323	1323	0	0
J25	192	190	128	66.7	0	0	0	0
J26	266	266	266	100.0	265	265	0	0
J28	1818	1785	1773	97.5	1034	1034	0	0
J29	33	32	32	97.0	27	27	0	0
J30	8	8	8	100.0	1	1	0	0
J31	10	10	10	100.0	0	0	0	0
K1	14691	8360	8355	56.9	0	0	0	0

1. CHAPTER ONE INTRODUCTION

1.1 OBJECTIVES OF THE PROJECT

This report has been prepared for the joint Commonwealth/State Steering Committee which oversees the Comprehensive Regional Assessment (CRA) of forests in the South-eastern Queensland CRA region.

The Comprehensive Regional Assessment provides the scientific basis on which the State and Commonwealth governments will sign a Regional Forest Agreement (RFA) for the forests of the South-eastern Queensland CRA region. This agreement will determine the future of the region's forests and will define those areas needed to form a comprehensive, adequate and representative (CAR) reserve system and those available for ecologically sustainable commercial use.

The broad objectives of this project were to provide a seamless coverage of vegetation map units and regional ecosystems as a measure of diversity and to describe and analyse ecosystems using Comprehensive, Adequate and Representative (CAR) reserve criteria. The project builds on earlier outputs that were jointly funded under the National Forest Inventory and the Queensland Greater Planning Certainty process.

The specific objectives of the project are to

(1) complete the vegetation mapping for both pre-clearing and existing vegetation,
(2) complete the databasing and validation of the site data collected by field teams,
(3) allow the integration of information to produce an integrated seamless coverage
(4) convert vegetation mapping units to regional ecosystems,
(5) produce detailed descriptions of the existing vegetation map units and their environmental relations, and
(6) provide a detailed analysis of the remaining area of each regional ecosystem, and the percentage of the pre-clearing distribution that it composes.

1.2 SCOPE OF THE PROJECT

1.2.1 Background

A basic requirement for a Comprehensive Regional Assessment is to have consistent and comprehensive mapping of vegetation units at an appropriate scale. Forest communities recognisable and mappable at 1:100 000 scale is considered to be the appropriate scale for planning a comprehensive nationwide forest reserve system (JANIS 1996). The vegetation mapping feeds directly into the biodiversity analysis, and is a fundamental coverage required for the development of a Comprehensive, Adequate and Representative (CAR) reserve system. Prior to the completion of this project, comprehensive mapping coverage of vegetation map units for South-eastern Queensland did not exist. The situation at the end of 1993 was 1:100 000 scale existing vegetation mapping over four of the 41 1:100 000 scale map sheets making up the area; Brisbane (Dowling and McDonald 1976), Beenleigh (Elsol and Dowling 1978), Caloundra (Elsol and Sattler 1979) and Murwillumbah (McDonald and Whiteman 1979). Mapping of pre-clearing vegetation at 1:250 000 scale was available over the Gympie 1:250 000 sheet (Pedley and Bean 1990) and Warwick 1:250 000 sheet (Young and McDonald 1989). Mapping of the existing vegetation at 1:50 000 scale was available over three 1:100 000 scale sheets on Fraser Island (Stanton 1979), and 1:25 000 scale mapping was available over the Cooloola area (Sandercoe 1985). The most significant study of remnant vegetation in south-eastern Queensland was produced by Catterall and Kingston (1993). This study focussed on the distribution of remnants as determined from 1989 Landsat imagery. It did not classify the vegetation on the basis of floristics or structure, but mapped the vegetation into five condition classes on the basis of disturbance to the canopy (relative canopy density) and the size of the remnants. The highest resolution mapping covering the whole bioregion was the 1:5 M continental scale of AUSLIG (1990).

Under the National Forest Inventory (NFI), a project jointly funded by the Commonwealth and Queensland governments was developed to increase the amount of vegetation mapping in South-eastern Queensland. This project provided input into the Greater Planning Certainty process in Queensland. Initially the mapping was confined to specific map sheets, focussed primarily on Crown lands and existing vegetation. For the Comprehensive Regional Assessment of South-eastern Queensland, both the pre-clearing and existing vegetation coverages are required at a consistent scale over all tenures.

1.2.2 Project scope

This project completes the surveying and mapping of the vegetation map units for the whole South-eastern Queensland Regional Forest Agreement study area at a scale of 1:100 000. Figure 1 shows the extent of the study area, which includes all of the south-eastern Queensland bioregion and the Queensland section of the North East New South Wales bioregion as defined by Sattler and Williams (in prep) and Thackway and Cresswell (1995), and the Blackdown Tableland portion of the Brigalow Belt bioregion as defined by Young *et al*. (in prep).

The area of each section of the study area is given in Table 1.

TABLE 1. AREA OF LAND MAKING UP THE SOUTH-EASTERN QUEENSLAND RFA STUDY AREA

Section of RFA study area	Area of region (km^2)	Area in protected reserves (km^2)
South-eastern Queensland bioregion	59 275 km^2	2 705 km^2
North east New South Wales bioregion	2 306 km^2	528 km^2
Blackdown province	481 km^2	319 km^2
TOTAL SEQ RFA STUDY AREA	62 062 km^2	3 552 km^2

Two seamless digital coverages of vegetation map units have been produced
(1) existing remnant native vegetation, and
(2) pre-clearing vegetation.

1.2.3 Definitions

- **remnant vegetation**
  The majority of vegetation in south-eastern Queensland was dominated by trees (97.9% of the pre-clearing vegetation is dominated by forests and woodlands, with only 0.01% of the pre-clearing vegetation being grassland). The natural canopy cover varies with vegetation map units. Remnant vegetation in this study was defined as vegetation where the structure of the woody vegetation was still intact, ie. there was more than 50% of the normal canopy cover of the community present. Catteral and Kingston (1993) defined integral bushland in South-eastern Queensland as having more than 70% relative canopy density, ie. normal canopy density for that community. Woody vegetation in the Murray-Darling basin has been defined by Ritman (1995) as having thresholds of greater than 2m in height and canopy cover of greater than 20%. The distribution of remnant vegetation was determined from 1995 Landsat imagery by either interpretation of high quality hard copy prints or digital imagery on screen using ARC INFO and ARCVIEW software. The Landsat imagery was supplied and rectified through the State Landcover and Tree Study (SLATS, 1997). While the basic structural components of the canopy were relatively intact, the condition of the ground and shrub layers and floristic composition of the community could be significantly altered from its

natural state. There was no reliable method to determine the condition of the community from this scale of imagery.

- **regrowth vegetation**
  Because of the limitations in mapping from Landsat imagery (eg. coarse pixel size 25 m and lack of stereo capability), regrowth cannot be consistently mapped from a single pass of Landsat imagery. This project did not attempt to map regrowth ecosystems. Advanced stage regrowth that has the same or very similar signature on the Landsat imagery to intact remnant vegetation has generally been mapped as intact remnant vegetation unless it was definitely identified as regrowth. It is reasonable to assume that advanced regrowth has many of the biodiversity values of remnant vegetation.

- **pre-clearing vegetation**
  This term equates to what is generally mapped as 'pre 1750' or 'pre European' vegetation in other studies. Vegetation boundaries are dynamic, and many are likely to have moved in the last 220 years. Mapping of vegetation is based on extrapolating across the whole region based on a limited sample of known points and the consistent patterns detectable on imagery covering the whole region. Since no consistent imagery exists for south-eastern Queensland prior to 1950 and no reliable comprehensive sample points exist for before 1970, it is clearly impossible to map 'pre 1750' or 'pre European' vegetation in the study area.

  The pre-clearing vegetation is simply the vegetation present before clearing. In south-eastern Queensland this was interpreted from older aerial photographs (1962-1986). These older aerial photographs provided complete coverage but also showed larger areas of natural vegetation. Where vegetation had already been cleared on these aerial photographs it was reconstructed by the botanist using the landform, soils, geology and field knowledge (remnant roadside trees). In addition, historical survey records of vegetation types have been extensively used in this reconstruction (see Fensham and Fairfax 1997 for discussion of the technique). The reliability of this reconstruction varied depending on the terrain, the predictability of the vegetation community and the available data sources for that polygon (Unique Map Area). Reliability and data source data were attached to each individual polygon. Our understanding of the composition of these pre-clearing vegetation is based on the data collected in most cases since 1994, and as such is influenced by the contemporary grazing, fire and management regimes and presence of feral plant and animal species.

Figure 1. Extent of study area.

2. CHAPTER TWO METHODOLOGY

2.1 VEGETATION SURVEY AND MAPPING

The methodology for the vegetation survey and mapping has been previously developed through more than 20 years of Queensland Herbarium mapping activity (see Neldner 1993) and the DEST mapping project. The methodology was outlined in detail in Thompson *et al.* 1996.

2.1.1 Scale

Basic to all survey and mapping is the fundamental question of the scale at which the map and survey should be conducted. The scale determines the smallest area that can be shown on the map and the sampling intensity required. The purpose of the survey and the complexity of the vegetation determines the optimum scale. However practically the funding available, time constraints, staff available and map size of the final product also must be considered. A recommended scale for conservation management and regional resource inventory is 1:100 000 scale mapping (Reid 1988). The 1:100 000 scale has been widely used in other States for their Comprehensive Regional Assessments, eg. East Gippsland in Victoria, Tasmania and Western Australia, and is the scale advocated as a suitable scale for vegetation map unit assessment in the JANIS (1996) document. The vegetation survey and mapping in this study is at a scale of 1:100 000, which has a minimum recommended area for polygons of 20 hectares (Reid 1988).

South-eastern Queensland has a high spatial diversity of vegetation map units. While it would be desirable to delineate the spatial distribution of all individual vegetation map units in homogeneous polygons, it is impossible at the 1:100 000 scale, and the mapping of mosaics of vegetation map units was a necessity. The Queensland Herbarium vegetation mapping quantifies the proportion of each Unique Mapping Area (each discrete area delineated on the map) that is composed of each of the component ecosystems. As a result, small areas of a vegetation map unit (down to approximately 1 hectare, the minimum polygon size for 1:25 000 scale mapping) are coded as present within a Unique Mapping Area. Where high quality vegetation mapping at larger scales existed in south-eastern Queensland, it has been incorporated into the digital coverages. Hence the 1:50 000 scale vegetation mapping of Fraser Island by Stanton (1979), the 1:25 000 scale mapping of the Cooloola area by Sandercoe (1985) and Bunya Mountains and Main Range National Parks by Young and Oliver (1986) have been updated and integrated into the south-eastern Queensland coverage. The rainforest boundaries derived

from the 1:25 000 mapping of Old Growth (EH 2.1 project) have been checked, modified if required and used in the Nambour, Gympie, Caboolture, Nanango and Goomeri 1:100 000 scale map sheets. Each of these rainforest patches have then been assigned to a rainforest map unit by Bill McDonald, who used photointerpretation, site data and extensive field knowledge in this process.

It must be remembered that within the Comprehensive Regional Assessment, species level assessments based on known distributions and modelling are an integral component of the assessment (projects EH1.1.3 and 1.1.4) and will be used with the ecosystem level assessments in the integration phase. Hence species that are infrequent in the landscape or do not form conspicuous ecosystem types can be assessed through the species level assessments.

2.1.2 Mapping

The process of vegetation mapping involved the production of three distinct coverages,

1. A pre-clearing vegetation coverage is derived through aerial photointerpretation of black and white photographs, while consulting with other data sources for geology, land system, vegetation and soils maps (where available) and the Landsat imagery.

2. A landcover coverage is derived from most recent Landsat imagery, through manual examination of the imagery.

3. The remnant coverage is produced through a GIS intersect of the pre-clearing and landcover coverages to derive a remnant vegetation coverage. Each UMA in the coverage is re-examined on the Landsat imagery in consultation with the aerial photographs to assign the proportion of each of the vegetation map units making up each remnant. This step is necessary to account for preferential clearing of particular vegetation map units (Fensham *et al.* 1998).

While this sequence is the preferred process for vegetation survey and mapping, in some of the earlier map sheets the remnant coverage was produced first and the pre-clearing derived subsequently from it. Initially, the DEST project only required remnant vegetation mapping be produced.

2.1.3 Sampling

A total of 2500 secondary and tertiary level sites based on 0.1 hectare plots (see Thompson *et al.* 1996) and thousands of quaternary sites were collected during the project. In brief, the main purposes of each of the types of sites are:

primary sites	research and monitoring
secondary sites	detailed descriptions of the vegetation types and flora lists
tertiary sites	brief descriptions of the vegetation types for map legends
quaternary sites	distribution of vegetation types.

The sites and traverses are distributed so as to sample as much as is possible the environmental variability across the landscape, given the time and accessibility constraints. The total number of sites (secondary, tertiary and quaternary) depends on the variability in the vegetation. The minimum recommended ground observation density for soil surveys (FAO 1979) is a useful framework for planning and appraising vegetation surveys. The minimum density for sampling a full 1:100 000 sheet for soils is 625 sites. Neldner (1993) considered that sampling densities need not be as high for vegetation surveys. This is because vast amounts of mapping data can be rapidly gathered as informal observation and quaternary sites while traversing (on foot, by vehicle or aircraft) as opposed to soil surveys which require subsurface sampling. Neldner *et al.* (1995) used a minimum sampling index of half the FAO (1979) recommendation.

For planning purposes, a sampling density of 100 secondary sites for a full 1:100 000 sheet is recommended. In practice this number of sites could be more or less depending on the complexity of the vegetation. A minimum of three secondary sites per vegetation map unit is desirable.

2.1.4 Databasing and validation

In addition to the 2500 secondary and tertiary level sites collected during the project, some data previously collected by other botanists from the Department of Environment were also databased. The distribution of sites is shown in Figure 2. The data is stored in CORVEG, which is the Queensland Herbarium's ecological database. Details of the data structures of CORVEG are documented in McDonald and Dillewaard (1994). Data from CORVEG, eg. CYPLUS Cape York Peninsula vegetation mapping (Neldner and Clarkson 1995), has been supplied to the Commonwealth previously and found to be a satisfactory data format for exchange. A number of standard validation procedures were applied to ensure the correct locality data and nomenclature was used. Nomenclature was updated to follow Henderson (1997).

In addition, thousands of quaternary sites which were used in ground truthing the coverages were collected and stored digitally.

2.1.5 Integrating individual map sheets into a seamless coverage

The data attached to each UMA in the digital coverage has retained the original vegetation codes for each 1:100 000 map sheet so that each sheet can be produced as a stand alone product. The metadata for each 1:100 000 map sheet is listed in a separate document "Metadata for South-eastern Queensland Regional Forest Agreement vegetation map unit coverages". Appendix I lists the metadata for the seamless coverage and as an example, the Biggenden 1:100 000 map sheet..

The production of the seamless coverage for the 41 individual map sheets required the integration of a number of different vegetation legends. This process required:

(1) the databasing of legend unit attributes to allow efficient sorting,
(2) the production of a draft bioregion legend,
(3) testing of the legend by consulting all of the botanists with knowledge of the area, and
(4) finalisation of the legend for South-eastern Queensland.

Upon finalisation of the legend and translation table, global translations to the vegetation coding on all sheets were made with the universal codes added to extra fields in the attribute tables. All mismatches across map sheets were examined by the botanists involved in the mapping for the area and corrected by examining the aerial photographs. In some cases additional field work was conducted to check the modified boundaries or coding in the field. The metadata for the seamless coverage is provided in Appendix I.

2.1.6 Limitations of the survey

1. The field sampling effort was commensurate with the mapping scale of 1:100,000. The mapped data should not be extrapolated beyond 1:100 000 scale. Additional data collection and mapping should be undertaken for uses at larger scales.

2. Vegetation associations tend to merge into one another, so that a line on the vegetation coverage often represents an ecotone rather than a discrete boundary. Discrete boundaries do occur in some situations, (eg. closed-forest/open-forest boundaries).

3. Many polygons (UMAs) consist of more than one map unit. Because of the mapping scale, it was not possible to separate these units, however the proportion of the UMA that each unit occupies was recorded.

4. Due to the need to rapidly complete the survey, field sampling was biased to near access tracks with limited walking into remoter areas.

5. Due to unfavourable seasonal conditions (too dry, fire, etc) some ephemeral herbaceous plant species may not have been recorded at the time of sampling.

3. CHAPTER THREE VEGETATION MAP UNIT DESCRIPTIONS

3.1 DERIVATION OF VEGETATION MAP UNIT DESCRIPTIONS

The descriptions of the existing vegetation map units are based on the site data. Each site has been allocated to a vegetation map unit based on the expert field knowledge of the botanists. All available environmental attributes have been incorporated as well. The dominant canopy species are listed together with a summary of the height and canopy cover. Dominant or characteristic species of the shrub layer (if present) and ground layer are also listed. The CORVEG database contains substantially more comprehensive data on each site (see example CORVEG site in appendix 2). However only information on the dominants is supplied for these descriptions. For completeness, the non-forest units are listed but no descriptions are given. The classification of Specht (1970) has been widely followed by vegetation mappers in Australia (Kirkpatrick and Dickinson 1986).

TABLE 2. NOMENCLATURE OF STRUCTURAL FORMATIONS USED IN THIS REPORT. FROM NELDNER (1984), MODIFIED FROM SPECHT (1970).

Lifeform and height of characteristic stratum+	**Projective foliage cover (PFC) of characteristic stratum**			
	Dense (70-100)%	**Mid-dense (30-70)%**	**Sparse (10-30)%**	**Very sparse (<10)%**
Trees* > 30 m	tall closed-forest	tall open-forest	tall woodland	
Trees* 10-30 m	closed-forest	open-forest	woodland	open-woodland
Trees* < 10 m	low closed-forest	low open-forest	low woodland	low open-woodland
Shrubs# 2-8 m	closed-scrub	open-scrub open-heath	tall shrubland	tall open-shrubland open-shrubland
Shrubs# 1-2 m	closed-heath	dwarf open-heath	shrubland	dwarf open-shrubland
Shrubs# < 1 m		tussock	dwarf shrubland	sparse-tussock grassland
Tussock grasses	closed-tussock grassland	grassland herbland°	open-tussock grassland	sparse-herbland°

Lifeform and height of characteristic stratum+	Projective foliage cover (PFC) of characteristic stratum			
	Dense (70-100)%	**Mid-dense (30-70)%**	**Sparse (10-30)%**	**Very sparse (<10)%**
Herbs	closed-herbland°		open-herbland°	
		forbland		sparse-forbland
Forbs	closed-forbland	sedgeland	open-forbland	
Sedges	closed-sedgeland		open-sedgeland	

+ Characteristic stratum is the layer which contributes most to the biomass.
* Tree is a woody plant more than 5 m tall usually with a single stem.
# Shrub is a woody plant less than 8 m tall either multi-stemmed or branched close to ground level, infrequently with a single stem.
° Herbland refers to associations in which species composition and abundance is dependent on seasonal conditions, and at any one time grasses or forbs may predominate.

The structural classification of Walker and Hopkins (1990) used the same PFC categories as Specht (1970), however they are determined by measuring crown separation. Walker and Hopkins (1990) recognised a number of different life forms and used different height categories. The structural classification of rainforests of Webb (1978) has been used to differentiate some of the ecological diversity of these closed forests.

TABLE 3. ABBREVIATIONS FOR WEBB (1978) CLASSIFICATION (USED IN RAINFOREST DESCRIPTIONS)

Abbreviation	Full structural classification
AMVF	Araucarian Microphyll Vine Forest
ANVF	Araucarian Notophyll Vine Forest
CNVF	Complex Notophyll Vine forest
MMF	Microphyll Mossy Forest
MVF	Microphyll Vine Forest
MVT	Microphyll Vine Thicket
NVF	Notophyll Vine Forest
NVT	Notophyll Vine Thicket
SEVT	Semi-evergreen Vine Thicket

Current conservation reserves for the purpose of this document are defined as areas under the following tenures National Park (includes National Park Scientific), Conservation Park and Resources Reserves. The areas were calculated by intersecting the Department of Environment protected areas coverage with the remnant vegetation mapping coverage. Nature refuges and areas protected by Shire Councils have not been included.

The full legend for the vegetation map units is listed below with the most frequently used common names given for the dominant species followed by the scientific names in italics on the second line. The legend is organised firstly into broad landform/geology types which closely follow the land zones used for the regional ecosystems classification. The

broad landform/geology types are listed in Table 4. Within each type, the vegetation map units are arranged into structural classes of Specht (1970), with further differentiation of the closed-forest map units into the structural types of Webb (1978).

Since the production of the seamless legend, further ground truthing and data collection has occurred and on the basis of these additional data there have been some modifications to the legend. Some units have been amalgamated eg. G15 is now amalgamated with G1, while others have been moved into a different structural formation, eg. G30 moved from woodland to open-forest, or landform/geology group, eg. H7 moved from sandstone to alluvium (E). As some assessments used the original coding, it has been retained, with notes to specify any changes in the units.

TABLE 4. BROAD LANDFORM/GEOLOGY GROUPS IN SOUTH-EASTERN QUEENSLAND RFA AREA

NO.	DESCRIPTION	EQUIVALENT LAND ZONE
A	ESTUARINE	1
B	COASTAL DUNES, SWALES, BEACHES & HEADLANDS	2
C	WETLANDS	Mainly in 2
D	COASTAL SANDPLAINS	5
E	ALLUVIUM	3
F	LATERITIC DURICRUSTS - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN	7
G	BASALT - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN	8
H	SEDIMENTARY - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN	10
I	METAMORPHIC - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN	11
J	GRANITE, TRACHYTE, RHYOLITE - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN	12
K	SERPENTINITE - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN	Included in 11

Where a vegetation map unit occurs on a number of landform/geology groups, it is put into the group which contains the majority of the area, eg. H19 occurs most extensively on labile sandstones and siltstones, but also on acidic igneous rocks (group J) or metamorphic rocks (group I).

The areal extent of each vegetation map unit has been calculated separately for the South-eastern Queensland bioregion and Blackdown Tableland. Six vegetation units (H9, H10, H13, H43, H44 and H45) occur on Blackdown Tableland but do not occur in the South-eastern Queensland bioregion.

3.2 VEGETATION MAP UNITS FOR SOUTH-EASTERN QUEENSLAND

A ESTUARINE

OPEN FORESTS

A1. Mangrove communities
(*Avicennia marina, Aegiceras corniculatum, Bruguiera gymnorrhiza, Rhizophora stylosa, Excoecaria agallocha* or *Ceriops tagal*)

WOODLANDS

A2. Swamp she-oak woodland adjoining mangroves/saltmarshes
(*Casuarina glauca*)

NON-FOREST COMMUNITIES

A3. Saltmarsh and fringing communities
(a. *Sporobolus virginicus*)
(b. *Schoenoplectus validus*)
(c. *Schoenoplectus litoralis*)
(d. *Halosarcia* spp.)
(e. *Eleocharis spiralis*)
(f. *Bothriochloa decipiens*)
(g. *Baumea* spp.)
(h. Saltflats)

B COASTAL DUNES, SWALES, BEACHES & HEADLANDS

CLOSED FORESTS

B1. Open- to closed-scrub of acacia, beach acronychia, tuckeroo, coast banksia
(*Acacia* spp., *Acronychia imperforata, Cupaniopsis anacardioides, Banksia integrifolia*)

B2. Notophyll vine forests and notophyll feather palm vine forests, sometimes with kauri pine and hoop pine emergents
(NVF sometimes with *Araucaria cunninghamii, Agathis robusta*, areas of *Archontophoenix cunninghamiana*)

B3. Notophyll vine forest with brush box and satinay emergents
(NVF with *Lophostemon confertus, Syncarpia hillii*)

B4. Araucarian microphyll vine forest or thicket of carrol with hoop pine and kauri pine emergents
(AMVF/T of *Backhousia myrtifolia* with *Araucaria cunninghamii, Agathis robusta*)

B5. Coastal ("littoral") notophyll/microphyll vine forest or thicket
(N/MVF/T - coastal scrubs)

B6. Notophyll and araucarian notophyll vine forest of tuckeroo, ebony, yellow tulip, Burdekin plum, brown pine, generally with emergent cudgerie
((A)NVF of *Cupaniopsis anacardioides, Diospyros* spp., *Drypetes deplanchei, Pleiogynium timorense, Podocarpus elatus* with *Flindersia schottiana*)

OPEN FORESTS

B7. Paperbark/blue gum/pink bloodwood/Moreton Bay ash forest on old dune systems
(*Melaleuca dealbata, Eucalyptus tereticornis, Corymbia intermedia* with *Corymbia tessellaris*)

B8. Blackbutt forest on sand dunes
(*Eucalyptus pilularis*)

B9. Scribbly gum/pink bloodwood forest on sand dunes
(*Eucalyptus racemosa* with *Corymbia intermedia*)

B10. Pink bloodwood/brush box forest on sand dunes
(*Corymbia intermedia* and *Lophostemon confertus*)

WOODLANDS

B11. Acacia/quinine/tea tree low woodland on sand dunes
(*Acacia* spp., *Petalostigma pubescens* or *Leptospermum neglectum*)

B12. Wallum banksia woodland with eucalypts
(*Banksia aemula,* with *Eucalyptus racemosa, Corymbia gummifera* and/or *E. planchoniana*)

B13. This unit has been amalgamated with D11.

B14. Beach she-oak/banksia/screw pine/beach spinifex communities
(a. *Casuarina equisetifolia,* with *Banksia integrifolia, Pandanus tectorius, Spinifex sericeus*)
(b. *Callitris columellaris* with *Casuarina equisetifolia*)
(c. *Banksia integrifolia* with *Acacia* spp. and *Casuarina equisetifolia*)
(d. *Pandanus tectorius, Casuarina equisetifolia*)

B15. This unit has been amalgamated with B14.

B16. This unit has been deleted as it occurs in Brigalow Belt rather than South-eastern Queensland Biogeographical Region.
(*Melaleuca leucadendra* woodland)

NON-FOREST COMMUNITIES

B17. Acacia/Banks' grevillea shrublands on headlands
(a. *Acacia julifera*)
(b. *Grevillea banksii*)
(c. *Melaleuca nervosa*)

B18. This unit has been amalgamated with B14.

B19. This unit has been amalgamated with B14.

B20. Kangaroo grass grasslands on headlands
(*Themeda triandra*)

B21. Sand blows

C WETLANDS

OPEN-FORESTS

C1. Swamp she-oak open-forest in swamps
(*Casuarina glauca,* often with *Melaleuca quinquenervia, Eucalyptus tereticornis*)

C2. Paperbark swamp, usually in pure stands
(*Melaleuca quinquenervia*)

WOODLANDS

C3. Paperbark swamp, with swamp mahogany
(*Melaleuca quinquenervia* and *Eucalyptus robusta*)

C4. Paperbark swamp, with blue gum and swamp box
(*Melaleuca quinquenervia, Eucalyptus tereticornis* and *Lophostemon suaveolens*)

C5. This unit is now listed under Open-scrubs (Non-forest Communities).

NON-FOREST COMMUNITIES

C5. Scale-leaved paperbark with emergent eucalypts
(*Melaleuca tamariscina* subsp. *irbyana* with *Eucalyptus crebra, E. tereticornis* or *E. moluccana*)

C6. Swamp banksia/pricklyleaf paperbark heathlands, sometimes with patches of sedgeland
(a. *Banksia robur*)
(b. *Melaleuca nodosa*)
(c. *Schoenus brevifolius*)

C7. Wet heath
(*Leptospermum* spp., *Epacris* spp., *Empodisma minus, Sprengelia sprengelioides*)

C8. Twigrush/spikerush sedgelands
(a. *Lepironia articulata*)
(b. *Eleocharis equisetina*)
(c. *Gahnia sieberiana*)

C9. Sawsedge/coral fern communities
(*Gahnia sieberiana, Gleichenia microphylla, Lepironia articulata*)

C10. Natural freshwater bodies

D COASTAL SANDPLAINS

OPEN-FORESTS

D1. Black she-oak/dune cypress/swamp box mixed open-forest
(a. *Allocasuarina littoralis* with whipstick *Lophostemon confertus*)
(b. *Corymbia intermedia, Eucalyptus umbra, Allocasuarina littoralis, Callitris columellaris*)
(c. *Lophostemon suaveolens, Allocasuarina littoralis, Banksia integrifolia*)

D2. White mahogany/pink bloodwood open-forest on coastal lowlands
(*Eucalyptus acmenoides* and *Corymbia intermedia*)

D3. Swamp mahogany/red mahogany/turpentine open-forest on coastal sands (*Eucalyptus robusta, E. resinifera, Syncarpia glomulifera, Corymbia intermedia, Lophostemon confertus* and *Melaleuca quinquenervia*)
D4. Turpentine/bloodwood open-forest on coastal sands (*Syncarpia glomulifera, Corymbia trachyphloia* and/or *C. intermedia*)

WOODLANDS
D5. This unit has been amalgamated with D8.
D6. Goodwood gum/bloodwood woodland (*Eucalyptus hallii, Corymbia trachyphloia* and/or *C. intermedia*)
D7. Scribbly gum/pink bloodwood woodland, with turpentine, on coastal sands (*Eucalyptus racemosa* and *Corymbia intermedia,* with *Syncarpia glomulifera*)
D8. Scribbly gum/pink bloodwood/smooth-barked apple woodland on coastal lowlands
(a. *Eucalyptus racemosa, Corymbia intermedia, Angophora leiocarpa* with grassy ground layer)
(b. *Eucalyptus racemosa, Corymbia intermedia, Angophora leiocarpa* with heathy ground layer)
D9. Broad-leaved white mahogany/bloodwood/smooth-barked apple woodland on coastal lowlands
(a. *Eucalyptus umbra, Corymbia trachyphloia* and/or *C. intermedia, Angophora leiocarpa* with grassy understorey)
(b. *Eucalyptus umbra, Corymbia trachyphloia* and/or *C. intermedia, Angophora leiocarpa* with heathy understorey)
D11. Wallum banksia low woodland with dense heathy understorey (*Banksia aemula*)

OPEN-WOODLANDS
D10. Broad-leaved paperbark/Queensland peppermint open-woodland (*Melaleuca viridiflora* and *Eucalyptus exserta*)

NON-FOREST COMMUNITIES
D11. This unit is now listed under Woodlands.
D12. Dry heath

E ALLUVIUM

CLOSED-FORESTS
E1. Complex notophyll and araucarian notophyll vine forests of white booyong, giant water gum, silky oak, with black bean/weeping lilly pilly locally dominant. Emergent figs and hoop pine.
(A/CNVF of *Argyrodendron trifoliolatum, Syzygium francisii, Grevillea robusta* with *Castanospermum australe, Waterhousea floribunda* ± *Ficus* spp., *Araucaria cunninghamii*)
E2. This unit has been amalgamated with I7.
E3. Fringing (araucarian) microphyll/notophyll vine forest with emergent hoop pine and/or kauri pine
((A)M/NVF with *Araucaria cunninghamii, Agathis robusta*)

E4. Fringing (araucarian) notophyll/microphyll vine forest of white booyong, rough-leaved elm, figs, stinging trees, red cedar, white cedar.
((A)N/MVF of *Argyrodendron trifoliolatum, Aphananthe philippinensis, Ficus* spp., *Dendrocnide* spp., *Toona ciliata, Melia azedarach*)

E5. Fringing notophyll/microphyll vine forests of rough-leaved elm, red kamala, hickory wattle, with weeping lilly-pilly/black bean locally dominant. Emergent trees of blue gum and swamp box.
(N/MVF of *Aphananthe philippinensis, Mallotus philippensis, Acacia aulacocarpa* with *Waterhousea floribunda, Castanospermum australe* and *Eucalyptus tereticornis, Lophostemon suaveolens*)

WOODLANDS

E6. Gum-topped box/yellow box/fuzzy box woodlands on Main Range
(*Eucalyptus moluccana,* with *E. melliodora* and/or *E. conica*)

E7. Gum-topped box communities
(*Eucalyptus moluccana*)

E8. Poplar box communities
(*Eucalyptus populnea*)

E9. Blue gum flats, often with grey ironbark, in near-coastal areas
(*Eucalyptus tereticornis* and *E. siderophloia*)

E10. Blue gum flats, without grey ironbark, away from the coast
(*Eucalyptus tereticornis*)

E11. River oak/blue gum on creeks and rivers
(*Casuarina cunninghamiana* and/or *Eucalyptus tereticornis*)

E12. River oak/paperbark/blue gum on northern creeks and rivers
(*Casuarina cunninghamiana, Melaleuca fluviatilis* with *Eucalyptus tereticornis*)

E13. Pink bloodwood/turpentine woodland on colluvium
(*Corymbia intermedia* and *Syncarpia glomulifera*)

H7. Blue gum/swamp box/pink bloodwood woodland on sandy colluvium
(*Eucalyptus tereticornis, Lophostemon suaveolens, Corymbia intermedia, C. tessellaris*)

OPEN-WOODLANDS

E14. Poplar gum communities
(*Eucalyptus platyphylla*)

F LATERITIC DURICRUSTS - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN

WOODLANDS

F1. Brown bloodwood/narrow-leaved ironbark/budgeroo woodland on lateritic duricrust
(*Corymbia trachyphloia, Eucalyptus crebra, Lysicarpus angustifolius*)

G BASALT - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN

CLOSED-FORESTS

G1. Complex notophyll vine forest ("warm subtropical rainforest") of booyong, rose marara
(CNVF of *Argyrodendron trifoliolatum, Pseudoweinmannia lachnocarpa*)

G2. Notophyll and complex notophyll vine forest ("cool subtropical rainforest") of black booyong, giant stinging tree, soft corkwood, prickly ash, pigeonberry ash
(CNVF/NVF of *Argyrodendron actinophyllum* subsp. *actinophyllum, Dendrocnide excelsa, Caldcluvia paniculosa, Orites excelsa, Cryptocarya erythroxylon*)
(a. McPherson Range)
(b. Main Range)

G3. Araucarian notophyll vine forest of white booyong, rose marara, giant stinging tree, lignum-vitae, crows ash, with emergent hoop pine
(ANVF of *Argyrodendron trifoliolatum, Pseudoweinmannia lachnocarpa, Dendrocnide excelsa, Premna lignum-vitae, Flindersia australis* with *Araucaria cunninghamii*)

G4. Microphyll fern forest/thicket of Antarctic beech and/or coachwood ("cool temperate rainforest")
(MFF/T of *Nothofagus moorei* and/or *Ceratopetalum apetalum*)
(a. Crest of McPherson Range)
(b. Elevated, sheltered valleys of Lamington Plateau)

G5. Microphyll fern forest of lilly pilly, black wattle
(MFF of *Acmena smithii, Acacia melanoxylon*)

G6. This unit has been amalgamated with G7.

G7. Semi-evergreen vine thicket ("softwood scrub") of rosewood, scaly ebony, small-leaved coondoo, tingletongue, brush poison tree, small-fruited mock olive, with emergent narrow-leaved bottle tree
(SEVT of *Acacia fasciculifera, Diospyros geminata, Pouteria cotinifolia, Melicope erythrococca, Excoecaria dallachyana, Notelaea microcarpa* with *Brachychiton rupestris*)

G8. Closed-forest of crows ash, burdekin plum, celerywood and wattles, with emergents of spotted gum, narrow-leaved ironbark and hoop pine.
(*Flindersia australis, Pleiogynium timorense, Polyscias elegans* and *Acacia* spp., with emergent *Corymbia citriodora, Eucalyptus crebra* and *Araucaria cunninghamii*)

G9. Araucarian microphyll/notophyll vine forest of small-leaved tuckeroo, crow's ash, lignum-vitae, crow's apple, brush poison tree, broad-leaved brush wilga, small-leaved coondoo, white tamarind, with emergent hoop and bunya pine
(AM/NVF of *Cupaniopsis parvifolia, Flindersia australis, Premna lignum-vitae, Owenia venosa, Excoecaria dallachyana, Geijera salicifolia* var. *latifolia, Pouteria cotinifolia, Elattostachys xylocarpa* with *Araucaria cunninghamii* and *A. bidwillii*)

G10. Araucarian notophyll and notophyll/microphyll vine forests of booyong, rose marara and/or giant ironwood and/or hauer. Emergents of hoop and bunya pine.
(ANVF and AN/MVF of *Argyrodendron trifoliolatum, Pseudoweinmannia lachnocarpa* and/or *Choricarpia subargentea* and/or *Dissiliaria baloghioides* with *Araucaria cunninghamii* and *A. bidwillii*)

G11. Araucarian notophyll and complex notophyll vine forests of booyong, blush coondoo, white yiel-yiel, yellow tulip, native olive, lignum-vitae, shiny-leaved stinging tree. Emergent figs and/or hoop pine.
(A/CNVF of *Argyrodendron* spp., *Planchonella queenslandica, Grevillea hilliana, Drypetes deplanchei, Olea paniculata, Premna lignum-vitae, Dendrocnide photinophylla* with *Ficus* spp. and/or *Araucaria cunninghamii*)

G12. This unit has been amalgamated with H47.

G13. Araucarian microphyll vine forest of rough-leaved elm, yellow tulip, shiny-leaved stinging tree, python tree, with emergent hoop pine
(AMVF of *Aphananthe philippinensis, Drypetes deplanchei, Dendrocnide photinophylla, Austromyrtus bidwillii* with *Araucaria cunninghamii*)

G14. This unit has been amalgamated with H5.

G15. This unit has been amalgamated with G1.

G16. Araucarian notophyll vine forest of white booyong, giant stinging-tree, white quandong, churnwood, laurels, with emergent bunya pine
(ANVF of *Argyrodendron trifoliatum, Dendrocnide excelsa, Elaeocarpus eumundii, Citronella moorei, Cryptocarya* spp., with *Araucaria bidwillii*)

G17. Araucarian notophyll/microphyll vine forest of white booyong, white tamarind, native olive, giant stinging tree, ivorywood, with emergent hoop and bunya pine
(AN/MVF of *Argyrodendron trifoliolatum, Elattostachys xylocarpa, Olea paniculata, Dendrocnide excelsa, Siphonodon australis,* with *Araucaria cunninghamii* and *A. bidwillii*)

G18. Araucarian microphyll vine forest of native olive, white tamarind, small-leaved tuckeroo, deep yellowwood, lignum-vitae, stinging trees, with emergent hoop and bunya pine
(AMVF of *Olea paniculata, Elattostachys xylocarpa, Cupaniopsis parvifolia, Rhodosphaera rhodanthema, Premna lignum-vitae, Dendrocnide* spp. with *Araucaria cunninghamii* and *A. bidwillii*)

G25. Notophyll vineforest with Sydney blue gum emergents
(NVF with *Eucalyptus saligna*)

OPEN-FORESTS

G19. New England blackbutt open-forest
(*Eucalyptus campanulata*)

G20. Gympie messmate/spotted gum open-forest on lateritized basalt
(*Eucalyptus cloeziana* and *Corymbia citriodora*)

G21. Dunn's white gum tall open-forest
(*Eucalyptus dunnii*)

G22. Flooded gum/tallowwood/brush box tall open-forest
(*Eucalyptus grandis,* frequently with *E. microcorys, Lophostemon confertus*)

G23. Blackbutt/tallowwood/grey ironbark on basaltic soils
(*Eucalyptus pilularis* with *E. microcorys, E. siderophloia*)
G24. Sydney blue gum communities with grassy understorey
(*Eucalyptus saligna* with grassy understorey)
G25. This unit has been moved to the Closed-forests section.
G26. Blue gum/yellow box/grey gum open-forest
(*Eucalyptus tereticornis* and *E. melliodora* with *E. biturbinata* or *E. longirostrata*)
G27. Brush box open-forest, on or near Main Range
(*Lophostemon confertus*)
G28. This unit is now listed under Section I - "Metamorphics".
G29. This unit is now listed under Woodlands.
G30. Silvertop stringybark open-forest
(*Eucalyptus laevopinea*)
G35. Blackbutt/Queensland ash/tallowwood tall open-forest
(*Eucalyptus pilularis, E. montivaga, E. microcorys*)

WOODLANDS

G29. Brown bloodwood/grey gum woodland on red soil plateaux
(*Corymbia trachyphloia, Eucalyptus longirostrata*)
G30. This unit has been moved to the Open-forests section.
G31. Narrow-leaved ironbark/yellow box woodland, with white box
(*Eucalyptus crebra, E. melliodora* and *E. albens*)
G32. Narrow-leaved ironbark/silver-leaved ironbark/yellow box woodland, without white box
(*Eucalyptus crebra, E. melanophloia* with *E. melliodora*)
G33. Yarraman ironbark woodland on basaltic soils
(*Eucalyptus melanoleuca*)
G34. Gum-topped box communities on ridges
(*Eucalyptus moluccana*)
G35. This unit has been moved to the Open-forests section.
G36. Manna gum woodland
(*Eucalyptus nobilis*)
G37. This unit has been deleted as it occurs in Brigalow Belt rather than South-eastern Queensland Biogeographical Region.
(*Eucalyptus orgadophila*)
G38. Blue gum/pink bloodwood/white mahogany woodland on clayey ridges at high altitude
(*Eucalyptus tereticornis, Corymbia intermedia* with *E. acmenoides*)
G39. Blue gum/pink bloodwood woodland on red kraznozem soil
(*Eucalyptus tereticornis, Corymbia intermedia*)
G43. Blue gum/tallowwood/brush box woodland on clayey ridges at high altitude
(*Eucalyptus tereticornis, E. microcorys, Lophostemon confertus*)
H6. Narrow-leaved ironbark, scrub cypress pine woodland
(*Eucalyptus crebra, Callitris baileyi*)

OPEN-WOODLANDS

G40. This unit has been amalgamated with I11.

G41. Narrow-leaved ironbark/red-barked bloodwood/silver-leaved ironbark open-woodland
(*Eucalyptus crebra, Corymbia erythrophloia* with *E. melanophloia*)

NON-FOREST COMMUNITIES

G42. Tussock grass grasslands
(*Poa labillardieri*)

G43. This unit has been moved to the Woodlands section.

H SEDIMENTARY - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN

CLOSED-FORESTS

H1. Semi-evergreen vine thicket communities (softwood scrub) of rosewood, brush poison tree, brush wilga, leopard ash, brush whitewood, small-fruited mock olive, small-leaved coondoo, with frequent emergent narrow-leaved bottle tree and occasional brigalow and belah
(SEVT of *Acacia fasciculifera, Excoecaria dallachyana, Geijera* spp., *Flindersia collina, Atalaya salicifolia, Notelaea microcarpa, Pouteria cotinifolia* with *Brachychiton rupestris, Acacia harpophylla* and *Casuarina cristata*)

H2. This unit has been deleted as it occurs in Brigalow Belt rather than South-eastern Queensland Biogeographical Region.
(Yarrol Road, SE of Monto - on limestone)

H3. This unit has been amalgamated with I3.

H4. Semi-evergreen vine thicket to microphyll vine forest of rosewood, brush poison tree, silver croton, small-leaved coondoo, strychnine, brush caper berry, python tree, with emergent bottle trees
(SEVT to MVF of *Acacia fasciculifera, Excoecaria dallachyana, Croton insularis, Pouteria cotinifolia, Strychnos psilosperma, Capparis arborea, Austromyrtus bidwillii* with *Brachychiton* spp.)

H5. Microphyll vine forest of small-leaved tuckeroo, yellow tulip, python tree, silver croton, brush caper berry
(MVF of *Cupaniopsis parvifolia, Drypetes deplanchei, Austromyrtus bidwillii, Croton insularis, Capparis arborea*)

H47. Open-forest to woodland of brigalow and wilga, with emergent belah and bottle trees
(*Acacia harpophylla* and *Geijera parviflora,* with *Casuarina cristata* and *Brachychiton* spp.)

OPEN-FORESTS

H6. This unit has been moved to Section G - "Basalt".

H7. This unit has been moved to Section E - "Alluvium".

H8. This unit has been amalgamated with I12.

H9. Blackdown stringybark tall open-forest
(*Eucalyptus sphaerocarpa*)

H10. Yellowjacket/ironbark/Bailey's stringybark open-forest
(*Corymbia bunites* with *Eucalyptus melanoleuca* (or *E. suffulgens*), *E. baileyana*)

H11. Blackbutt communities on coastal sandstone
(*Eucalyptus pilularis*)

H12. Blackbutt/brown bloodwood/tallowwood open-forest on the Helidon Hills
(*Eucalyptus pilularis,* with *Corymbia trachyphloia, E. microcorys*)

H13. Stringybark/Sydney blue gum/pink bloodwood tall open-forest
(*Eucalyptus mensalis* with *E. saligna, Corymbia intermedia*)

H14. Queensland white stringybark/pink bloodwood/grey ironbark open-forest
(*Eucalyptus tindaliae, Corymbia intermedia, E. siderophloia*)

H15. Some areas previously mapped as H15 are referrable to I12, while other areas comprise narrow gullies of *Lophostemon confertus* which are unmappable at 1:100 000 scale. Hence this unit has been deleted.
(*Lophostemon confertus*)

H44. Lancewood open-forest
(*Acacia shirleyi*)

WOODLANDS

H16. Smooth-barked apple/spotted gum woodland
(*Angophora leiocarpa* with *Corymbia citriodora*)

H17. Smudgee/broad-leaved white mahogany low woodland
(*Angophora woodsiana, Eucalyptus umbra*)

H18. This unit has been amalgamated with H21.

H19. Spotted gum/narrow-leaved ironbark woodland
(*Corymbia citriodora* and *Eucalyptus crebra*)

H20. Spotted gum/white mahogany/brown bloodwood woodland on the Helidon Hills
(*Corymbia citriodora, Eucalyptus acmenoides, C. trachyphloia*)

H21. Grey gum/broad-leaved white mahogany/grey ironbark woodland
(*Eucalyptus major, E. carnea, E. siderophloia*)

H22. Pink bloodwood/swamp box woodland
(*Corymbia intermedia* often with *Lophostemon suaveolens*)

H23. Narrow-leaved ironbark/brown bloodwood woodland
(*Eucalyptus crebra* and *Corymbia trachyphloia*)

H24. White mahogany/brown bloodwood/smooth-barked apple woodland on coastal foothills
(*Eucalyptus acmenoides* and *Corymbia trachyphloia,* with *Angophora leiocarpa*)

H25. White mahogany/brown bloodwood/smudgee woodland on the Helidon Hills
(*Eucalyptus acmenoides, Corymbia trachyphloia* with *Angophora woodsiana*)

H26. White mahogany/thin-leaved stringybark woodland
(*Eucalyptus acmenoides* and *E. eugenioides*)

H27. Narrow-leaved ironbark/smooth-barked apple woodland on sandy hills
(*Eucalyptus crebra* and *Angophora leiocarpa*)

H28. Gum-topped ironbark woodland
(*Eucalyptus decorticans*)
H29. Broad-leaved ironbark woodland
(*Eucalyptus fibrosa* subsp. *fibrosa*)
H30. Broad-leaved ironbark/mugga ironbark woodland
(*Eucalyptus fibrosa* subsp. *fibrosa,* with *E. sideroxylon*)
H31. This unit has been amalgamated with J12.
H32. Yarraman ironbark woodland on sandstones
(*Eucalyptus melanoleuca* or *E. suffulgens*)
H33. This unit has been amalgamated with H9.
H34. Scribbly gum/pink bloodwood woodland on sandstone hillslopes
(*Eucalyptus racemosa* and *Corymbia intermedia*)
H35. Binjour ironbark woodland
(*Eucalyptus rhombica*)
H36. Narrow-leaved red gum/pink bloodwood woodland
(*Eucalyptus seeana* and *Corymbia intermedia*)
H37. Ironbark/white mahogany woodland on sandstones
(*Eucalyptus suffulgens* and *E. acmenoides*)
H38. This unit has been amalgamated with E9.
H39. Nerang-Beenleigh alliance
(a. *Eucalyptus carnea, E. tindaliae*)
(b. *Eucalyptus acmenoides*)
(c. *Eucalyptus microcorys, E. propinqua, Lophostemon confertus*)
(d. *Corymbia gummifera*)
(e. *Corymbia citriodora, Eucalyptus carnea, E. tindaliae, E. propinqua, C. henryi, E. crebra*)
(f. *Eucalyptus pilularis, E. racemosa, Corymbia intermedia, E. carnea, E. microcorys, E. tindaliae*)
(g. *Eucalyptus pilularis, E. tindaliae, Corymbia gummifera, E. microcorys, E. resinifera*)
(h. *Eucalyptus planchoniana,* often with *E. baileyana*)
(i. *Eucalyptus moluccana,* sometimes with *Corymbia citriodora, E. crebra, E. tereticornis, C. intermedia, C. tessellaris*)
(j. *Eucalyptus seeana,* sometimes with *E. racemosa*)
(k. *Eucalyptus fibrosa, Corymbia citriodora, C. henryi* [with *Angophora leiocarpa*])
H43. Brigalow/Moreton Bay ash woodland
(*Acacia harpophylla, Corymbia tessellaris*)
H45. Narrow-leaved ironbark/Clarkson's bloodwood woodland
(*Eucalyptus crebra, Corymbia clarksoniana*)
H46. White mahogany/red bloodwood/Queensland ash woodland
(*Eucalyptus acmenoides, Corymbia gummifera, E. montivaga*)

OPEN-WOODLANDS

H40. Cracow ironbark open-woodland
(*Eucalyptus corynodes*)

NON-FOREST COMMUNITIES

H41. Smooth-barked apple/Queensland peppermint/cypress pine on rocky sandstone ridge tops
(*Angophora leiocarpa, Eucalyptus exserta, Callitris* sp. [St Mary P.I.Forster+ PIF19106])

H42. This unit has now been merged into adjacent polygons, as it was considered too small to be mappable at this scale.
(Cliffs, other outcrops)

H43. This unit has been moved to the Woodlands section.

H44. This unit has been moved to the Open-forests section.

H45. This unit has been moved to the Woodlands section.

H46. This unit has been moved to the Woodlands section.

I METAMORPHIC - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN

CLOSED-FORESTS

I1. Araucarian notophyll/microphyll vine forest of booyong, crow's ash, lignum-vitae, large-leaved canthium, shiny-leaved stinging tree, yellow tulip, small-leaved tuckeroo, with emergent hoop pine
(AN/MVF of *Argyrodendron* spp., *Flindersia australis, Premna lignum-vitae,* with *Araucaria cunninghamii*)

I2. This unit has been amalgamated with I6.

I3. Semi-evergreen vine thicket to (minor) araucarian microphyll vine thicket communities of *Backhousia kingii*, also axe-breaker, prickly pine, brush poison tree, small-leaved coondoo, with emergent narrow-leaved bottle tree, southern siris, hoop pine
(SEVT to AMVF of *Backhousia kingii, Geijera paniculata, Bursaria incana, Excoecaria dallachyana, Pouteria cotinifolia* with *Brachychiton rupestris, Archidendropsis thozetiana, Araucaria cunninghamii*)

I4. Araucarian microphyll vine forest or thicket with emergent hoop pine
(AMVF/T with *Araucaria cunninghamii*)

I5. Microphyll/notophyll vine forest or thicket of yellow tulip, scaly ebony, white tamarind, red kamala, peanut tree, python tree, ribbonwood, Burdekin plum
(M/NVF/T of *Drypetes deplanchei, Diospyros geminata, Elattostachys xylocarpa, Mallotus philippensis, Sterculia quadrifida, Austromyrtus bidwillii, Euroschinus falcata, Pleiogynium timorense*)

I6. Araucarian microphyll/notophyll vine forest to thicket of brush caper berry, yellow tulip, python tree, peanut tree, three-veined laurel, shiny-leaved stinging tree, with emergent hoop pine
(AM/NVF/T of *Capparis arborea, Drypetes deplanchei, Austromyrtus bidwillii, Sterculia quadrifida, Cryptocarya triplinervis, Dendrocnide photinophylla,* with *Araucaria cunninghamii*)

I7. Notophyll vine forest or notophyll feather palm vine forest ("gully rainforest") of mango bark, yellow carabeen, soft corkwood, rose marara, crabapple, booyong, domatia tree, with emergents of figs, brush box, eucalypts, hoop and bunya pine, often with an understorey of piccabeen palms
(NVF or NFPVF of *Canarium australasicum, Sloanea woollsii, Caldcluvia paniculosa, Pseudoweinmannia lachnocarpa, Schizomeria ovata, Argyrodendron* spp., *Endiandra discolor* with *Ficus* spp., *Lophostemon confertus, Eucalyptus* spp., *Araucaria cunninghamii* and *A. bidwillii,* and *Archontophoenix cunninghamiana*)

OPEN-FORESTS

I8. Gympie messmate/pink bloodwood/small-fruited grey gum open-forest
(*Eucalyptus cloeziana* with *Corymbia intermedia, E. propinqua*)

I9. Unit I9 no longer exists in the seamless coverage: around Dayboro I9 has been changed to E9 on seamless coverage; while areas around Mt Mee on basalt have been included with G43.
(*Eucalyptus tereticornis, E. microcorys, Lophostemon confertus* and scrub)

I12. Small-fruited grey gum/grey ironbark open-forest
(*Eucalyptus propinqua* and *E. siderophloia*)

WOODLANDS

I10. White mahogany/brown bloodwood/narrow-leaved ironbark woodland at Bania State Forest
(*Eucalyptus acmenoides, Corymbia trachyphloia* with *E. crebra*)

I11. Narrow-leaved ironbark/silver-leaved ironbark woodland
(*Eucalyptus crebra* with *E. melanophloia*)

I12. This unit has been moved to the Open-forests section

I13. Narrow-leaved ironbark/blue gum woodland on lower hillslopes
(*Eucalyptus crebra* and *E. tereticornis*)

G28. Rosewood communities
(*Acacia rhodoxylon*)

J GRANITE, TRACHYTE, RHYOLITE - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN

CLOSED-FORESTS

J1. Notophyll and notophyll feather palm vine forests ("gully rainforests") of soft corkwood, yellow carabeen, mango bark, corduroy tamarind, laurels, with emergent eucalypts and brush box, sometimes with an understorey of piccabeen palms
(NVF and NFPVF of *Caldcluvia paniculosa, Sloanea woollsii, Canarium australasicum, Mischarytera lautereriana, Cryptocarya* spp., with *Eucalyptus* spp., *Lophostemon confertus* and *Archontophoenix cunninghamiana*)

J2. Araucarian notophyll/microphyll or araucarian microphyll vine forest of southern siris, booyong, brush caper berry, yellow tulip, shiny-leaved stinging tree, lacebark tree, with emergent hoop pine
(AN/MVF or AMVF of *Archidendropsis thozetiana, Argyrodendron* spp., *Capparis arborea, Drypetes deplanchei, Dendrocnide photinophylla, Brachychiton discolor* with *Araucaria cunninghamii*)

OPEN-FORESTS

J3. This unit has been moved to the Woodlands section

J4. White mahogany/turpentine/bloodwood open-forest on high altitude ranges
(*Eucalyptus acmenoides* and *Syncarpia glomulifera* with *Corymbia trachyphloia* and/or *C. intermedia*)

J5. Blue Mountains ash open-forest
(*Eucalyptus oreades*)

WOODLANDS

J3. White cypress pine/narrow-leaved ironbark/silver-leaved ironbark woodland
(*Callitris glaucophylla* and *Eucalyptus crebra* with *E. melanophloia*)

J6. Scribbly gum/red bloodwood/Queensland white stringybark woodland on rhyolite ranges
(*Eucalyptus racemosa, Corymbia gummifera* and *E. tindaliae*)

J7. Pink bloodwood/Queensland peppermint woodland
(*Corymbia intermedia* with *Eucalyptus exserta*)

J8. This unit has been moved to the Open-woodlands section.

J9. Large-fruited yellowjacket woodland
(*Corymbia watsoniana*)

J10. After further examination it was decided that Ipswich and Caboolture units fitted better into H21, while all the remaining units have been reassigned to H24.
(*Eucalyptus acmenoides, Corymbia intermedia*)

J11. White mahogany/pink bloodwood woodland on hilly terrain at high altitude
(*Eucalyptus acmenoides, Corymbia intermedia*)

J12. White mahogany/brown bloodwood/smooth-barked apple woodland at moderate altitude away from the coast
(*Eucalyptus acmenoides, Corymbia trachyphloia* with *Angophora leiocarpa*)

J13. White mahogany/spotted gum/brown bloodwood woodland on granite ranges
(*Eucalyptus acmenoides, Corymbia citriodora, C. trachyphloia*)

J14. White mahogany/narrow-leaved ironbark/thin-leaved stringybark woodland
(*Eucalyptus acmenoides, E. crebra, E. eugenioides*)

J15. Castletower ironbark/white mahogany/brown bloodwood communities
(*Eucalyptus decolor, E. acmenoides, Corymbia trachyphloia*)

J16. Gum-topped ironbark communities
(*Eucalyptus dura*)

J17. Thin-leaved stringybark/grey gum/narrow-leaved ironbark woodland on coarse sands
(*Eucalyptus eugenioides, E. biturbinata/longirostrata, E. crebra*)

J18. This unit has been moved to the Shrublands section (Non-forest Communities)

J19. Queensland ash woodland
(*Eucalyptus montivaga*)
J20. Narrow-leaved ironbark/blue gum woodland with grass-tree understorey
(*Eucalyptus crebra, E. tereticornis* over *Xanthorrhoea glauca*)

OPEN-WOODLANDS

J21. Bulloak/dwarf paperbark open-woodland
(*Allocasuarina luehmannii* and *Melaleuca nervosa* f. *nervosa*)
J22. Broad-leaved white mahogany/brush box low open-woodland
(*Eucalyptus carnea* and *Lophostemon confertus*)
J23. Narrow-leaved ironbark open-woodland
(*Eucalyptus crebra*)
J24. Rough-barked apple/forest she-oak/blue gum open-woodland on high altitude escarpments
(*Angophora floribunda, Allocasuarina torulosa, Eucalyptus tereticornis*)
J8. Heathy open eucalypt woodland on rhyolite plugs on the Sunshine Coast
(*Corymbia trachyphloia, Eucalyptus carnea*)

NON-FOREST COMMUNITIES

J18. Queensland peppermint/threadybark/spinifex shrubland
(*Eucalyptus exserta* and *Allocasuarina inophloia* over *Triodia mitchellii*)
J24. After further investigation, the description of this unit has been altered somewhat and it has been moved to the Open-woodlands section.
J25. Heath myrtle/Queensland peppermint
(*Calytrix tetragona, Eucalyptus exserta*)
J26. Bell-fruited mallee/Blue Mountains mahogany
(*Eucalyptus codonocarpa* with *E. notabilis*)
J27. This unit has been amalgamated with J16.
J28. Tea-tree/Queensland peppermint/hoop pine
(*Leptospermum neglectum* ± *Eucalyptus exserta, Araucaria cunninghamii*)
J29. Tea-tree
(*Leptospermum neglectum*)
J30. Supplejack
(*Lophostemon* sp. aff. *confertus*)
J31. Triplarina
(*Triplarina volcanica*)

K SERPENTINITE - GENTLY UNDULATING TO MOUNTAINOUS TERRAIN

OPEN-WOODLANDS

K1. White mahogany/blue gum open-woodland with grass-tree understorey on serpentinite
(*Eucalyptus acmenoides, E. tereticornis* over *Xanthorrhoea johnsonii*)

3.3 DETAILED DESCRIPTIONS OF SOUTH-EASTERN QUEENSLAND BIOGEOGRAPHICAL REGION FOREST COMMUNITIES

A1. Mangrove communities
Tree Layer: Open-forest to low open-woodland of *Avicennia marina, Aegiceras corniculatum, Bruguiera gymnorhiza, Rhizophora stylosa, Excoecaria agallocha* or *Ceriops tagal.*
Shrub Layer: Often includes juvenile plants of the above species.
Ground Layer: Dense ground layer includes juvenile plants of the above species.
Ecological Notes: Occurs in tidal estuaries and river banks, on saline mud.
Area in current conservation reserves: 5750 ha (NP 3834 ha; CP 1738 ha; RR 178 ha)

A2. Swamp she-oak woodland adjoining mangroves/saltmarshes
Tree Layer: Woodland to open-forest of *Casuarina glauca.* Frequently occurring is *Melaleuca quinquenervia.*
Shrub Layer: Includes *Myoporum acuminatum.*
Ground Layer: Includes *Sporobolus virginicus, Cynodon dactylon, Fimbristylis ferruginea.*
Ecological Notes: Occurs adjacent to mangrove and saltmarsh communities, on saline soils inundated by very high tides.
Area in current conservation reserves: 118 ha (NP 54 ha; CP 64 ha)

A3. This unit is a Non-forest Community.

B1. Open- to closed-scrub of acacia, beach acronychia, tuckeroo, coast banksia
Tree Layer: Open- to closed-scrub of *Acacia aulacocarpa, A. concurrens, A. leiocalyx, Acronychia imperforata, Cupaniopsis anacardioides, Banksia integrifolia* subsp. *integrifolia,* also *Lophostemon confertus, Alphitonia excelsa, *Lantana camara* and *Alectryon coriaceus. Melaleuca quinquenervia, Livistona australis* and *Casuarina glauca* may occur in low-lying and/or brackish areas in dune swales.
Shrub Layer: *Canthium coprosmoides, Austromyrtus dulcis, Leucopogon pimeleoides, Monotoca* sp. (Fraser Island P.Baxter 777).
Ground Layer: Areas of *Pteridium esculentum, Imperata cylindrica.*
Ecological Notes: This unit occurs on Holocene beach ridges and swales along the coast between Noosa and the NSW border. In more sheltered landward situations, discrete areas of closed-forest ("littoral rainforest") were present prior to urban development, eg. near Surfers Paradise.
Area in Conservation Reserves: 112 ha (NP 101 ha; CP 11 ha)

B2. Notophyll vine forests and notophyll feather palm vine forests, sometimes with kauri pine and hoop pine emergents

Tree Layer: Closed-forest to tall closed-forest of *Syzygium luehmannii, Schizomeria ovata, Canarium australasicum, Planchonella queenslandica, Endiandra discolor, Cryptocarya macdonaldii, Euroschinus falcata, Beilschmiedia* spp., *Flindersia schottiana, F. bennettiana, Elaeocarpus eumundi, Litsea leefeana.* Emergents of *Agathis robusta, Araucaria cunninghamii* and in moist situations, *Elaeocarpus grandis*.

Subcanopy Layer: *Archontophoenix cunninghamiana, Syzygium johnsonii* (springs and permanent streams), *Mischarytera lautereriana, Mischocarpus* spp., *Guioa acutifolia, Sarcopteryx stipata, Rhodamnia acuminata, Synoum glandulosum.*

Shrub Layer: *Neolitsea dealbata, Eupomatia laurina, Tasmannia insipida, Cordyline rubra, Canthium coprosmoides, Wilkiea macrophylla.*

Ground Layer: *Blechnum cartilagineum, Calanthe triplicata.*

Lianas: *Cissus sterculiifolia, C. hypoglauca, Melodinus australis, Callerya megasperma, Piper novae-hollandiae, Ripogonum discolor, Melodorum leichhardtii, Dioscorea transversa, Hypserpa decumbens, Pandorea jasminoides, P. pandorana, Smilax australis, Geitonoplesium cymosum.*

Epiphytes: *Ophioglossum pendulum, Platycerium bifurcatum.*

Ecological Notes: This unit occurs on sheltered slopes and dune floors of Pleistocene parabolic dune systems of the Great Sandy Region.

Area in Conservation Reserves: 3819 ha (NP 3819 ha)

B3. Notophyll vine forest with brush box and satinay emergents
Tree Layer: Closed-forest of *Schizomeria ovata, Acmena hemilampra* (sometimes emergent), *Halfordia kendack, Flindersia bennettii, Cryptocarya glaucescens, C. macdonaldii, Endiandra discolor, E. sieberi, Euroschinus falcata*. Numerous emergents of *Lophostemon confertus* and *Syncarpia hillii.*
Subcanopy Layer: *Backhousia myrtifolia* (locally abundant in marginal and disturbed situations), *Archontophoenix cunninghamiana,* regenerating *Agathis robusta, Trochocarpa laurina, Sarcopteryx stipata, Syzygium oleosum, Mischocarpus australis, Notelaea longifolia.*
Shrub Layer: *Alyxia ruscifolia, Eupomatia laurina, Macrozamia douglasii, Neolitsea dealbata.*
Ground Layer: *Blechnum cartilagineum, Lomandra laxa, Calanthe triplicata.*
Lianas: *Callerya megasperma, Pandorea jasminoides, P. pandorana, Cissus hypoglauca, Flagellaria indica, Dioscorea transversa, Hypserpa decumbens, Smilax* spp., *Geitonoplesium cymosum.*
Epiphytes: *Dendrobium aemulum.*
Ecological Notes: This unit occupies similar, although somewhat drier, situations to those in which the previous unit (B2) occurs. Watertables are generally deeper and *Backhousia myrtifolia* may be locally abundant in marginal sites.
Area in Conservation Reserves: 9709 ha (NP 9709 ha)

B4. **Araucarian microphyll vine forest or thicket of carrol with hoop pine and kauri pine emergents**

Tree Layer: Closed-forest to low closed-forest of *Backhousia myrtifolia,* also *Halfordia kendack, Notelaea longifolia, Rapanea variabilis, Denhamia celastroides, Syzygium oleosum.* Emergents of *Araucaria cunninghamii,* also *Agathis robusta* and *Flindersia bennettiana.*

Shrub Layer: *Alyxia ruscifolia, Macrozamia douglasii.*

Ground Layer: *Dianella caerulea* var. *vannata, Nephrolepis cordifolia, Lomandra* spp., *Gymnostachys anceps, Schizaea dichotoma.*

Lianas: *Hoya australis, Callerya megasperma, Geitonoplesium cymosum, Marsdenia fraseri, Hibbertia scandens.*

Epiphytes: *Dendrobium bowmanii, D. tetragonum, Dockrillia linguiformis, Oberonia titania, Taeniophyllum muelleri, Bulbophyllum shepherdii.*

Ecological Notes: This unit occurs on some of the older and deeply weathered Pleistocene parabolic dune systems in the Great Sandy Region. Most stands are dominated by *Backhousia myrtifolia* and may intergrade with Unit B3 where emergent *Lophostemon confertus* or *Syncarpia hillii* become prominent.

Area in Conservation Reserves: 2419 ha (NP 2419 ha)

B5. Coastal ("littoral") notophyll/microphyll vine forest or thicket
Tree Layer: Low open- to closed-forest of *Cupaniopsis anacardioides, Drypetes deplanchei, Diospyros geminata, D. fasciculosa, Polyalthia nitidissima, Alectryon connatus, Pouteria sericea, P. myrsinoides, Arytera divaricata, Canthium* spp., *Acronychia imperforata, Mallotus discolor, Aidia racemosa, Dysoxylum fraserianum* (Deepwater), *Cryptocarya triplinervis, Cassine melanocarpa*. Emergents of *Pleiogynium timorense, Ficus platypoda, F. virens* and *Corymbia tessellaris.*
Shrub Layer: *Alyxia ruscifolia, *Lantana camara, Ixora queenslandica, Aglaia brassii, Fitzalania heteropetala, Carissa ovata, Psychotria loniceroides, Eugenia reinwardtiana* (Eurimbula).
Ground Layer: *Pseuderanthemum variabile, Cyperus enervis, *Rivina humilis, *Salvia coccinea.*
Lianas: *Jasminum* spp., *Trophis scandens, *Passiflora suberosa, Melodorum leichhardtii, Pleogyne australis, Cissus oblonga, Smilax australis, Secamone elliptica.*
Ecological Notes: This unit mainly occupies dune/swale situations towards the rear of low beach ridge systems and other coastal sandmasses northward from the Mary River.
Area in Conservation Reserves: 566 ha (NP 314 ha; RR 252 ha)

B6. Notophyll and araucarian notophyll vine forest of tuckeroo, ebony, yellow tulip, Burdekin plum, brown pine generally with emergent cudgerie
Tree Layer: Closed-forest of *Cupaniopsis anacardioides, Diospyros fasciculosa, D. pentamera, Drypetes deplanchei, Canthium* spp., *Polyalthia nitidissima, Dansiea elliptica* (Baffle Creek), *Pleiogynium timorense, Podocarpus elatus, Premna lignum-vitae, Aphananthe philippinensis.* Emergents of *Flindersia schottiana, Agathis robusta* (Dundowran/River Heads), *Araucaria cunninghamii, Ficus* spp..
Shrub Layer: *Alyxia ruscifolia, Ixora queenslandica* (Baffle Creek), **Lantana camara, Arytera divaricata, Cupaniopsis shirleyana* (Baffle Creek), *Psychotria loniceroides.*
Ground Layer: *Ancistrachne uncinulata, Harneria hygrophiloides, Microsorum punctatum, Pseuderanthemum variabile, Gymnostachys anceps.*
Lianas: *Embelia australiana, Hoya australis, Melodorum leichhardtii, *Passiflora suberosa, Pleogyne australis, Freycinetia scandens* (moist situations), **Solanum seaforthianum, Ripogonum brevifolium.*
Ecological Notes: This unit occurs between the Mary River and Baffle Creek on a complex of estuarine and alluvial sediments overlain with old beach ridge systems. They are more complex, both floristically and structurally, than the vine forests on beach ridges (i.e. Unit B5).
Area in Conservation Reserves: 0 ha

B7. Paperbark/blue gum/pink bloodwood/Moreton Bay ash forest on old dune systems

Tree Layer:

a) Woodland to open-forest of *Melaleuca dealbata, Eucalyptus tereticornis, Corymbia intermedia.* Frequently occurring are *Corymbia tessellaris, Livistona decipiens.*

b) Woodland to open-forest of *Corymbia tessellaris.* Frequently occurring are *Corymbia intermedia, Callitris columellaris, Eucalyptus tereticornis.*

Shrub Layer:

a) Includes *Acacia leptocarpa, Maclura cochinchinensis, A. flavescens.*

b) Dense understorey of *Glochidion lobocarpum, G. sumatranum, Acacia* spp., *Cupaniopsis anacardioides, Planchonia careya, Petalostigma pubescens, Elaeocarpus reticulatus.*

Ground Layer:

a) Includes *Imperata cylindrica, Sporobolus laxus, *Digitaria didactyla, *Passiflora suberosa.*

b) Includes *Zoysia macrantha, Eriachne pallescens, *Digitaria didactyla, *Passiflora suberosa.*

Ecological Notes: Occurs on old coastal parallel dune systems. Association a) occurs in the swales, while association b) occurs on the crests.

Area in current conservation reserves: 6970 ha (NP 5961 ha; CP 562 ha; RR 447 ha)

B8. Blackbutt forest on sand dunes
Tree Layer: Open-forest to closed-forest to woodland of *Eucalyptus pilularis.* Frequently occurring are *Lophostemon confertus, Corymbia intermedia, Syncarpia hillii, Eucalyptus racemosa, Angophora woodsiana, Angophora leiocarpa, E. resinifera, Corymbia gummifera, E. tindaliae.*
Shrub Layer: Includes *Allocasuarina torulosa, Allocasuarina littoralis, Acacia* spp., *Endiandra sieberi, Banksia integrifolia, Banksia serrata* and/or *Banksia aemula, Monotoca scoparia, Elaeocarpus reticulatus, Petalostigma triloculare, Cryptocarya glaucescens, Syzygium oleosum.*
Ground Layer: Includes *Pteridium esculentum, Themeda triandra, Imperata cylindrica, Austromyrtus dulcis.*
Ecological Notes: Occurs mainly on sheltered slopes of Holocene high dunes, but also on low coastal sandy ridges.
Area in current conservation reserves: 19110 ha (NP 19110 ha)

B9. Scribbly gum/pink bloodwood forest on sand dunes
Tree Layer: Open-forest of *Eucalyptus racemosa* with *Corymbia intermedia, Angophora leiocarpa, Lophostemon confertus, Callitris columellaris* and *Corymbia tessellaris.* Frequently occurring is *Eucalyptus pilularis.* Occasionally present are *Eucalyptus tereticornis, Lophostemon confertus, Syncarpia hillii, Callitris rhomboidea.*
Shrub Layer: Open to dense shrub layer which may include *Banksia serrata, Banksia aemula, Banksia integrifolia, Acacia aulacocarpa, Acacia flavescens, Allocasuarina littoralis, Elaeocarpus reticulatus, Leptospermum trinervium, Persoonia virgata, Dodonaea triquetra, Monotoca scoparia, Ricinocarpos pinifolius.*
Ground Layer: Includes *Pteridium esculentum, Themeda triandra, Xanthorrhoea* spp., *Imperata cylindrica, Coleocarya gracilis.*
Ecological Notes: Occurs mainly on undulating and rolling low sand dunes of sand islands, or on coastal sandhills, ridges and sloping drainage lines from lower slopes to ridge tops. Soils are freely-drained white sands of old weathered dunes (Pleistocene).
Area in current conservation reserves: 63365 ha (NP 63364 ha; CP 1 ha)

B10. Pink bloodwood/brush box forest on sand dunes
Tree Layer: Open-forest to open-woodland of *Corymbia intermedia* and *Lophostemon confertus.* Occasionally present are *Callitris columellaris* or *E. racemosa*.
Shrub Layer: Includes *Banksia serrata, Allocasuarina torulosa, Allocasuarina littoralis, Endiandra sieberi, Callitris columellaris* and many rainforest species.
Ground Layer: Includes *Pteridium esculentum, Themeda triandra* and *Imperata cylindrica.*
Ecological Notes: Occurs on slopes and crests of Holocene to late Holocene high dunes and also apparently on reworked high dune systems.
Area in current conservation reserves: 4204 ha (NP 3735 ha; 469 CP ha)

B11. Acacia/quinine/tea-tree low woodland on sand dunes
Tree Layer: Mixed open-shrubland of *Acacia aulacocarpa* and *Petalostigma pubescens* or low woodland to low closed-forest of *Acacia julifera* and *Leptospermum neglectum* or sometimes a woodland to open-woodland of *Corymbia intermedia* or *Corymbia tessellaris.*
Shrub Layer: Sparse to dense low shrub layer which may include *Leucopogon leptospermoides, Monotoca* sp.
Ground Layer: Includes *Imperata cylindrica, Eriachne* spp., *Trachystylis stradbrokensis.*
Ecological Notes: Occurs on low sand dunes immediately behind the frontal dunes.
Area in current conservation reserves: 72 ha (NP 61 ha; CP 3 ha; RR 8 ha)

B12. Wallum banksia woodland with eucalypts
Tree Layer: Shrubland, woodland or open-woodland of *Banksia aemula,* usually with *Eucalyptus racemosa* as a co-dominant and sometimes also with *Corymbia gummifera* and/or *E. planchoniana. C. intermedia* is a frequently occurring species.
Shrub Layer: Dense, may include *Leptospermum trinervium, Dillwynia floribunda, Acacia suaveolens, Woollsia pungens, Xanthorrhoea* spp., *Leucopogon leptospermoides, Ricinocarpos pinifolius.*
Ground Layer: The ground layer is seldom separable from the shrub layer. *Coleocarya gracilis* or *Caustis* spp. are the most frequent.
Ecological Notes: Occurs on undulating terrain on the high island sandmasses. Soils are freely drained sands of Pleistocene dunes. *E. planchoniana* occurs in the south only (Moreton and Stradbroke Islands).
Area in current conservation reserves: 58205 ha (NP 58205 ha)

B13. This unit has been amalgamated with D11.

B14. Beach she-oak/banksia/screw pine/beach spinifex communities
Tree Layer:
a) Woodland to open-forest of *Casuarina equisetifolia* sometimes with *Banksia integrifolia* and *Pandanus tectorius,* grading into *Spinifex sericeus* dominated open- grassland.
b) Low woodland of *Callitris columellaris* with occasional *Casuarina equisetifolia.*
c) Low open-forest, low woodland or open to closed-shrubland of *Banksia integrifolia* with occasional *Acacia* spp. and *Casuarina equisetifolia.* Frequently present are *B. aemula, B. serrata, Lophostemon confertus, Allocasuarina littoralis.*
d) Low open-woodland to heath and scrub of *Pandanus tectorius, Casuarina equisetifolia.* Frequently present are *Banksia integrifolia, Cupaniopsis anacardioides, Acacia leiocalyx* and *A. aulacocarpa.*
Shrub Layer:
a) Shrub layer generally absent.
b) No data available.
c) Shrubs often form the canopy layer.
d) Shrub layer generally absent.
Ground Layer:
a) Includes *Spinifex sericeus, Ipomoea pescaprae, Cynodon dactylon, Imperata cylindrica, Carpobrotus glaucescens.*
b) Very sparse ground cover.
c) Includes *Pteridium esculentum, Imperata cylindrica, *Melinis minutiflora, *Passiflora suberosa.*

d) Sparse, may include *Themeda triandra.*
Ecological Notes: Association a) occurs along ocean and bay beaches and associated low undulating foredunes. Association b) occurs on steep slopes of aeolinite, on the Double Island Point headland. Association c) occurs on low dunes and association d) occurs on headlands, derived from granite or sandstone.
Notes: B15, B18 and B19 have now been included within this unit.
Area in current conservation reserves: 15791 ha (15535 NP ha; CP 225 ha; RR 31 ha)

B15. This unit has been amalgamated with B14.
B16. This unit has been deleted as it occurs in Brigalow Belt rather than South-eastern Queensland Biogeographical Region.
(*Melaleuca leucadendra* woodland)
B17. This unit is a Non-forest Community.
B18. This unit has been amalgamated with B14.
B19. This unit has been amalgamated with B14.
B20. This unit is a Non-forest Community.
B21. This unit is a Non-forest Community.

C1. Swamp she-oak open-forest in seasonal swamps
Tree Layer: Open-forest of *Casuarina glauca*, often with *Eucalyptus tereticornis* and *Melaleuca quinquenervia.*
Shrub Layer: Includes **Baccharis halimifolia.*
Ground Layer: Ground layer usually sparse.
Ecological Notes: Occurs on occasionally inundated sites away from estuarine areas; gleyed alluvial soils and humus podzols on low sandy banks.
Area in current conservation reserves: 137 ha (NP 132 ha; CP 5 ha)

C2. Paperbark swamp, usually in pure stands
Tree Layer: Open-forest to woodland of *Melaleuca quinquenervia.* Occasionally present are *Eucalyptus umbra, E. bancroftii, E. tereticornis, E. robusta* and *Lophostemon suaveolens.*
Shrub Layer: Shrub layer usually absent.
Ground Layer: Includes *Lepironia articulata, Blechnum indicum.*
Ecological Notes: Occurs in temporarily or permanently inundated areas of the coastal mainland and island sand plains, often with standing surface water for many months at a time.
Area in current conservation reserves: 6130 ha (NP 5715 ha; CP 415 ha)

C3. Paperbark swamp, with swamp mahogany
Tree Layer: Woodland to open-forest of *Melaleuca quinquenervia* and *Eucalyptus robusta.* Frequently occurring are *Lophostemon suaveolens, Corymbia intermedia, Livistona decipiens, E. tereticornis.*
Shrub Layer: Includes *Melastoma affine* or *Banksia robur*. Dense stands of the exotic **Baccharis halimifolia* may occur as a tall shrub understorey.
Ground Layer: Includes *Pteridium esculentum, Blechnum indicum, Imperata cylindrica, Schoenus brevifolius, Restio tetraphyllus, Baumea rubiginosa* and *Gahnia sieberiana.*
Ecological Notes: Occurs in fringing drainage system behind beach ridge plains - old dunes, swales and sandy coastal creek levees on very gently undulating terrain.
Area in current conservation reserves: 6216 ha (NP 6065 ha; CP 139 ha; RR 12 ha)

C4. Paperbark swamp, with blue gum and swamp box
Tree Layer: Woodland to open-woodland of *Melaleuca quinquenervia, Eucalyptus tereticornis* and *Lophostemon suaveolens.* Occasionally present are *Casuarina glauca* and *Corymbia intermedia*.
Shrub Layer: In some areas the exotic **Baccharis halimifolia* forms a dense shrub layer, but otherwise shrubs are infrequent.
Ground Layer: Includes *Themeda triandra, Lomandra longifolia, Ischaemum australe, Imperata cylindrica, Restio* spp.
Ecological Notes: Occurs on flat low lying coastal areas which are seasonally inundated.
Area in current conservation reserves: 5334 ha (NP 4848 ha; CP 463 ha; RR 23 ha)

C5. This unit is now listed under Open-scrubs (Non-forest Communities).
C6. This unit is a Non-forest Community.
C7. This unit is a Non-forest Community.
C8. This unit is a Non-forest Community.
C9. This unit is a Non-forest Community.
C10. This unit is a Non-forest Community.

D1. Black she-oak/dune cypress/swamp box mixed open-forest
Tree Layer:
a) Dense stands of *Allocasuarina littoralis* with *Lophostemon confertus* saplings. Frequently occurring species are *Melaleuca quinquenervia, Callitris columellaris, Eucalyptus umbra.*
b) Mixed open-forest to woodland of *Corymbia intermedia, Eucalyptus umbra, Allocasuarina littoralis, Callitris columellaris, Melaleuca quinquenervia, Lophostemon suaveolens* and *E. tereticornis.*
c) Open-scrub of *Lophostemon suaveolens, Allocasuarina littoralis, Banksia integrifolia* with patches of dense *Callitris columellaris* and occasional *Corymbia intermedia.*
Shrub Layer: Shrub layer very variable and usually sparse - may include *Petalostigma triloculare, Endiandra sieberi, Elaeocarpus reticulatus, Dodonaea triquetra.*
Ground Layer: Includes *Lepidosperma laterale, Pteridium esculentum, Dianella caerulea, Smilax australis, Xanthorrhoea johnsonii.*
Ecological Notes: Occurs on lowland areas with sandy or silty soil, sometimes along riverbanks. Some areas may have impeded drainage. Association b) occurs along lower Noosa River banks only.
Area in current conservation reserves: 929 ha (NP 924 ha; RR 5 ha)

D2. White mahogany/pink bloodwood open-forest on coastal lowlands
Tree Layer: Woodland to open-forest of *Eucalyptus acmenoides* and *Corymbia intermedia.*
Shrub Layer: Includes *Allocasuarina torulosa, Lophostemon* sp. aff. *confertus, Acacia flavescens.*
Ground Layer: Includes *Eremochloa bimaculata, Themeda triandra, Eriachne pallescens, Imperata cylindrica* and *Alloteropsis semialata.*
Ecological Notes: Occurs on coastal lowlands on red earths or deep sands.
Area in current conservation reserves: 1259 ha (NP 1257 ha; CP 2 ha)

D3. Swamp mahogany/red mahogany/turpentine open-forest on coastal sands
Tree Layer: Open-forest to woodland of *Eucalyptus robusta, E. resinifera, Syncarpia glomulifera, Corymbia intermedia, Lophostemon confertus* and *Melaleuca quinquenervia.*
Shrub Layer: Includes *Leptospermum polygalifolium, Endiandra sieberi, Leptospermum whitei, Elaeocarpus reticulatus, Acmena smithii, Baeckea frutescens* and *Boronia keysii.*
Ground Layer: Includes *Gahnia clarkei, Restio tetraphyllus, Entolasia* spp., *Austromyrtus dulcis, Lomandra longifolia* and *Smilax glyciphylla.*
Ecological Notes: Occurs in areas where the water table is less than 1m from the surface, in high rainfall areas of the Sunshine Coast. Soils are humus podzols.
Area in current conservation reserves: 111 ha (NP 86 ha; CP 25 ha)

D4. Turpentine/bloodwood open-forest on coastal sands
Tree Layer: Woodland to open-forest of *Syncarpia glomulifera, Corymbia trachyphloia* and/or *Corymbia intermedia.* Occasionally present are *Eucalyptus acmenoides* or *E. umbra.*
Shrub Layer: Includes *Syncarpia glomulifera, Acacia* spp., *Melaleuca nodosa, Melaleuca cheelii.*
Ground Layer: Sparse to mid-dense ground layer of *Acrotriche aggregata, Xanthorrhoea* spp., *Entolasia stricta* and *Eremochloa bimaculata.*
Ecological Notes: Occurs on low rises in coastal sandplains, in relatively low rainfall areas near Bundaberg.
Area in current conservation reserves: 0 ha

D5. This unit has been amalgamated with D8.

D6. Goodwood gum/bloodwood woodland
Tree Layer: Open-woodland to woodland of *Eucalyptus hallii, Corymbia trachyphloia* and/or *Corymbia intermedia.* Frequently occurring are *Angophora leiocarpa, E. umbra, E. exserta, Melaleuca viridiflora.* Occasionally present are *E. moluccana, E. siderophloia.*
Shrub Layer: Very sparse mid-stratum includes *Melaleuca viridiflora, M. cheelii, Lophostemon suaveolens, Acacia flavescens, A. complanata, Grevillea banksii, Leptospermum trinervium, Xylomelum salicinum.*
Ground Layer: Sparse to dense grassy ground layer of *Themeda triandra, Eremochloa bimaculata, Aristida warburgii, Schoenus sparteus, Eriachne pallescens,* sometimes with occasional *Macrozamia lomandroides* and shrubs such as *Banksia oblongifolia* and *Acrotriche aggregata.*
Ecological Notes: Occurs on coastal sandplains in a restricted geographic range.
Area in current conservation reserves: 1826 ha (NP 1826 ha)

D7. Scribbly gum/bloodwood woodland, with turpentine, on coastal sands
Tree Layer: Open-woodland to woodland of *Eucalyptus racemosa* and *Corymbia intermedia.* Frequently occurring are *Syncarpia glomulifera, E. umbra, C. trachyphloia* and *E. acmenoides.*
Shrub Layer: Sparse to very sparse mid-stratum including *Acacia flavescens* and *Acacia aulacocarpa.*
Ground Layer: Sparse to dense ground layer of *Eremochloa bimaculata, Eriachne pallescens, Xanthorrhoea johnsonii* and *Themeda triandra.*
Ecological Notes: Occurs on low rises in coastal sandplains.
Area in current conservation reserves: 0 ha

D8. Scribbly gum/pink bloodwood/smooth-barked apple woodland on coastal lowlands

Tree Layer:

a) Open-forest to woodland of *Eucalyptus racemosa, Corymbia intermedia.* Frequently occurring are *Angophora leiocarpa* and *Lophostemon confertus*. Occasionally present are *E. siderophloia, E. microcorys, E. acmenoides* and *E. tindaliae.*

b) Woodland to open-woodland of *Eucalyptus racemosa, Corymbia intermedia.* Frequently occurring are *E. umbra, Angophora leiocarpa, Melaleuca quinquenervia* and *E. bancroftii.* Occasionally present are *E. robusta, Angophora woodsiana, Corymbia gummifera.*

Shrub Layer:

a) Includes *Acacia aulacocarpa, Acacia flavescens, Acacia leiocalyx, Alphitonia excelsa, Banksia integrifolia, Allocasuarina littoralis.*

b) Understorey shrubs relatively sparse.

Ground Layer:

a) Predominantly grassy ground cover is variable in density and consists mainly of *Imperata cylindrica, Themeda triandra, Pteridium esculentum, Lepidosperma laterale, Alloteropsis semialata, Entolasia stricta* and *Eremochloa bimaculata.*

b) Low heathy ground layer of *Xanthorrhoea fulva, Xanthorrhoea latifolia, Banksia oblongifolia, Ptilothrix deusta, Hibbertia stricta, Hibbertia vestita, Caustis recurvata, Daviesia umbellulata, Hakea plurinervia* and *Epacris pulchella.*

Ecological Notes: Occurs on flat to slightly undulating coastal floodplains and sandplains, and also on the upper slopes and crests of low hills and ridges on sandstones. Association a) occurs in areas with slightly deeper, better drained soils than association b). This unit is closely related to D9, and could be considered its southern replacement.
Notes: This unit now includes D5.
Area in current conservation reserves: 16817 ha (NP 16781 ha; CP 23 ha; RR 13 ha)

D9. Broad-leaved white mahogany/bloodwood/smooth-barked apple woodland on coastal lowlands

Tree Layer:

a) Woodland to open-woodland of *Eucalyptus umbra, Corymbia trachyphloia* and/or *C. intermedia, Angophora leiocarpa.* Frequently occurring are *Melaleuca viridiflora, Lophostemon suaveolens, E. exserta.* Occasionally present are *E. acmenoides, E. major.*

b) Low woodland or open-woodland to woodland of *Eucalyptus umbra, Corymbia trachyphloia* and/or *C. intermedia, Angophora leiocarpa.* Frequently occurring are *Melaleuca viridiflora, M. quinquenervia. M. cheelii* is occasionally present.

Shrub Layer:

a) Very sparse to sparse, includes *Allocasuarina torulosa, Allocasuarina littoralis, Acacia leiocalyx, Acacia aulacocarpa, Acacia flavescens, Banksia integrifolia, Grevillea banksii, Melaleuca cheelii.*

b) Includes *Acacia flavescens, Hakea actites.*

Ground Layer:

a) Includes *Themeda triandra, Xanthorrhoea* spp., *Eremochloa bimaculata, Alloteropsis semialata.*

b) Mid-dense to dense heathy understorey includes *Xanthorrhoea johnsonii, Banksia oblongifolia, B. robur, Daviesia umbellulata, Micromyrtus littoralis, Ptilothrix deusta* and *Leptospermum polygalifolium.*

Ecological Notes: Occurs on coastal plains and gently undulating coastal lowlands.

Association a) occurs in areas with slightly deeper, better drained soils than association b). This unit is closely related to D8, and could be considered its northern replacement.

Area in current conservation reserves: 4528 ha (NP 4080 ha; CP 448 ha)

D11. Wallum banksia low woodland with dense heathy understorey
Tree Layer:
a) Low open woodland to low woodland of *Banksia aemula* sometimes with *Leptospermum trinervium* and emergent trees of *Eucalyptus umbra* and *Melaleuca viridiflora.*
b) Low woodland of *Banksia aemula* sometimes with emergent trees of *Corymbia intermedia, Eucalyptus robusta, Lophostemon confertus* and *Melaleuca quinquenervia,* or low open-forest of the same species.
Shrub Layer:
a) Dense heathy shrub layer to 1 m high, dominated by *Leptospermum polygalifolium, Banksia oblongifolia, Xanthorrhoea johnsonii, Caustis recurvata, Baeckea frutescens, Melaleuca nodosa, Phyllota phylicoides, Micromyrtus littoralis.*
b) Usually a dense shrub layer 1-3 m high, dominated by *Leptospermum trinervium, Lophostemon confertus, Ricinocarpos pinifolius, Monotoca scoparia, Allocasuarina littoralis, Acacia* spp., *Phebalium woombye.*
Ground Layer:
a) Ground layer generally absent.
b) Sparse ground cover of *Themeda triandra, Pteridium esculentum, Imperata cylindrica, Austromyrtus dulcis* and *Lepidosperma laterale.*
Ecological Notes: Association a) occurs on sandy flats where the water table is close to the surface, while association b) occurs on slight rises above the plain. Association b) is much more restricted in extent than association a), occurring in a few locations

such as on Bribie Island, a small area of the mainland at Toorbul Point, and Coonarr Beach near Bundaberg.
Notes: B13 has now been made a sub-unit of D11. D11 was previously listed under Heathlands (Non-forest Communities).
Area in current conservation reserves: 12978 ha (NP 12941 ha; CP 37 ha)

D10. Broad-leaved paperbark/Queensland peppermint open-woodland
Tree Layer: Low open-woodland to open-woodland of *Melaleuca viridiflora* and *Eucalyptus exserta.* Frequently occurring are *Corymbia intermedia, E. hallii, E. tereticornis, Melaleuca quinquenervia.*
Shrub Layer: Shrub layer generally absent.
Ground Layer: Mid-dense to dense, includes *Themeda triandra, Eremochloa bimaculata, Aristida warburgii, Fimbristylis cinnamometorum* and *Xanthorrhoea johnsonii.*
Ecological Notes: Occurs on hard-setting silts (duricrusts), on lower lying areas of coastal lowlands.
Area in current conservation reserves: 2252 ha (NP 2252 ha)

D11. This unit is now listed under Woodlands.
D12. This unit is a Non-forest Community.

E1. Complex notophyll and araucarian notophyll vine forests of white booyong, giant water gum, silky oak, with black bean/weeping lilly pilly locally dominant. Emergent figs and hoop pine.
Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron trifoliolatum, Syzygium francisii, Grevillea robusta, Castanospermum australe, Waterhousea floribunda* (streamlines), *Pseudoweinmannia lachnocarpa, Beilschmiedia obtusifolia, Dissiliaria baloghioides* (locally abundant), *Flindersia* spp., *Dysoxylum mollissimum* subsp. *molle, Aphananthe philippinensis, Pouteria australis, Toona ciliata.* Emergents of *Ficus* spp., *Araucaria cunninghamii.*
Subcanopy Layer: *Streblus brunonianus, Harpullia pendula, Arytera divaricata, Cryptocarya* spp., *Mallotus philippensis, Niemeyera antiloga*.
Shrub Layer: *Cleistanthus cunninghamii, Randia chartacea, Solanum* spp., *Wilkiea macrophylla, Cryptocarya laevigata, Mallotus claoxyloides.*
Ground Layer: *Pseuderanthemum variable, Doodia* spp., *Pellaea paradoxa*
Lianas: *Maclura cochinchinensis, Tetrastigma nitens, Austrosteenisia blackii, Trophis scandens, Melodorum leichhardtii.*
Epiphytes: *Platycerium* spp., *Pyrrosia* spp..
Ecological Notes: This unit occurs on alluvial sediments along major streams from the upper Mary River southward. These alluvia are derived from a variety of parent materials, including basic volcanics, metasediments and sedimentary rocks.
Area in Conservation Reserves: 0 ha

E2. This unit has been amalgamated with I7.

E3. Fringing (araucarian) microphyll/notophyll vine forest with emergent hoop pine and/or kauri pine

Tree Layer: Closed-forest to low closed-forest of *Drypetes deplanchei, Cupaniopsis parvifolia, Polyscias elegans, Flindersia australis, Premna lignum-vitae, Aphananthe philippinensis, Vitex melicopea, Austromyrtus bidwillii, Arytera divaricata, Croton insularis, Cryptocarya* spp.. Emergents of *Araucaria cunninghamii, Agathis robusta, Lophostemon confertus, Eucalyptus* spp..

Shrub Layer: *Alyxia ruscifolia, *Lantana camara, Carissa ovata, Alchornea ilicifolia.*

Ground Layer: *Harneria hygrophiloides, Gahnia aspera.*

Lianas: *Dioscorea transversa, Embelia australiana, Melodorum leichhardtii, Pleogyne australis, Smilax australis, Austrosteenisia blackii.*

Ecological Notes: This unit occurs along streams in the Maryborough hinterland on alluvia derived predominantly from sediments and other parent materials of relatively low nutritional status.

Area in Conservation Reserves: 0 ha

E4. Fringing (araucarian) notophyll/microphyll vine forest of white booyong, rough-leaved elm, figs, stinging trees, red cedar, white cedar
Tree Layer: Closed-forest of *Argyrodendron trifoliolatum, Aphananthe philippinensis, Ficus fraseri, Dendrocnide photinophylla, D. excelsa, Melia azedarach, Toona ciliata***,** also *Syzygium australe, Beilschmiedia obtusifolia, Cryptocarya hypospodia***.**
Low Tree Layer: *Harpullia pendula, Diospyros fasciculosa, Alangium villosum* subsp. *tomentosum, Streblus brunonianus, Cryptocarya triplinervis, Mallotus philippensis, Diospyros geminata.*
Shrub Layer: *Diospyros australis, Randia chartacea, Phyllanthus sauropodoides.*
Ground Layer: *Doodia* spp., *Lastreopsis microsora, Gymnostachys anceps, Adiantum* spp., *Alocasia brisbanensis.*
Lianas: *Austrosteenisia blackii, Embelia australiana, Trophis scandens, Morinda acutifolia, Melodorum leichhardtii, Tetrastigma nitens, Cissus oblonga, Legnephora moorei, Ripogonum brevifolium.*
Ecological Notes: This unit occupies alluvia along rivers and major creeks from the Kolan River northward. It has affinities with more southerly communities (i.e. Units E5 and E1).
Area in Conservation Reserves: 0 ha

E5. Fringing notophyll/microphyll vine forests of rough-leaved elm, red kamala, hickory wattle with weeping lilly-pilly/black bean locally dominant. Emergent trees of blue gum and swamp box.
Tree Layer: *Aphananthe philippinensis, Mallotus philippensis, Waterhousea floribunda, Castanospermum australe,* also *Acacia aulacocarpa, Melia azedarach, Syzygium australe, Streblus brunonianus, Diospyros geminata.* Emergents of *Eucalyptus tereticornis, Lophostemon suaveolens, Casuarina cunninghamiana.*
Shrub Layer: **Lantana camara, Cryptocarya triplinervis, Ficus opposita, Breynia oblongifolia.*
Ground Layer: *Oplismenus aemulus, Adiantum hispidulum.*
Lianas: *Eustrephus latifolius, Stephania japonica.*
Ecological Notes: This unit occurs on alluvia in central South-eastern Queensland, between the Kolan and Mary Rivers. It intergrades with open-forest/woodland communities of *Eucalyptus tereticornis* and *Lophostemon suaveolens* (Unit E10).
Area in Conservation Reserves: 11 ha (CP 11 ha)

E6. Grey box/yellow box/fuzzy box woodlands on Main Range
Tree Layer: Woodland to open-forest of *Eucalyptus microcarpa* or *E. moluccana,* with *E. melliodora* and/or *E. conica.* Frequently occurring are *Angophora floribunda* and *Allocasuarina luehmannii,* with *E. camaldulensis* and/or *E. tereticornis* fringing drainage lines.
Shrub Layer: Sparse, includes *Acacia falcata, Acacia maidenii, Alphitonia excelsa, Allocasuarina littoralis, Jacksonia scoparia, Xanthorrhoea latifolia.*.
Ground Layer: Sparse or grassy, includes *Acrotriche aggregata, Aristida* spp., *Cymbopogon refractus, Entolasia stricta, Desmodium* spp., *Themeda triandra.*
Ecological Notes: Occurs west of Main Range on lower slopes and alluvial flats on soils derived from a range of parent material, particularly sandstone and traprock.
Area in current conservation reserves: 10 ha (NP 10 ha)

E7. Gum-topped box communities

Tree Layer:

a) Open-forest to woodland of *Eucalyptus moluccana.* Frequently occurring are *Corymbia citriodora, Eucalyptus siderophloia, E. tereticornis.* Occasionally present are *Eucalyptus crebra, Corymbia intermedia* and *E. fibrosa* subsp. *fibrosa.*

b) As above.

Shrub Layer:

a) Shrub layer usually absent.

b) Includes rainforest species such as *Alyxia ruscifolia, Carissa ovata, Canthium odoratum, Alectryon diversifolius.*

Ground Layer:

a) Usually sparse, includes *Eremochloa bimaculata, Cymbopogon refractus.*

b) Includes *Ancistrachne uncinulata, Oplismenus* spp.

Ecological Notes: Occurs on flats and lower slopes of hills, usually on clays, clay loams or duplex soils. Association b) generally occurs in areas adjacent to scrubs.

Area in current conservation reserves: 915 ha (NP 680 ha; CP 235 ha)

E8. Poplar box communities
Tree Layer: Woodland of *Eucalyptus populnea.* Frequently occurring are *E. tereticornis, E. melanophloia, Corymbia tessellaris, Angophora floribunda, E. melliodora.*
Shrub Layer: Sparse to very sparse, includes *Canthium oleifolium.*
Ground Layer: Includes *Bothriochloa decipiens, Heteropogon contortus.*
Ecological Notes: Occurs on old flood plains and gently undulating terrain, in western parts of the region.
Area in current conservation reserves: 0 ha

E9. Blue gum flats, often with grey ironbark, in near-coastal areas
Tree Layer: Open-forest to woodland of *Eucalyptus tereticornis* and *E. siderophloia.* Frequently occurring are *Lophostemon suaveolens, Corymbia intermedia.* Occasionally present are *Angophora subvelutina, A. leiocarpa, C. citriodora, E. grandis.* A lower tree layer of *C. tessellaris* or *Melaleuca quinquenervia* may be present.
Shrub Layer: Includes *Acacia melanoxylon, Acacia aulacocarpa, Allocasuarina torulosa, Allocasuarina littoralis, Glochidion* spp., *Alphitonia excelsa.*
Ground Layer: Includes *Themeda triandra, Lomandra longifolia, Imperata cylindrica, Pteridium esculentum, Arundinella nepalensis, *Ageratum houstonianum, *Gomphocarpus physocarpus, Lespedeza juncea, Eremochloa bimaculata, Chrysopogon sylvaticus.*
Ecological Notes: Occurs on river flats, terraces, shallow drainage depressions and lower slopes on alluvial soils, in near-coastal areas.
Notes: After further investigation it has been decided that H38 should be included in E9.
Area in current conservation reserves: 1404 ha (NP 1105 ha; NS 106 ha; CP 192 ha; RR 1 ha)

E10. Blue gum flats, without grey ironbark, away from the coast
Tree Layer:
a) Tall open-forest to tall woodland to woodland of *Eucalyptus tereticornis.* Frequently occurring are *Melaleuca leucadendra, Corymbia tessellaris* and *E. camaldulensis,* especially in riparian areas.
b) Tall open-forest to open-forest of *Eucalyptus tereticornis* and *Angophora floribunda.*
c) Open-woodland to tall open-forest of *Eucalyptus tereticornis.* Frequently occurring are *Angophora subvelutina, Corymbia tessellaris, Lophostemon suaveolens.* Occasionally present is *Corymbia clarksoniana.*
Shrub Layer:
a) Includes *Lysiphyllum hookeri, Terminalia oblongata, Carissa ovata, Petalostigma pubescens, Acacia cretata.*
b) Includes *Acacia cretata.*
c) Shrub layer usually absent.
Ground Layer:
a) Includes *Lomandra longifolia, Enteropogon acicularis, Paspalidium* spp., *Themeda triandra, Heteropogon contortus.*
b) Includes *Themeda triandra, Pteridium esculentum, Bothriochloa decipiens.*
c) Sparse to dense ground layer includes *Imperata cylindrica, Heteropogon contortus, Arundinella nepalensis, Eragrostis leptostachya, Cymbopogon refractus, Bothriochloa decipiens.*

Ecological Notes: Occurs on alluvial flats in areas with lower rainfall than where Unit E9 occurs. Associations a) and b) occur on lowlands adjacent to Blackdown Tableland.

Area in current conservation reserves: 3078 ha (NP 2813 ha; CP 120 ha; RR 145 ha)

E11. River oak/blue gum on creeks and rivers
Tree Layer: Woodland to tall woodland of *Casuarina cunninghamiana* and/or *Eucalyptus tereticornis.* Frequently occurring are *Lophostemon suaveolens, Corymbia tessellaris* and *Waterhousea floribunda.* Occasionally present is *Angophora subvelutina.*
Shrub Layer: Sparse to mid-dense understorey which may include *Melaleuca linariifolia* var. *trichostachya, Melaleuca bracteata, Callistemon viminalis, Aphananthe philippinensis, Mallotus philippensis.*
Ground Layer: Includes *Lomandra longifolia*, *Oplismenus* spp.
Ecological Notes: Occurs along large creeklines and rivers on sandy or loamy alluvial soils.
Area in current conservation reserves: 179 ha (NP 103 ha; CP 5 ha; RR 71 ha)

E12. River oak/paperbark/blue gum on northern creeks and rivers
Tree Layer: Woodland to tall woodland of *Casuarina cunninghamiana* and *Melaleuca fluviatilis.* Frequently occurring are *Eucalyptus tereticornis* and *Corymbia tessellaris.*
Shrub Layer: Includes *Callistemon viminalis, Melaleuca bracteata, Melaleuca linariifolia* var. *trichostachya, Pleiogynium timorense, Mallotus philippensis.*
Ground Layer: Includes *Heteropogon contortus, Cymbopogon refractus, *Lantana montevidensis, Ottochloa nodosa, Tridax procumbens, Pennisetum alopecuroides, Bothriochloa decipiens, Oplismenus aemulus.*
Ecological Notes: Occurs along larger drainage lines and could be considered the northern replacement of Unit E11.
Area in current conservation reserves: 0 ha

E13. Pink bloodwood/turpentine woodland on colluvium
Tree Layer: Open-forest to open-woodland of *Corymbia intermedia* and *Syncarpia glomulifera.* Frequently occurring are *Eucalyptus acmenoides, C. trachyphloia* and *Lophostemon suaveolens.*
Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Allocasuarina littoralis, Syzygium australe, Callistemon salignus.*
Ground Layer: Includes *Arundinella nepalensis, Lomandra hystrix, Ottochloa gracillima.*
Ecological Notes: Occurs on creek flats at low altitude on sandy colluvials derived from granite.
Area in current conservation reserves: 64 ha (NP 64 ha)

H7. Blue gum/swamp box/pink bloodwood woodland on sandy colluvium
Tree Layer: Woodland of *Eucalyptus tereticornis, Lophostemon suaveolens, Corymbia intermedia, Corymbia tessellaris.* Occasionally present is *E. interstans.* There is frequently a lower tree layer of *Callitris columellaris.*.
Shrub Layer: Includes *Petalostigma pubescens, Alphitonia excelsa, Acacia leiocalyx.*
Ground Layer: Includes *Cheilanthes sieberi, Aristida calycina, Chrysocephalum apiculatum, Eragrostis* sp., *Phyllanthus virgatus.*
Ecological Notes: Occurs on deep sandy colluvials, in areas adjacent to the Helidon Hills.
Notes: After further investigation in the field, the description of this unit has been altered somewhat and it has been decided to move it into the alluvial group of vegetation units.
Area in current conservation reserves: 0 ha

E14. Poplar gum communities
Tree Layer: Open-woodland of *Eucalyptus platyphylla* with *Lophostemon suaveolens.*
Shrub Layer: Shrub layer usually absent.
Ground Layer: Includes *Themeda triandra, Imperata cylindrica, Arundinella nepalensis* and *Heteropogon contortus.*
Ecological Notes: Occurs on alluvial flats.
Area in current conservation reserves: 0 ha

F1. Brown bloodwood/narrow-leaved ironbark/budgeroo woodland on lateritic duricrust

Tree Layer: Woodland of *Corymbia trachyphloia, Eucalyptus crebra*. There is frequently a lower tree layer of *Lysicarpus angustifolius* or *E. exserta.*

Shrub Layer: Includes *Acacia bancroftii, Acacia complanata, Canthium odoratum, Acacia julifera.*

Ground Layer: Includes *Cymbopogon refractus, Dianella revoluta, Laxmannia gracilis, Scleria sphacelata, Pomax umbellata.*

Ecological Notes: Occurs on gentle slopes on plateaux with lateritic duricrust. Soils are brown to reddish well-drained loams.

Area in current conservation reserves: 0 ha

G1. Complex notophyll vine forest ("warm subtropical rainforest") of booyong, rose marara

Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron trifoliolatum, A. actinophyllum* subsp. *actinophyllum, Pseudoweinmannia lachnocarpa, Dendrocnide excelsa, Cryptocarya obovata, Diospyros pentamera, Castanospermum australe* (Tamborine Mountain), *Brachychiton acerifolius, Pouteria australis*. Emergents of *Ficus watkinsiana* and *Ficus macrophylla* may be present.

Subcanopy Layer: *Baloghia inophylla, Anthocarapa nitidula, Elattostachys nervosa*

Shrub Layer: *Randia chartacea, Cleistanthus cunninghamii, Actephila lindleyi, Wilkiea* spp., *Linospadix monostachya, Meiogyne stenopetala* subsp. *stenopetala*

Ground Layer: Sparse to mid-dense with *Lastreopsis* spp., *Adiantum formosum, Pollia crispata, Pteris umbrosa,*

Lianas: *Calamus muelleri, Parsonsia* spp., *Piper novae-hollandiae, Ripogonum album, Callerya megasperma, Austrosteenisia blackii, A. glabristyla, Melodorum leichhardtii.*

Epiphytes: *Platycerium superbum, P. bifurcatum, Asplenium australasicum, Dendrobium speciosum, Arthropteris tenella, Pothos longipes.*

Ecological Notes: This unit occurs at low to moderate altitudes (500m) on relatively deep well-watered soils derived from basalt and other nutrient-rich substrates. It occurred most extensively (before settlement) on the Beechmont, Tamborine and Maleny plateaus and their foothills.

Area in Conservation Reserves: 5892 ha (NP 5892 ha)

Further Note: Whilst the species listed above are representative of much of this unit, some stands, e.g. on the Buderim plateau and at Burleigh Heads have a lower simpler structure, with the species composition approaching that of araucarian vine forest. They are described as follows:
Tree Layer: Closed-forest of *Olea paniculata, Dysoxylum mollissimum* subsp. *molle, Argyrodendron* sp. (Kin Kin W.D.Francis AQ81198), *Aphananthe philippinensis, Podocarpus elatus, Planchonella queenslandica, Harpullia pendula, Flindersia schottiana, Grevillea hilliana*. Emergents of *Ficus* spp..
Shrub Layer: *Wilkiea macrophylla, Cordyline petiolaris, Monococcus echinophorus* (locally abundant), *Alyxia ruscifolia,*
Ground Layer: *Doodia aspera, Pellaea falcata* var. *nana, Adiantum hispidulum, Pseuderanthemum variabile.*
Lianas: *Calamus australis, Cissus antarctica, C. sterculiifolia, Maclura cochinchinensis, Trophis scandens.*

G2. Notophyll and complex notophyll vine forest ("cool subtropical rainforest") of black booyong, giant stinging tree, soft corkwood, prickly ash, pigeonberry ash

a. McPherson Range
Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron actinophyllum* subsp. *actinophyllum, Dendrocnide excelsa, Caldcluvia paniculosa, Orites excelsa, Cryptocarya erythroxylon, Geissois benthamii, Dysoxylum fraserianum, Syzygium crebrinerve, Brachychiton acerifolius, Acronychia octandra.* Emergents of *Ficus watkinsiana*.
Subcanopy layer: *Acradenia euodiiformis, Quintinia verdonii, Polyosma cunninghamii, Doryphora sassafras, Sloanea australis, Pennantia cunninghamii* (drainage lines), *Daphnandra tenuipes* (drainage lines).
Shrub Layer: *Wilkiea austroqueenslandica, Randia benthamiana, Linospadix monostachya, Cyathea leichhardtiana, Triunia youngiana, Psychotria simmondsiana.*
Ground Layer: *Lastreopsis* spp., *Elatostema reticulatum* (drainage lines), *Helmholtzia glaberrima* (drainage lines).
Lianas: *Parsonsia fulva, Rubus moorei, R. nebulosus, Ripogonum elseyanum, Pandorea* spp., *Palmeria scandens, Austrosteenisia glabristyla, Morinda jasminoides,*
Epiphytes: *Asplenium australasicum, Platycerium bifurcatum, Pothos longipes, Microsorum scandens, Arthropteris* spp..

b. Main Range

Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron actinophyllum* subsp. *actinophyllum, Brachychiton acerifolius, Dendrocnide excelsa, Dysoxylum fraserianum, Sloanea woollsii, Diospyros pentamera, Orites excelsa,* also *Acmena ingens, Doryphora sassafras, Schizomeria ovata, Caldcluvia paniculosa, Citronella moorei, Litsea reticulata, Syzygium crebrinerve, Cryptocarya erythroxylon, Elaeocarpus kirtonii, Toona ciliata.* Emergents of *Araucaria cunninghamii, Lophostemon confertus* and *Ficus watkinsiana*.

Subcanopy Layer: *Baloghia inophylla,* also *Archontophoenix cunninghamiana* (moist situations), *Cinnamomum virens, Guilfoylia monostylis, Streblus brunonianus, Sloanea australis, Pennantia cunninghamii, Polyosma cunninghamii, Sarcopteryx stipata, Alangium villosum* subsp. *polyosmoides, Anthocarapa nitidula*.

Shrub Layer: *Cuttsia viburnea* (esp. margins and disturbed areas), *Citriobatus pauciflorus, Cyathea leichhardtiana, Linospadix monostachya, Neolitsea australiensis, Eupomatia laurina, Tasmannia insipida, Wilkiea huegeliana, Zanthoxylum brachyacanthum, Rapanea subsessilis.*

Ground Layer: *Adiantum formosum, Lastreopsis* spp., *Lomandra longifolia, Pellaea* spp., *Pollia crispata*.

Lianas: *Cissus sterculiifolia, Morinda jasminoides, Palmeria scandens, Parsonsia fulva, P. ventricosa, Ripogonum elseyanum, Melodinus acutiflorus, Cephalaralia cephalobotrys.*

Epiphytes: *Arthropteris tenella, Microsorum* spp., *Asplenium australasicum.*

Ecological Notes: This unit occurs on basaltic soils at higher altitudes (>700m) on the McPherson and Main Ranges. On the most elevated/exposed sites, this unit is replaced by microphyll fern forests (Units G4 and G5).

Area in Conservation Reserves: 12960 ha (NP 12960 ha)

G3. Araucarian notophyll vine forest of white booyong, rose marara, giant stinging tree, lignum-vitae, crow's ash with emergent hoop pine
Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron trifoliolatum, Pseudoweinmannia lachnocarpa, Dendrocnide excelsa, Premna lignum-vitae, Flindersia australis*. Emergents of *Araucaria cunninghamii* and (less frequently) *Lophostemon confertus.*
Subcanopy layer: *Baloghia inophylla, Streblus brunonianus, Elattostachys xylocarpa,*
Shrub Layer: *Actephila lindleyi, Acronychia pauciflora, Cleistanthus cunninghamii, Arytera distylis, A. divaricata, Austromyrtus bidwillii, Solanum corifolium.*
Ground Layer: *Adiantum formosum, Lastreopsis* spp., *Pellaea falcata* var. *nana*
Lianas: *Austrosteenisia blackii, Trophis scandens, Parsonsia* spp., *Pandorea* spp, *Caesalpinia subtropica, Tetrastigma nitens.*
Epiphytes: *Platycerium* spp., *Asplenium australasicum, Arthropteris tenella, Dendrobium speciosum.*
Ecological Notes: This unit occurs predominantly on relatively freely-drained soils derived from basalt and minor areas of sedimentary rocks in southern areas of the region. It is most widespread on the more exposed slopes and foothills of the McPherson and Main Ranges. On the Darlington Range north of Mt Tamborine, *Dissiliaria baloghioides* and *Acacia bakeri* are locally dominant.
Area in Conservation Reserves: 4273 ha (NP 4228 ha; CP 45 ha)

G4. Microphyll fern forest/thicket of Antarctic beech and/or coachwood ("cool temperate rainforest")

a. Crest of McPherson Range
Tree Layer: Closed-forest to low closed-forest of *Nothofagus moorei* (locally dominant), *Quintinia sieberi, Doryphora sassafras, Caldcluvia paniculosa, Syzygium crebrinerve, Orites excelsa, Acronychia octandra.* Emergents of *Tristaniopsis collina.*
Shrub Layer: *Tasmannia insipida, Psychotria simmondsiana, Pittosporum oreillyanum, Randia benthamiana, Cyathea australis, Dicksonia antarctica.*
Ground Layer: *Blechnum wattsii, Dianella* spp., *Lomandra spicata, Cyperus disjunctus, Drymophila moorei.*
Lianas: *Parsonsia tenuis, Eustrephus latifolius, Ripogonum fawcettianum.*
Epiphytes: *Dendrobium falcorostrum, Hymenophyllum* spp., *Fieldia australis, Microsorum pustulatum.*
Ecological Notes: The areas of closed-scrub (microphyll fern thicket) within this unit occur on the exposed cliff-tops. Common species include *Nothofagus moorei, Callicoma serratifolia, Trochocarpa laurina, Tasmannia insipida, Leucopogon lanceolatus, Tasmannia insipida, Cuttsia viburnea, Olearia elliptica.*

b. Elevated, sheltered valleys of Lamington Plateau
Tree Layer: Closed-forest of *Ceratopetalum apetalum* (locally dominant), *Acradenia euodiiformis* (locally dominant), *Nothofagus moorei, Quintinia sieberi, Polyosma cunninghamii, Alloxylon pinnatum.* Emergents of *Lophostemon confertus.*
Shrub Layer: *Wilkiea huegeliana, Psychotria simmondsiana, Cyathea leichhardtiana***.**
Ground Layer: *Blechnum cartilagineum, B. wattsii, Lastreopsis* spp., *Adiantum silvaticum, Lomandra spicata, Drymophila moorei.*
Lianas: *Cephalaralia cephalobotrys, Ripogonum discolor, Morinda jasminoides***.**
Ecological Notes: This particular floristic association occurs in sheltered, elevated valley situations on coarse-grained basalts of the Lamington Group. In the Coomera Valley, it intergrades with areas of *Ceratopetalum apetalum* closed-forest ("warm temperate rainforest") on rhyolite, which have been mapped as a component of *Lophostemon confertus* tall open-forest (Unit G27).
Area in Conservation Reserves: 661 ha (NP 661 ha)

G5. Microphyll fern forest of lilly pilly, black wattle
Tree Layer: Low closed-forest of *Acmena smithii*, also *Acacia melanoxylon, Austromyrtus* sp. (Main Range P.R.Sharpe+ 4877), *Cinnamomum virens, Cryptocarya foveolata, Cuttsia viburnea, Denhamia celastroides, Duboisia myoporoides, Dicksonia antarctica, Doryphora sassafras, Orites excelsa, Pittosporum undulatum, Melicope micrococca, Polyosma cunninghamii.*
Shrub Layer: *Citriobatus pauciflorus, Tasmannia insipida.*
Ground Layer: *Doryanthes palmeri, Doodia aspera*.
Lianas: *Cephalaralia cephalobotrys, Hibbertia scandens, Morinda jasminoides, Parsonsia ventricosa, Smilax australis.*
Epiphytes: Mosses and lichens conspicuous.
Ecological Notes: This community grows in exposed ridgetops and cliff-edges on the McPherson Range west of Mt Ballow and north along the Main Range to Mt Castle. It also occurs on the highest sections of the Bunya Mountains, eg. Mt Kiangarow. In most exposed situations on the Main Range, it grades into open-scrub of *Acacia melanoxylon, Kunzea ericoides, Lomatia arborescens, Notelaea venosa, Callitris rhomboidea, Pomaderris* spp., *Prostanthera ovalifolia, Cassinia* spp., *Xanthorrhoea glauca* and *Doryanthes palmeri.*
Area in Conservation Reserves: 880 ha (NP 880 ha)

G6. This unit has been amalgamated with G7.

G7. Semi-evergreen vine thicket ("softwood scrub") of rosewood, scaly ebony, small-leaved coondoo, tingletongue, brush poison tree, small-fruited mock olive with emergent narrow-leaved bottle tree

Tree Layer: Low closed-forest of *Acacia fasciculifera, Atalaya salicifolia, Canthium odoratum, Diospyros geminata, Pouteria cotinifolia, Melicope erythrococca, Notelaea microcarpa, Croton insularis, Drypetes deplanchei, Excoecaria dallachyana, Geijera paniculata. Austromyrtus bidwillii, Backhousia angustifolia.* Emergents of *Brachychiton rupestris.*

Shrub Layer: *Turraea pubescens, Carissa ovata, Acalypha eremorum, Alchornea ilicifolia, Croton acronychioides, *Lantana camara, Murraya paniculata.*

Ground Layer: *Ancistrachne uncinulata.*

Lianas: *Cissus oblonga, Secamone elliptica, Parsonsia lanceolata.*

Ecological Notes: This unit occurs on soils derived primarily from basalt and minor sediments and has a relatively restricted occurrence within the South-eastern Queensland biogeographical region. There are close floristic similarities with the more widely distributed semi-evergreen vine thickets on Mesozoic sediments (Units H1 and H5).

Area in Conservation Reserves: 936 ha (NP 935 ha; CP 1 ha)

G8. Closed-forest of crows ash, burdekin plum, celerywood and wattles, with emergents of spotted gum, narrow-leaved ironbark and hoop pine.
Tree Layer: Emergents of *Corymbia citriodora, Eucalyptus crebra, Araucaria cunninghamii,* also *Euroschinus falcata, Brachychiton populneus.*
Low Tree Layer: Closed forest of *Alphitonia excelsa, Acacia aulacocarpa, Acacia maidenii, Pleiogynium timorense, Diospyros geminata, Canthium odoratum, Polyscias elegans, Drypetes deplanchei, Flindersia australis, Notelaea microcarpa.*
Shrub Layer: *Carissa ovata, *Lantana camara, Alyxia ruscifolia, Canthium vacciniifolium, Turraea pubescens, Solanum stelligerum.*
Ground Layer: *Macrozamia mountperriensis, Gahnia aspera, Ancistrachne uncinulata, Scleria sphacelata, Oplismenus* spp., *Lomandra* spp., *Entolasia stricta*.
Lianas: *Melodorum leichhardtii, Jasminum* spp., *Secamone elliptica, Glossocarya hemiderma, Parsonsia lanceolata.*
Ecological Notes: These communities occur widely within the region as ecotones adjacent to drier rainforest communities (araucarian notophyll and microphyll vine forests) on a range of substrates. These occurrences are seldom large enough to be mapped at 1:100 000 scale, and have generally been incorporated into the surrounding open-forest or woodland units. They have frequently been heavily disturbed by logging and are often heavily infested with *Lantana camara*.
Area in Conservation Reserves: 1253 ha (NP 942 ha; NS 264; RR 47 ha)

G9. Araucarian microphyll/notophyll vine forest of small-leaved tuckeroo, crow's ash, lignum-vitae, crows apple, brush poison tree, broad-leaved scrub wilga, small-leaved coondoo, white tamarind with emergent hoop and bunya pine
Tree Layer: Closed-forest of *Cupaniopsis parvifolia, Flindersia* spp., *Premna lignum-vitae, Owenia venosa, Arytera foveolata, Excoecaria dallachyana, Dendrocnide* spp., *Capparis arborea, Siphonodon australis, Argyrodendron trifoliolatum, Croton insularis, Geijera salicifolia* var. *latifolia, Pouteria cotinifolia, Drypetes deplanchei, Elattostachys xylocarpa.* Emergents of *Araucaria cunninghamii* and *A. bidwillii*.
Shrub Layer: *Canthium* spp., *Austromyrtus bidwillii, Casearia multinervosa, Carissa ovata, Cleistanthus cunninghamii, Acalypha capillipes, Baloghia inophylla, Croton acronychioides, Pouteria myrsinoides.*
Ground Layer: *Oplismenus aemulus, Panicum lachnophyllum, Ancistrachne uncinulata, Spartothamnella juncea, Abutilon oxycarpum*.
Lianas: *Trophis scandens, Pandorea pandorana, Melodorum leichhardtii, Marsdenia micradenia, Tylophora grandiflora, Capparis sarmentosa, Austrosteenisia blackii, Parsonsia rotata, Jasminum* spp.
Epiphytes: *Pyrrosia rupestris.*
Ecological Notes: This unit occurs on low-hilly to hilly terrain in the north-western headwaters of the Brisbane River and adjacent Burnett River catchment.
Area in Conservation Reserves: 933 ha (NP 933 ha)

G10. Araucarian notophyll and notophyll/microphyll vine forests of booyong, rose marara and/or giant ironwood and/or hauer. Emergents of hoop and bunya pine.

Tree Layer: Closed-forest of *Argyrodendron trifoliolatum, A.* sp. (Kin Kin W.D.Francis AQ81198), *Pseudoweinmannia lachnocarpa, Choricarpia subargentea* (locally dominant), *Dissiliaria baloghioides* (locally dominant), *Dendrocnide* spp., *Diospyros pentamera*, *Premna lignum-vitae*, also *Olea paniculata*, *Euroschinus falcata.* Emergents of *Araucaria cunninghamii, A. bidwillii* and *Ficus* spp..

Subcanopy Layer: *Arytera* spp, *Niemeyera antiloga, Medicosma cunninghamii***,** *Cryptocarya bidwillii, Alangium villosum* subsp. *tomentosum, Diospyros fasciculosa, Austromyrtus bidwillii, Alectryon* spp., *Bouchardatia neurococca, Capparis arborea, Bosistoa transversa* (locally prominent).

Shrub Layer: *Cleistanthus cunninghamii, Alyxia ruscifolia, Cryptocarya laevigata, C. sclerophylla, Randia chartacea, Alchornea ilicifolia, Carissa ovata, Wilkiea macrophylla.*

Ground Layer: *Lastreopsis* spp., *Asplenium attenuatum, Pellaea* spp., *Doodia aspera, *Rivina humilis, Oplismenus aemulus.*

Lianas: *Cissus antarctica, Melodorum leichhardtii, Tetrastigma nitens, Calamus muelleri, Dioscorea transversa, Capparis sarmentosa, Parsonsia* spp., *Pleogyne australis, Ripogonum brevifolium.*

Epiphytes: *Dendrobium* spp., *Asplenium australasicum, Platycerium* spp., *Pyrrosia* spp., *Arthropteris tenella, Pothos longipes.*

Ecological Notes: This unit occurs extensively on hilly to mountainous terrain in the headwaters of the Mary and Brisbane Rivers. Soil parent materials are Palaeozoic metasediments and associated basic to intermediate volcanics (eg. Amamoor Beds). These communities typically occupy mid- and lower slope situations, with araucarian microphyll vine forest (Unit G18) on drier, more exposed sites.
Area in Conservation Reserves: 290 ha (NP 225 ha; CP 65 ha)

G11. Araucarian notophyll and complex notophyll vine forests of booyong, blush coondoo, white yiel-yiel, yellow tulip, native olive, lignum-vitae, shining-leaved stinging tree. Emergent figs and/or hoop pine.

Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron trifoliolatum, A.* sp. (Kin Kin W.D.Francis AQ81198), *Planchonella queenslandica, Grevillea hilliana, Drypetes deplanchei, Olea paniculata, Premna lignum-vitae, Dendrocnide photinophylla, Pouteria australis, Xanthostemon oppositifolius* (Granite Creek SF). Emergents of *Ficus* spp. and/or *Araucaria cunninghamii*.

Subcanopy Layer: *Cryptocarya bidwillii, Baloghia inophylla, Austromyrtus acmenoides, Niemeyera antiloga, Cryptocarya triplinervis, Canthium lamprophyllum.*

Shrub Layer: *Capparis velutina, Randia chartacea, Cleistanthus cunninghamii, Cupaniopsis wadsworthii, Notelaea johnsonii, Wilkiea macrophylla, Psychotria daphnoides, Ixora beckleri, Hedraianthera porphyropetala, Phyllanthus* sp. (Granite Creek), *Phyllanthus sauropodoides.*

Ground Layer: *Adiantum* spp., *Oplismenus aemulus, Pollia crispata, Pseuderanthemum variable, Alpinia caerulea.*

Lianas: *Austrosteenisia blackii, Cissus antarctica, Tetrastigma nitens, Melodorum leichhardtii, Melodinus acutiflorus, Trophis scandens, Embelia australiana.*

Epiphytes: *Arthropteris tenella, Pyrrosia confluens, Platycerium bifurcatum.*

Ecological Notes: This unit is confined to the northern half of the SEQ bioregion and occurs on intermediate and basic volcanics and associated sedimentary/ metasedimentary rocks of Palaeozoic and Mesozoic age (eg. Muncon Volcanics).

Area in Conservation Reserves: 177 ha (NP 19 ha; NS 158 ha)

G12. This unit has been amalgamated with H47.

G13. Araucarian microphyll vine forest of rough-leaved elm, yellow tulip, shiny-leaved stinging tree, python tree with emergent hoop pine
Tree Layer: Closed-forest to low closed-forest of *Aphananthe philippinensis, Drypetes deplanchei, Dendrocnide photinophylla, Austromyrtus bidwillii, also Archidendropsis thozetiana, Euroschinus falcata, Bosistoa medicinalis* (locally common). Emergents of *Araucaria cunninghamii.*
Shrub Layer: *Diospyros australis, Cleistanthus cunninghamii, *Lantana camara* (disturbed situations).
Ground Layer: *Pellaea falcata* var. *nana, Pseuderanthemum tenellum, *Rivina humilis.*
Lianas: *Melodorum leichhardtii, Eustrephus latifolius, Smilax australis, Austrosteenisia blackii, Jasminum* spp., *Cissus* spp.
Ecological Notes: This unit occurs in the Bundaberg-Childers area (the Woongarra and Isis Scrubs). They occur on low hilly terrain on Tertiary basalts.
Area in Conservation Reserves: 4268 ha (NP 4081 ha; RR 187 ha)

G14. This unit has been amalgamated with H5.
G15. This unit has been amalgamated with G1.

G16. Araucarian notophyll vine forest of white booyong, giant stinging-tree, white quandong, laurels, churnwood with emergent bunya pine
Tree Layer: Closed-forest to tall closed-forest of *Argyrodendron trifoliolatum, Dendrocnide excelsa, Elaeocarpus kirtonii, Cryptocarya obovata, C. erythroxylon, Castanospermum australe* (locally abundant), *Citronella moorei.* Emergents of *Araucaria bidwillii*, *Ficus watkinsiana*.
Subcanopy Layer: *Baloghia inophylla, Streblus brunonianus, Anthocarapa nitidula.*
Shrub Layer*: Neolitsea australiensis, Claoxylon australe, Diospyros australis, Cordyline petiolaris.*
Ground Layer: *Lastreopsis* spp., *Doodia aspera.*
Lianas: *Ripogonum album, Embelia australiana.*
Epiphytes: *Arthropteris tenella***,** *Pyrrosia* spp..
Ecological Notes: This unit is confined to the more elevated sections of the Bunya Mountains, occurring on deep red loams (krasnozems) derived from Tertiary basalt. Its closest affinities are with the cool subtropical rainforests of the Main and McPherson Ranges (see Unit G2).
Area in Conservation Reserves: 1037 ha (NP 1026 ha; CP 11 ha)

G17. Araucarian notophyll/microphyll vine forest of white booyong, white tamarind, native olive, giant stinging tree, ivorywood with emergent hoop and bunya pine

Tree Layer: Closed-forest of *Argyrodendron trifoliolatum, Elattostachys xylocarpa, Olea paniculata, Dendrocnide excelsa, Siphonodon australis,* also *Geijera salicifolia* var. *latifolia, Brachychiton discolor, Drypetes deplanchei, Euroschinus falcata, Premna lignum-vitae, Diospyros pentamera, Strychnos psilosperma.* Emergents of *Araucaria cunninghamii* and *A. bidwillii.*

Subcanopy Layer: *Baloghia inophylla, Streblus brunonianus, Pouteria cotinifolia, Mallotus philippensis, Capparis arborea, Cryptocarya bidwillii.*

Shrub Layer: *Acalypha capillipes, Cleistanthus cunninghamii, Cordyline petiolaris, Claoxylon australe, Tarenna cameronii, Diospyros australis, Alyxia ruscifolia.*

Ground Layer: *Doodia aspera, Lastreopsis* spp., *Pellaea* spp..

Lianas: *Melodorum leichhardtii, Cissus* spp., *Tetrastigma nitens, Parsonsia velutina, Ripogonum brevifolium.*

Epiphytes: *Pyrrosia* spp., *Dendrobium* spp..

Ecological Notes: This unit is also confined to the Bunya Mountains, where it occupies relatively moist situations at mid- to lower altitudes on basaltic parent material. It has affinities both with the drier subtropical rainforests of the McPherson and Main Ranges (Unit G3) and those of the upper Mary River valley (G10).

Area in Conservation Reserves: 1804 ha (NP 1804 ha)

G18. Araucarian microphyll vine forest of native olive, white tamarind, small-leaved tuckeroo, deep yellowwood, lignum-vitae, stinging trees with emergent hoop and bunya pine

Tree Layer: Closed-forest of *Olea paniculata, Elattostachys xylocarpa, Cupaniopsis parvifolia, Rhodosphaera rhodanthema, Premna lignum-vitae, Alectryon subdentatus, Arytera foveolata, Canthium lamprophyllum, C. odoratum, Drypetes deplanchei, Pouteria cotinifolia, Bursaria incana, Siphonodon australis, Flindersia collina, Rhodamnia dumicola, Dendrocnide excelsa, D. photinophylla.* Emergents of *Araucaria cunninghamii*, *A. bidwillii* (Cressbrook Creek northwards) and *Flindersia australis.*

Shrub Layer: *Acalypha capillipes, Alchornea ilicifolia, Canthium vacciniifolium, Alyxia ruscifolia, Cleistanthus cunninghamii, Actephila lindleyi, Citriobatus linearis, Casearia multinervosa, *Lantana camara, Tarenna cameronii, Acronychia pauciflora, Solanum* spp.

Ground Layer: *Aneilema biflorum, Asplenium attenuatum, Oplismenus aemulus, Pellaea falcata* var. *nana, Plectranthus parviflorus.*

Lianas: *Austrosteenisia blackii, Tetrastigma nitens, Jasminum* spp., *Melodorum leichhardtii, Cissus oblonga.*

Epiphytes: *Pyrrosia rupestris, Dendrobium* spp..

Ecological Notes: This unit is widespread in southern parts of the region on steep terrain with shallow often stony soils on basalt and other volcanics, metasediments and minor sedimentary rocks.

Area in Conservation Reserves: 1913 ha (NP 1680 ha; CP 233 ha)

G25. Notophyll vineforest with Sydney blue gum emergents
Tree Layer: Closed-forest of *Neolitsea dealbata, Ficus fraseri, Guioa semiglauca, Acacia maidenii* and *Polyscias elegans.* Emergents of *Eucalyptus saligna.*
Shrub Layer: Includes **Lantana camara, Trema tomentosa, Alphitonia excelsa, Canthium odoratum.*
Ground Layer: Includes *Ottochloa gracillima*.
Ecological Notes: Occurs on ridges and slopes at high elevation (600-800 m) or, at slightly lower altitudes, in moist gullies. Soils are fertile, loamy.
Area in current conservation reserves: 1 ha (NP 1 ha)

G19. New England blackbutt open-forest
Tree Layer: Open-forest to tall open-forest of *Eucalyptus campanulata.* Frequent species are *E. saligna, E. biturbinata, E. eugenioides, Lophostemon confertus, E. microcorys, E. melliodora.* Occasionally present is *E. oreades.* There is often a lower tree layer of *Allocasuarina torulosa.*
Shrub Layer: Includes *Acacia irrorata, Acacia melanoxylon.*
Ground Layer: Includes *Poa sieberiana, Doodia aspera.*
Ecological Notes: Occurs on crests and slopes of the Main Range at high altitudes (>700m), on rather shallow soils derived from basalt or trachyte.
Area in current conservation reserves: 5423 ha (NP 5423 ha)

G20. Gympie messmate/spotted gum open-forest on lateritized basalt
Tree Layer: Open-forest of *Eucalyptus cloeziana* and *Corymbia citriodora*, frequently with *E. longirostrata, E. major, C. trachyphloia, C. intermedia, E. crebra.*
Shrub Layer: Shrub layer generally absent.
Ground Layer: No data available.
Ecological Notes: Occurs on the top of a laterite plateau.
Area in current conservation reserves: 0 ha

G21. Dunn's white gum tall open-forest
Tree Layer: Tall open-forest of *Eucalyptus dunnii.* Frequent associates include *E. eugenioides, Corymbia intermedia, E. microcorys, E. saligna, Lophostemon confertus*. Frequently, *Allocasuarina torulosa* forms a lower tree layer.
Shrub Layer: Includes *Acacia irrorata, Acacia melanoxylon, Toona australis, Trochocarpa laurina, Rhodamnia rubescens.*
Ground Layer: Includes *Poa labillardieri, Aphanopetalum resinosum, Blechnum cartilagineum, Lomandra longifolia*.
Ecological Notes: Occurs on basaltic ridges of Main Range at high altitude, also along creeks on eastern fall of the range.
Area in current conservation reserves: 71 ha (NP 71 ha)

G22. Flooded gum/tallowwood/brush box tall open-forest
Tree Layer: Open-forest to tall open-forest of *Eucalyptus grandis*, frequently with *E. microcorys, Lophostemon confertus.* Less frequent are *Syncarpia glomulifera, Archontophoenix cunninghamiana, E. resinifera, Corymbia intermedia, Allocasuarina torulosa.*
Shrub Layer: Includes *Glochidion ferdinandi, Glochidion sumatranum, Alphitonia excelsa, Cryptocarya glaucescens.*
Ground Layer: Includes *Blechnum cartilagineum, Scleria sphacelata, Ottochloa gracillima, Gahnia clarkei, Rubus moluccanus.*.
Ecological Notes: Occurs on lower slopes and valleys, in high rainfall areas, or occasionally on ridges where soil fertility permits. Soils are colluvial or alluvial brown loams or clay loams derived predominantly from basalt.
Area in current conservation reserves: 3529 ha (NP 3399 ha; CP 126 ha; RR 4 ha)

G23. Blackbutt/tallowwood/grey ironbark on basaltic soils
Tree Layer: Tall open-forest of *Eucalyptus pilularis*. Frequent species are *E. microcorys, E. siderophloia, E. eugenioides, Corymbia intermedia.* Occasionally present are *Syncarpia verecunda, E. saligna.*
Shrub Layer: Includes *Acacia aulacocarpa, Acacia irrorata, Alphitonia excelsa*.
Ground Layer: Includes *Imperata cylindrica, Oplismenus aemulus, Smilax australis*.
Ecological Notes: Occurs on plateaux and broad ridgetops, on brown loams derived from lateritized basalt, or at Mt Mee, overlying rhyolite.
Area in current conservation reserves: 66 ha (NP 2 ha; CP 64 ha)

G24. Sydney blue gum communities with grassy understorey
Tree Layer: Open-forest of *Eucalyptus saligna, Corymbia intermedia*, frequently with *Angophora floribunda* or *Angophora subvelutina*. Infrequent species are *E. biturbinata, Lophostemon confertus*. A lower tree layer of *Allocasuarina torulosa* and *Lophostemon* sp. aff. *confertus* is often present.
Shrub Layer: Shrub layer generally absent.
Ground Layer: Grassy, including *Digitaria parviflora, Microlaena stipoides, Imperata cylindrica, Poa cheelii.*
Ecological Notes: Occurs on broad valleys or plateaux at high altitude (>700 m), on loamy soils derived from basalt.
Area in current conservation reserves: 105 ha (NP 105 ha)

G25. This unit has been moved to the Closed-forests section.

G26. Blue gum/yellow box/grey gum open-forest
Tree Layer: Open-forest to woodland of *Eucalyptus tereticornis* and *E. melliodora.* Frequently occurring are *E. biturbinata* or *E. longirostrata*, *E. eugenioides* and *Corymbia intermedia*. There is often a lower tree layer of *Allocasuarina torulosa*.
Shrub Layer: Includes *Acacia irrorata.*
Ground Layer: Includes *Microlaena stipoides, Heteropogon contortus, Bothriochloa decipiens, Capillipedium parviflorum, Imperata cylindrica.*
Ecological Notes: Occurs on hillsides or valleys at moderate to high altitudes on loamy or clay-loam soils.
Area in current conservation reserves: 8739 ha (NP 8739 ha)

G27. Brush box open-forest, on or near Main Range
Tree Layer: Open-forest of *Lophostemon confertus*. Frequently occurring species include *Eucalyptus biturbinata, E. saligna, E. tereticornis, E. eugenioides*. A lower tree layer of *Allocasuarina torulosa* is sometimes present.
Shrub Layer: Includes miscellaneous rainforest species.
Ground Layer: Includes *Doodia aspera* and *Adiantum aethiopicum.*
Ecological Notes: Occurs on steep slopes and drainage lines in deep valleys, on soils of both basaltic and rhyolitic origin. Also in wet gullies of the acid volcanic plugs near Boonah.
Area in current conservation reserves: 3314 ha (NP 3292 ha; CP 22 ha)

G28. This unit is now listed under Section I - "Metamorphics".
G29. This unit is now listed under Woodlands.

G30. Silvertop stringybark open-forest
Tree Layer: Open-forest to tall open-forest of *Eucalyptus laevopinea*, with infrequent occurrences of *E. saligna*. There is a lower tree layer of *Allocasuarina torulosa* and *Lophostemon confertus*.
Shrub Layer: Includes *Acacia irrorata, Rapanea variabilis* and *Polyscias elegans*.
Ground Layer: Includes *Doodia aspera, Rubus parvifolius, Rubus moluccanus* var. *trilobus, Poa sieberiana* and *Lomandra longifolia.*
Ecological Notes: Occurs on crest of Great Divide at high altitude (900-1000 m) on basaltic soils.
Notes: This unit was previously listed under Woodlands.
Area in current conservation reserves: 0 ha

G35. Blackbutt/Queensland ash/tallowwood tall open-forest
Tree Layer: Tall open-forest of *Eucalyptus pilularis, E. montivaga, E. microcorys, E. saligna.*
Shrub Layer: Includes *Acacia melanoxylon, *Lantana camara, *Ligustrum lucidum, Breynia oblongifolia, Maytenus silvestris.*
Ground Layer: Includes *Imperata cylindrica, Pteridium esculentum, Microlaena stipoides, Themeda triandra.*
Ecological Notes: Occurs on red kraznozem soils on ridges and plateaux at high altitudes.
Notes: This unit was previously listed under Woodlands.
Area in current conservation reserves: 0 ha

G29. Brown bloodwood/grey gum woodland on red soil plateaux
Tree Layer: Woodland to open-forest of *Corymbia trachyphloia, Eucalyptus longirostrata.* Frequent species are *C. intermedia, E. crebra, E. acmenoides* and *Angophora leiocarpa. C. citriodora* occurs occasionally. There is sometimes a lower tree layer of *Allocasuarina torulosa*.
Shrub Layer: Includes *Alphitonia excelsa, Canthium coprosmoides, Acacia leiocalyx, Acacia pustula.*
Ground Layer: Includes *Cymbopogon refractus, Gahnia aspera, Arundinella nepalensis, Aristida queenslandica, Themeda triandra.*
Ecological Notes: Occurs on plateaux on deep red loamy soils (remnants of tertiary surface).
Area in current conservation reserves: 0 ha

G30. This unit has been moved to the Open-forests section.

G31. Narrow-leaved ironbark/yellow box woodland, with white box
Tree Layer: Woodland of *Eucalyptus crebra, E. melliodora* and *E. albens*. Frequent species are *E. tereticornis, E. orgadophila, E. moluccana.*
Shrub Layer: Includes *Exocarpos cupressiformis.*
Ground Layer: Includes *Dichanthium sericeum, Aristida personata, Themeda triandra.*
Ecological Notes: Occurs on drier slopes and hills on the western slopes of the Great Divide.
Area in current conservation reserves: 3031 ha (NP 2955 ha; CP 76 ha)

G32. Narrow-leaved ironbark/silver-leaved ironbark/yellow box woodland, without white box

Tree Layer: Woodland of *Eucalyptus crebra, E. melanophloia*. A frequent species is *E. melliodora*. Occasional species are *Corymbia tessellaris* and *Corymbia clarksoniana.*

Shrub Layer: Includes *Choretrum candollei, Dodonaea viscosa, Acacia fimbriata.*

Ground Layer: Includes *Bothriochloa decipiens, Cymbopogon refractus, Themeda triandra.*

Ecological Notes: Occurs on lower to mid-slopes of basalt ranges.

Area in current conservation reserves: 3483 ha (NP 3311 ha; CP 172 ha)

G33. Yarraman ironbark woodland on basaltic soils
Tree Layer: Woodland of *Eucalyptus melanoleuca, E. longirostrata, Corymbia intermedia*.
Shrub Layer: Includes *Hakea fraseri, Zieria* sp. (Monogorilby P.I.Forster PIF1004), *Pouteria cotinifolia, *Lantana camara.*
Ground Layer: Includes *Ancistrachne uncinulata*.
Ecological Notes: Occurs on ridges on red kraznozem soil, adjacent to dry rainforest.
Notes: This community was previously omitted from the seamless map.
Area in current conservation reserves: 0 ha

G34. Gum-topped box communities on ridges
Tree Layer: Woodland of *Eucalyptus moluccana*. Frequent species are *E. crebra* and *Corymbia citriodora.*
Shrub Layer: Sparse, includes *Lophostemon* sp. aff. *confertus, Acacia aulacocarpa*.
Ground Layer: Includes *Heteropogon contortus, Cymbopogon refractus, Xanthorrhoea latifolia*, *Macrozamia mountperriensis*, *Themeda triandra*.
Ecological Notes: Occurs on upper slopes, ridges and plateaux on brown loams.
Area in current conservation reserves: 0 ha

G35. This unit has been moved to the Open-forests section.

G36. Manna gum woodland
Tree Layer: Tall woodland of *Eucalyptus nobilis,* frequently with *E. tereticornis, Angophora floribunda* and *E. melliodora*. Occasional species include *E. eugenioides, E. saligna*.
Shrub Layer: Includes *Acacia irrorata, Exocarpos cupressiformis, Bursaria spinosa.*
Ground Layer: Includes *Adiantum* spp., *Desmodium varians, Poa labillardieri, Oplismenus aemulus.*
Ecological Notes: Occurs on stream banks and drainage lines on the western slopes of the Great Dividing Range, on heavy basalt-derived soils.
Area in current conservation reserves: 7 ha (NP 6 ha; CP 1 ha)

G37. This unit has been deleted as it occurs in Brigalow Belt rather than South-eastern Queensland Biogeographical Region.
(*Eucalyptus orgadophila*)

G38. Blue gum/pink bloodwood/white mahogany woodland on clayey ridges at high altitude

Tree Layer: Woodland of *Eucalyptus tereticornis, Corymbia intermedia.* Frequent species are *E. acmenoides, E. crebra*. A lower tree layer of *Allocasuarina torulosa* is frequently present.

Shrub Layer: Sparse layer generally absent.

Ground Layer: Dense, including *Xanthorrhoea latifolia, Macrozamia mountperriensis, Poa cheelii* or *P. labillardieri, Imperata cylindrica, Geranium solanderi, Sorghum leiocladum, Austrosteenisia blackii.*

Ecological Notes: Occurs on ridges and slopes at high altitudes, on heavy clay soils.

Area in current conservation reserves: 0 ha

G39. Blue gum/pink bloodwood woodland on red kraznozem soil
Tree Layer: Woodland of *Eucalyptus tereticornis, Corymbia intermedia*. Frequent species are *C. tessellaris, C. trachyphloia*. Occasionally present are *Lophostemon suaveolens, Melaleuca quinquenervia, Lophostemon confertus, E. siderophloia.*
Shrub Layer: Includes *Acacia melanoxylon.*
Ground Layer: Includes *Imperata cylindrica, Themeda triandra.*
Ecological Notes: Occurs on low hills, ridges and plateaux, on red kraznozem soils, associated with tertiary basalt.
Area in current conservation reserves: 9 ha (NP 9 ha)

G40. This unit has been amalgamated with I11.

G43. Blue gum/tallowwood/brush box woodland on clayey ridges at high altitude
Tree Layer: Woodland of *Eucalyptus tereticornis, E. microcorys, Lophostemon confertus*. Frequent species are *Corymbia intermedia, E. acmenoides, E. crebra, Angophora subvelutina*. Frequently a lower tree layer of *Allocasuarina torulosa* is present. Occasional species include *E. melliodora, | E. biturbinata, E. saligna.*
Shrub Layer: Sparse, including *Lophostemon confertus, Breynia oblongifolia, Acacia melanoxylon.*
Ground Layer: Dense, including *Xanthorrhoea latifolia, Macrozamia miquelii, Poa cheelii, Poa labillardieri, Imperata cylindrica, Geranium solanderi, Sorghum leiocladum, Austrosteenisia blackii.*
Ecological Notes: Occurs on ridges and slopes in high rainfall areas at high altitudes, with heavy clay soils.
Notes: This unit was formerly included within G38.
Area in current conservation reserves: 928 ha (NP 926 ha; RR 2 ha)

H6. Narrow-leaved ironbark/scrub cypress pine woodland
Tree Layer: Woodland to open-woodland of *Eucalyptus crebra* and *Callitris baileyi.* Frequently occurring is *E. tereticornis.*
Shrub Layer: Dense, including **Lantana camara, Maytenus bilocularis, Dodonaea triangularis, Citriobatus spinescens, Alphitonia excelsa* and *Acacia glaucocarpa.*
Ground Layer: Sparse, including *Cyperus gracilis, Aristida gracilipes* and *Lomandra longifolia.*
Ecological Notes: Occurs on lower hillslopes on dark brown clay-loam derived from basalt.
Area in current conservation reserves: 0 ha

G41. Narrow-leaved ironbark/red-barked bloodwood/silver-leaved ironbark open-woodland
Tree Layer: Open-woodland to woodland of *Eucalyptus crebra Corymbia erythrophloia.* Frequently occurring is *E. melanophloia.*
Shrub Layer: Shrub layer generally absent.
Ground Layer: Grassy, including *Aristida gracilipes, Heteropogon contortus, Sorghum leiocladum, Eremochloa bimaculata, Cymbopogon refractus, Bothriochloa decipiens.*
Ecological Notes: Occurs on undulating hills at low to moderate altitude, on clayey soils, mostly derived from volcanics. This unit is closely related to I11, and could be considered its northern replacement.
Area in current conservation reserves: 436 ha (NP 371 ha; RR 65 ha)

G42. This unit is a Non-forest Community.
G43. This unit has been moved to the Woodlands section.

H1. Semi-evergreen vine thicket communities (softwood scrub) of rosewood, brush poison tree, brush wilga, brush whitewood, leopard ash, small-fruited mock olive, small-leaved coondoo with frequent emergent narrow-leaved bottle tree and occasional brigalow and belah

Tree Layer: Low closed-forest to closed-forest of *Acacia fasciculifera, Excoecaria dallachyana, Geijera salicifolia, G. paniculata, Atalaya salicifolia, Flindersia collina, Notelaea microcarpa, Pouteria cotinifolia, Ehretia membranifolia, *Opuntia tomentosa.* Emergents of *Brachychiton rupestris,* also (less frequently) *Acacia harpophylla, Casuarina cristata.*

Shrub Layer: *Alectryon diversifolius, Acalypha eremorum, Canthium odoratum, C. vacciniifolium, Carissa ovata, Citriobatus* spp..

Ground Layer: *Einadia hastata, Cyperus gracilis* sens. lat., *Abutilon oxycarpum, Ancistrachne uncinulata.*

Lianas: *Secamone elliptica, Trophis scandens, Cissus opaca, Parsonsia lanceolata.*

Ecological Notes: This unit occurs predominantly on Mesozoic fine-grained sediments. It frequently forms complexes with (and intergrades with) *Acacia harpophylla*-dominated communities (Unit H47).

Area in Conservation Reserves: 98 ha (NP 98 ha)

H2. This unit has been deleted as it occurs in Brigalow Belt rather than South-eastern Queensland Biogeographical Region. (Yarrol Road, SE of Monto - on limestone)

H3. This unit has been amalgamated with I3.

H4. Semi-evergreen vine thicket to microphyll vine forest of rosewood, brush poison tree, silver croton, small-leaved coondoo, strychnine, brush caper berry, python tree with emergent bottle trees

Tree Layer: Closed-forest of *Acacia fasciculifera, Excoecaria dallachyana, Croton insularis, Pouteria cotinifolia, Strychnos psilosperma, Capparis arborea, Austromyrtus bidwillii, Sterculia quadrifida, Drypetes deplanchei, Briedelia leichhardtii, Notelaea microcarpa, Terminalia porphyrocarpa, Premna lignum-vitae.* Emergents of *Brachychiton rupestris, B. australis, Ficus platypoda.*

Shrub Layer: *Diospyros humilis, Canthium vacciniifolium, Murraya paniculata, Alyxia ruscifolia, Cassine melanocarpa, Croton acronychioides, Canthium odoratum, Carissa ovata, Tarenna* sp. (Ka Ka Mundi NP W.J.McDonald+ 4642).

Ground Layer: *Ancistrachne uncinulata, Oplismenus aemulus.*

Lianas: *Trophis scandens, Pandorea jasminoides, Austrosteenisia blackii, Glossocarya hemiderma, Tinospora smilacina, Jasminum* spp., *Melodorum leichhardtii, Parsonsia* spp..

Epiphytes: *Dendrobium bowmanii, Pyrrosia rupestris.*

Ecological Notes: This unit occurs on fine-grained sediments in the far north of the region (Boyne and Calliope River valleys).

Area in Conservation Reserves: 0 ha

H5. Microphyll vine forest of small-leaved tuckeroo, yellow tulip, python tree, silver croton, brush caper berry

Tree Layer: Closed-forest of *Cupaniopsis parvifolia, Drypetes deplanchei, Austromyrtus bidwillii, Croton insularis, Capparis arborea,* also *Excoecaria dallachyana, Owenia venosa, Canthium buxifolium, Flindersia collina, Grevillea helmsii, Dendrocnide photinophylla, Notelaea microcarpa, Pouteria cotinifolia, Premna lignum-vitae, Geijera paniculata,* Emergents of *Ficus platypoda* and (infrequently) *Brachychiton rupestris.*

Shrub Layer: *Carissa ovata, Canthium vacciniifolium, Croton acronychioides, Acalypha capillipes, Solanum stelligerum, Alyxia ruscifolia***,** *Citriobatus linearis.*

Ground Layer: *Ancistrachne uncinulata, Harneria hygrophiloides, Nyssanthes diffusa.*

Lianas: *Melodorum leichhardtii, Austrosteenisia blackii, Jasminum simplicifolium* subsp. *australiense, Cissus oblonga.*

Epiphytes: *Pyrrosia rupestris***.**

Ecological Notes: This unit occurs on fine-grained sediments. The structure and floristic composition of these stands are intermediate between those of araucarian microphyll vine forest (Unit G18) and semi-evergreen vine thicket (Unit H1).

Area in Conservation Reserves: 80 ha (CP 80 ha)

H47. Open-forest to woodland of brigalow and wilga, with emergent belah and bottle trees

Tree Layer: Open-forest to woodland of *Acacia harpophylla, Geijera parviflora.* Emergents of *Casuarina cristata* (sometimes co-dominant with *A. harpophylla*), *Brachychiton* spp.

Shrub Layer: *Carissa ovata, Alectryon diversifolius,* also *Apophyllum anomalum, Eremophila mitchellii, Cassine australis* var. *angustifolius, Ehretia membranifolia, Atalaya hemiglauca.*

Ground Layer: *Ancistrachne uncinulata, Enneapogon* spp., *Enteropogon unispiceus, Cyperus gracilis* sens. lat., *Enchylaena tomentosa, Einadia hastata, Paspalidium* spp., *Portulaca* spp., *Sporobolus* spp.

Lianas: *Cissus opaca, Parsonsia lanceolata.*

Ecological Notes: This unit frequently occurs in association with semi-evergreen vine thicket (softwood scrub - Unit H1), often occupying heavier soils on lower parts of the landscape. Whilst many of the associated understorey shrubs may also be found in vine thickets, there is neither the structural development nor the floristic diversity displayed by the latter communities.

Area in Conservation Reserves: 1 ha (CP 1 ha)

H6. This unit has been moved to Section G - "Basalt".

H7. This unit has been moved to Section E - "Alluvium".

H8. This unit has been amalgamated with I12.

H9. Blackdown stringybark tall open-forest
Tree Layer: Tall open-forest to woodland of *Eucalyptus sphaerocarpa.* Frequent associates are *E. melanoleuca, E. cloeziana, Angophora leiocarpa.* Occasionally present are *Corymbia intermedia, E. acmenoides, E. propinqua, Syncarpia glomulifera*. There is frequently a lower tree layer of *Allocasuarina torulosa.*
Shrub Layer: Includes *Livistona* sp. (Blackdown Tableland R.J.Henderson+ H1180), *Monotoca scoparia, Jacksonia scoparia, Xanthorrhoea johnsonii, Acacia leiocalyx.*
Ground Layer: Includes *Goodenia rotundifolia, Dichelachne micrantha, Desmodium rhytidophyllum, Platysace ericoides, Themeda triandra.*
Ecological Notes: Occurs on extensive tableland and range system on shallow to deep sandy soils, derived from quartzose sandstone.
Notes: This unit now includes H33.
Area in current conservation reserves: 11162 ha (NP 11162 ha)

H10. Yellowjacket/ironbark/Bailey's stringybark open-forest
Tree Layer: Open-forest to woodland of *Corymbia bunites.* Frequent associates include *Eucalyptus melanoleuca* (or *E. suffulgens*), *E. baileyana* and *C. trachyphloia.* Occasionally present are *C. hendersonii* or *E. sphaerocarpa.*
Shrub Layer: Includes *Allocasuarina torulosa, Xanthorrhoea johnsonii, Leptospermum lamellatum, Hakea plurinervia, Lysicarpus angustifolius.*
Ground Layer: Includes *Themeda triandra, Entolasia stricta, Goodenia bellidifolia* subsp. *argentea, Caustis pentandra, Entolasia whiteana.*
Ecological Notes: Occurs on western and northern sides of extensive tableland on shallow to skeletal soils, derived from quartzose sandstone.
Area in current conservation reserves: 8602 ha (NP 8602 ha)

H11. Blackbutt communities on coastal sandstone
Tree Layer: Open-forest to tall open-forest of *Eucalyptus pilularis, Corymbia intermedia* and *Lophostemon confertus.* Frequently occurring are *E. microcorys, Syncarpia glomulifera, E. resinifera.* A lower tree layer of *Allocasuarina torulosa* is sometimes present.
Shrub Layer: Includes *Alphitonia excelsa, Acacia melanoxylon, Glochidion ferdinandi.*
Ground Layer: Includes *Themeda triandra, Imperata cylindrica, Calochlaena dubia.*
Ecological Notes: Occurs from coastal foothills to mountainous regions in high rainfall areas, on sandy to loamy soils derived from Landsborough Sandstone.
Area in current conservation reserves: 945 ha (NP 880 ha; CP 63 ha; RR 2 ha)

H12. Blackbutt/brown bloodwood/tallowwood open-forest on the Helidon Hills
Tree Layer: Open-forest to tall open-forest of *Eucalyptus pilularis,* usually with *Corymbia trachyphloia, E. microcorys,* or *E. baileyana.* Less frequent canopy species are *C. gummifera* and *E. planchoniana.* A lower tree layer of *Angophora woodsiana* is often present.
Shrub Layer: Includes *Elaeocarpus reticulatus* and *Trochocarpa laurina.*
Ground Layer: Includes *Pteridium esculentum, Themeda triandra* and *Cymbopogon refractus.*
Ecological Notes: Occurs on ridges composed of quartzose sandstone north of Helidon, often with covering of residual lateritic surfaces.
Area in current conservation reserves: 636 ha (NP 636 ha)

H13. Stringybark/Sydney blue gum/pink bloodwood tall open-forest
Tree Layer: Tall open-forest of *Eucalyptus mensalis.* Frequent species are *E. saligna, Corymbia intermedia, E. sphaerocarpa.* There is frequently a lower tree layer of *Allocasuarina torulosa*.
Shrub Layer: Includes *Acacia implexa, Acacia gittinsii, Jacksonia scoparia.*
Ground Layer: Includes *Themeda triandra, Pteridium esculentum, Calochlaena dubia.*
Ecological Notes: Occurs at highest altitudes of Blackdown Tableland on patches of red earth overlying quartzose sandstone.
Area in current conservation reserves: 117 ha (NP 117 ha)

H14. Queensland white stringybark/pink bloodwood/grey ironbark open-forest
Tree Layer: Open-forest of *Eucalyptus tindaliae, Corymbia intermedia, E. siderophloia.* Frequent canopy species include *E. pilularis, E. resinifera, Angophora woodsiana and E. racemosa.*
Shrub Layer: Moderately dense, including *Banksia oblongifolia, Acacia complanata, Pultenaea villosa.*
Ground Layer: Includes *Themeda triandra, Entolasia stricta, Desmodium rhytidophyllum, Imperata cylindrica.*
Ecological Notes: Occurs on low to moderately elevated coastal ridges, on deeply weathered sandstone.
Area in current conservation reserves: 699 ha (NP 699 ha)

H15. Some areas previously mapped as H15 are referrable to I12, while other areas comprise narrow gullies of *Lophostemon confertus* which are unmappable at 1:100 000 scale. Hence this unit has been deleted.
(*Lophostemon confertus*)

H44. Lancewood open-forest
Tree Layer: Tall closed-forest, to open-forest, to open-woodland of *Acacia shirleyi.* Frequently occurring are *Eucalyptus crebra* and *Corymbia clarksoniana.* *Callitris glaucophylla* may also occur on sandy ridges.
Shrub Layer: Includes *Erythroxylum australe, Alphitonia excelsa, Petalostigma pubescens.*
Ground Layer: Includes *Aristida caput-medusae, Entolasia stricta, Paspalidium caespitosum, Setaria surgens, Eremochloa bimaculata, Eriostemon difformis.*
Ecological Notes: Occurs on lowlands and drainage lines, along rises, ridges and jump-ups, near Blackdown Tableland. Soils are shallow and derived from sandstones, siltstones and conglomerates.
Area in current conservation reserves: 245 ha (NP 245 ha)

H16. Smooth-barked apple/spotted gum woodland
Tree Layer: Woodland to open-woodland of *Angophora leiocarpa* with *Corymbia citriodora.* Associated canopy species include *Eucalyptus exserta, E. crebra* and *E. acmenoides.*
Shrub Layer: Absent or sparse, with *Lophostemon* sp. aff. *confertus* and *Acacia* spp.
Ground Layer: Very sparse to dense, with *Eremochloa bimaculata, Aristida* spp., *Alloteropsis semialata, Xanthorrhoea johnsonii.*
Ecological Notes: Occurs on gently undulating terrain, at low altitudes, on sandy loams derived from sandstone.
Area in current conservation reserves: 302 ha (NP 199 ha; RR 103 ha)

H17. Smudgee/broad-leaved white mahogany low woodland
Tree Layer: Low woodland to open-woodland of *Angophora woodsiana, Eucalyptus umbra*. Frequent associates include *Allocasuarina littoralis* and *Lophostemon confertus.*
Shrub Layer: Includes *Banksia integrifolia, Acacia flavescens* and *Acacia aulacocarpa.*
Ground Layer: Includes *Xanthorrhoea johnsonii, Themeda triandra, Hibbertia linearis* var. *obtusifolia, Entolasia stricta* and *Alloteropsis semialata.*
Ecological Notes: Occurs on lithosols with exposed sandstone boulders.
Area in current conservation reserves: 61 ha (NP 61 ha)

H18. This unit has been amalgamated with H21.

H19. Spotted gum/narrow-leaved ironbark woodland
Tree Layer: Woodland to open-forest of *Corymbia citriodora* and *Eucalyptus crebra*. Frequently occurring are *E. acmenoides, C. intermedia, E. exserta.* Occasionally present are one or more of the following: *E. longirostrata, C. clarksoniana, Lophostemon confertus, Angophora leiocarpa, E. moluccana, E. major, E. tereticornis, E. siderophloia, E. microcorys.*
Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Acacia aulacocarpa, A. leiocalyx, Jacksonia scoparia.*
Ground Layer: Usually grassy, includes *Themeda triandra, Imperata cylindrica, Bothriochloa decipiens, Cymbopogon refractus, Arundinella nepalensis, Aristida queenslandica, Macrozamia miquelii.*
Ecological Notes: Occurs on low to moderately elevated hills and mountains, often on labile sandstones or siltstones, but also on acidic igneous rocks or metamorphics. Soils are sands or loams of varying depth.
Area in current conservation reserves: 11837 ha (NP 11157 ha; CP 567 ha; RR 113 ha)

H20. Spotted gum/white mahogany/brown bloodwood woodland on the Helidon Hills

Tree Layer: Open-forest or woodland of *Corymbia citriodora, Eucalyptus acmenoides, C. trachyphloia, E. crebra.* Frequent species are *E. taurina, Angophora woodsiana, E. major, E. fibrosa* subsp. *fibrosa*. There is often a lower tree layer of *Allocasuarina torulosa.*

Shrub Layer: Includes *Acacia penninervis.*

Ground Layer: Includes *Imperata cylindrica, Themeda triandra, Aristida calycina.*

Ecological Notes: Occurs on broad crests and slopes of ridges on quartzose sandstone in the Helidon Hills.

Area in current conservation reserves: 31 ha (NP 31 ha)

H21. Grey gum/broad-leaved white mahogany/grey ironbark woodland
Tree Layer: Woodland of *Eucalyptus major, E. carnea, E. siderophloia,* *Angophora leiocarpa, Corymbia intermedia.* Occasionally present are *C. trachyphloia, Lophostemon confertus, C. citriodora, E. microcorys.*
Shrub Layer: Includes *Acacia aulacocarpa, Acacia maidenii, Alphitonia excelsa.*
Ground Layer: Includes *Imperata cylindrica, Goodenia rotundifolia, Cymbopogon refractus, Lomandra multiflora, Desmodium rhytidophyllum.*
Ecological Notes: Occurs on ridges, on a range of geologies, but predominantly on sandstones.
Area in current conservation reserves: 32 ha (NP 32 ha)

H22. Pink bloodwood/swamp box woodland
Tree Layer: Woodland of *Corymbia intermedia* often with *Lophostemon suaveolens,* sometimes with sparse understorey of *Allocasuarina* spp.
Shrub Layer: Shrub layer usually absent.
Ground Layer: Mid-dense layer with *Themeda triandra, Xanthorrhoea latifolia* or *Eremochloa bimaculata.*
Ecological Notes: Occurs on flat to gently undulating terrain, on red-brown clay loams derived from weathered laterite, arenite, mudstone, schist or chert.
Area in current conservation reserves: 0 ha

H23. Narrow-leaved ironbark/brown bloodwood woodland
Tree Layer: Woodland to open-woodland of *Eucalyptus crebra* and *Corymbia trachyphloia*, sometimes with lower tree layer of *Callitris endlicheri*.
Shrub Layer: Shrub layer usually absent.
Ground Layer: Includes *Xanthorrhoea latifolia* or *Themeda triandra.*
Ecological Notes: Occurs on upper slopes in hilly terrain, on sandy soils derived from sandstone or sometimes granite.
Area in current conservation reserves: 2712 ha (NP 2712 ha)

H24. White mahogany/brown bloodwood/smooth-barked apple woodland on coastal foothills

Tree Layer: Woodland to open-woodland of *Eucalyptus acmenoides* and *Corymbia trachyphloia,* usually with *Angophora leiocarpa*. Infrequent species include *E. major, E. moluccana, C. intermedia, E. exserta.*

Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Allocasuarina torulosa* or *A. littoralis.*

Ground Layer: Includes *Xanthorrhoea latifolia* or *X. johnsonii, Themeda triandra, Eremochloa bimaculata.*

Ecological Notes: Occurs on slopes of undulating terrain, usually adjacent to the coastal lowlands, with sandy or loamy soils derived from sandstone, or occasionally granite.

Area in current conservation reserves: 3908 ha (NP 3870 ha; CP 37 ha; RR 1 ha)

H25. White mahogany/brown bloodwood/smudgee woodland on the Helidon Hills
Tree Layer: Woodland of *Eucalyptus acmenoides, Corymbia trachyphloia* with lower tree layer of *Angophora woodsiana*. Frequently occurring species are *C. citriodora, E. baileyana, E. taurina, E. fibrosa.*
Shrub Layer: Includes *Leptospermum trinervium, Acacia podalyriifolia, Daviesia villifera.*
Ground Layer: Includes *Xanthorrhoea johnsonii* or *X. latifolia, Lomandra* spp., *Entolasia stricta, Imperata cylindrica*.
Ecological Notes: Occurs on rocky hills, upper slopes and crests. Soils are sandy, derived from quartzose sandstone.
Area in current conservation reserves: 0 ha

H26. White mahogany/thin-leaved stringybark woodland
Tree Layer: Woodland to open-forest of *Eucalyptus acmenoides* and *E. eugenioides*. Frequent species are *E. longirostrata, Corymbia trachyphloia*. Sometimes present is *C. intermedia*.
Shrub Layer: Shrub layer generally absent.
Ground Layer: Includes *Arundinella nepalensis, Eremochloa bimaculata, Alloteropsis semialata, Microlaena stipoides, Cymbopogon refractus, Imperata cylindrica.*
Ecological Notes: Occurs at high altitudes on gentle to moderate slopes on loamy soils.
Area in current conservation reserves: 0 ha

H27. Narrow-leaved ironbark/smooth-barked apple woodland on sandy hills
Tree Layer: Woodland of *Eucalyptus crebra* and *Angophora leiocarpa,* usually with *E. longirostrata, E. major* and *Corymbia intermedia*. Occasional species are *E. acmenoides, C. citriodora, E. carnea.*
Shrub Layer: Moderately dense with *Acacia leiocalyx, Acacia aulacocarpa, Alphitonia excelsa* and *Jacksonia scoparia*.
Ground Layer: Includes *Aristida calycina, Cymbopogon refractus* and *Themeda triandra.*
Ecological Notes: Occurs on ridges on sandy soil derived from sandstone.
Area in current conservation reserves: 1091 ha (NP 972 ha; CP 119 ha)

H28. Gum-topped ironbark woodland
Tree Layer: Open-forest to woodland of *Eucalyptus decorticans* and *Corymbia citriodora*. Frequently occurring is *C. trachyphloia*. Occasionally present is *E. fibrosa* subsp. *fibrosa*.
Shrub Layer: Includes *Acacia bancroftii, Jacksonia scoparia, Alphitonia excelsa, Acacia penninervis.*
Ground Layer: Includes *Eremochloa bimaculata, Cleistochloa rigida, Scleria sphacelata, Cleistochloa subjuncea.*
Ecological Notes: Occurs on mottled zone on slopes of lateritised plateaux, or on crests of hills, on infertile sandy or pale clay-loams with outcropping sandstone rocks. The unit is confined to the westernmost parts of SEQ.
Area in current conservation reserves: 3 ha (NP 3 ha)

H29. Broad-leaved ironbark woodland
Tree Layer: Woodland of *Eucalyptus fibrosa* subsp. *fibrosa*. Frequently occurring are *Corymbia citriodora, E. acmenoides*. Infrequent are *C. intermedia, Angophora leiocarpa* and *E. moluccana. C. henryi* may occur in the south.
Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Acacia leiocalyx, A. complanata.*
Ground Layer: Includes *Arundinella nepalensis, Themeda triandra, Eremochloa bimaculata, Xanthorrhoea latifolia, Entolasia stricta.*
Ecological Notes: Occurs on crests and upper slopes of gravelly ridges, on shallow soil derived from sandstone or siltstone. Absent at high altitudes and in high rainfall areas.
Area in current conservation reserves: 136 ha (NP 39 ha; CP 97 ha)

H30. Broad-leaved ironbark/mugga ironbark woodland
Tree Layer: Woodland of *Eucalyptus fibrosa* subsp. *fibrosa*, usually with *E. sideroxylon.* Frequent species include *E. major, Angophora leiocarpa.* Infrequent species are *E. bakeri, E. crebra, E. moluccana.*
Shrub Layer: Tall shrubs include *Acacia blakei, Acacia loroloba, Bertya opponens, Callistemon formosus, Allocasuarina littoralis.* Smaller shrubs include *Dodonaea triangularis, Canthium buxifolium, Acacia podalyriifolia, Ozothamnus diosmifolius, Hovea* sp.
Ground Layer: Includes *Scleria sphacelata, Entolasia stricta, Calotis dentex, Gahnia aspera, Cymbopogon refractus.*
Ecological Notes: Occurs on slopes and crests of hills, at moderate altitude, on sandy to loamy soils derived from sandstone or siltstone. Only in the southern part of the region.
Area in current conservation reserves: 0 ha

H31. This unit has been amalgamated with J12.

H32. Yarraman ironbark woodland on sandstones
Tree Layer: Woodland to tall woodland of *Eucalyptus melanoleuca* or *E. suffulgens.* Frequently occurring species are *Corymbia trachyphloia, E. major, E. acmenoides*. There is sometimes a lower tree layer of *Acacia blakei.*
Shrub Layer: Includes *Acacia longispicata, Bossiaea carinalis.*
Ground Layer: Includes *Entolasia stricta, Aristida queenslandica.*
Ecological Notes: Occurs on ridges and upper slopes at high altitude (600-800 m), with sandy to loamy soils derived from sandstone.
Area in current conservation reserves: 1280 ha (NP 1280 ha)

H33. This unit has been amalgamated with H9.

H34. Scribbly gum/bloodwood woodland on sandstone hillslopes
Tree Layer: Woodland of *Eucalyptus racemosa* and *Corymbia intermedia*. Frequently occurring species are *C. trachyphloia* and *Angophora leiocarpa.*
Shrub Layer: Includes *Acacia flavescens, Leptospermum trinervium, A. complanata.*
Ground Layer: Includes *Entolasia stricta, Eriachne pallescens, Imperata cylindrica, Lepidosperma laterale, Xanthorrhoea latifolia.*
Ecological Notes: Occurs on upper to lower slopes of low mountain ridges south-west of Maryborough.
Area in current conservation reserves: 0 ha

H35. Binjour ironbark woodland
Tree Layer:
a) Woodland to tall woodland of *Eucalyptus rhombica, Corymbia trachyphloia* and *E. virens.*
b) Open-woodland of *Eucalyptus apothalassica, E. rhombica* and *Corymbia trachyphloia,* with a lower tree layer of *Allocasuarina inophloia.*
Shrub Layer:
a) Mid-dense, with *Lophostemon* sp. aff. *confertus, Acacia complanata.*
b) Shrub layer generally absent.
Ground Layer:
a) Sparse, usually grassy.
b) Includes *Xanthorrhoea* sp., *Triodia* sp. and other heathy species.
Ecological Notes: Association a) occurs on top of sandstone jump-up, with deeper soils than association b) which occurs on skeletal soils around edges of jump-up.
Area in current conservation reserves: 0 ha

H36. Narrow-leaved red gum/pink bloodwood woodland
Tree Layer: Woodland of *Eucalyptus seeana* and *Corymbia intermedia.* Frequently occurring is *Angophora leiocarpa.* A lower tree layer of *Lophostemon suaveolens* is often present.
Shrub Layer: Includes *Lophostemon suaveolens, Petalostigma pubescens, Alphitonia excelsa.*
Ground Layer: Includes *Imperata cylindrica, Eremochloa bimaculata, Lomandra confertifolia* subsp. *pallida, Aristida calycina, Themeda triandra, Alloteropsis semialata, Pimelea linifolia, Laxmannia gracilis, Aristida warburgii.*
Ecological Notes: Occurs on gentle slopes with poor drainage, on sandy soils.
Area in current conservation reserves: 0 ha

H37. Ironbark/white mahogany woodland on sandstones
Tree Layer: Woodland to tall woodland of *Eucalyptus suffulgens* and *E. acmenoides*. Frequent species are *E. melanoleuca, Corymbia trachyphloia. E. major* is occasionally present.
Shrub Layer: Includes *Choretrum candollei, Lophostemon* sp. aff. *confertus, Jacksonia scoparia, Acacia penninervis*.
Ground Layer: Includes *Entolasia stricta, Themeda triandra, Paspalidium distans, Lomandra multiflora, Cymbopogon refractus.*
Ecological Notes: Occurs on hilly terrain with loamy soils derived from sandstone.
Area in current conservation reserves: 35 ha (NP 35 ha)

H38. This unit has been amalgamated with E9.

H39. Nerang-Beenleigh alliance
Tree Layer:
The following associations appear to be present:
a. *Eucalyptus carnea, E. tindaliae* - widespread, on a wide range of soils and topography.
b. *Eucalyptus acmenoides* - adjacent to rainforest at Mt Tamborine.
c. *Eucalyptus microcorys, E. propinqua, Lophostemon confertus* - valley bottoms, heads of valleys, plateaux.
d. *Corymbia gummifera* - moist coastal areas.
e. *Corymbia citriodora, E. carnea, E. tindaliae, E. propinqua, C. henryi* and *E. crebra.*
f. *Eucalyptus pilularis, E. racemosa, Corymbia intermedia, E. carnea, E. microcorys, E. tindaliae* - at Daisy Hill.
g. *Eucalyptus pilularis, E. tindaliae, Corymbia gummifera, E. microcorys,* . *resinifera* - Nerang.
h. *Eucalyptus planchoniana*, often with *E. baileyana*.
i. *Eucalyptus moluccana*, sometimes with *Corymbia citriodora, E. crebra, E. tereticornis, C. intermedia* and *C. tessellaris* - between Park Ridge and Beaudesert.
j. *Eucalyptus seeana*, sometimes with *E. racemosa.*
k. *Eucalyptus fibrosa, Corymbia citriodora, C. henryi* (with *Angophora leiocarpa*).
Shrub Layer: No data available.
Ground Layer: No data available.
Ecological Notes: The alliance encompasses many geologies, landforms and soil types.
Area in current conservation reserves: 2133 ha (NP 1255 ha; CP 878 ha)

H43. Brigalow/Moreton Bay ash woodland
Tree Layer: Woodland of *Acacia harpophylla,* often with *Corymbia tessellaris.*
Shrub Layer: Includes *Terminalia oblongata, Pittosporum phylliraeoides, Eremophila mitchellii.*
Ground Layer: Includes *Carissa ovata, Enteropogon acicularis, Enchylaena tomentosa.*
Ecological Notes: Occurs on cracking clays and clay loams of the lowlands and drainage lines, near Blackdown Tableland.
Area in current conservation reserves: 1080 ha (NP 1080 ha)

H45. Narrow-leaved ironbark/Clarkson's bloodwood woodland
Tree Layer: Tall open-woodland to open-forest to open-woodland of *Eucalyptus crebra* and *Corymbia clarksoniana.* Patches of *E. populnea, E. tenuipes, E. melanophloia* and *Lysicarpus angustifolius* may often occur within this vegetation unit.
Shrub Layer: Variable shrub layer may include *Lysicarpus angustifolius, Petalostigma pubescens, Alphitonia excelsa, Flindersia dissosperma, Allocasuarina luehmannii.*
Ground Layer: Variable shrub layer may include *Carissa ovata, Aristida* spp., *Themeda triandra, Bothriochloa decipiens, Eremochloa bimaculata.*
Ecological Notes: Occurs on a range of soil types, derived from sandstones, siltstones and conglomerates, on the lowlands and drainage lines near Blackdown Tableland.
Area in current conservation reserves: 3724 ha (NP 3724 ha)

H46. White mahogany/red bloodwood/Queensland ash woodland
Tree Layer: Woodland of *Eucalyptus acmenoides, Corymbia gummifera, E. montivaga, Angophora woodsiana, E. resinifera.*
Shrub Layer: Includes *Acacia complanata, A. venulosa, Banksia spinulosa, Daviesia wyattiana, Leptospermum trinervium.*
Ground Layer: Includes *Austrostipa pubescens, Patersonia sericea, Aristida benthamii, Lomandra filiformis, Caustis flexuosa, Hibbertia stricta.*
Ecological Notes: Occurs on gentle to moderate slopes on sandy soil derived from quartzose sandstone.
Notes: This new unit is apparently endemic to Hartmann Park at Crows Nest.
Area in current conservation reserves: 0 ha

H40. Cracow ironbark open-woodland
Tree Layer: Open-woodland of *Eucalyptus corynodes*. Frequent species are *Corymbia trachyphloia, E. suffulgens.*
Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Xanthorrhoea johnsonii*.
Ground Layer: Includes *Entolasia stricta, Arundinella nepalensis, Microlaena stipoides, Bossiaea rupicola.*
Ecological Notes: Occurs on small plateau with sandy-loam soils derived from sandstone. This unit occurs mostly in the Brigalow Belt Bioregion.
Area in current conservation reserves: 35 ha (NP 35 ha)

H41. This unit is a Non-forest Community.
H42. This unit was a Non-forest Community, and has now been merged into adjacent polygons, as it was considered too small to be mappable at this scale. (Cliffs, other outcrops)
H43. This unit has been moved to the Woodlands section.
H44. This unit has been moved to the Open-forests section.
H45. This unit has been moved to the Woodlands section.
H46. This unit has been moved to the Woodlands section.
H47. This unit has been moved to the Closed-forests section.

I1. Araucarian notophyll/microphyll vine forest of booyong, crow's ash, lignum-vitae, large-leaved canthium, shining-leaved stinging tree, yellow tulip, small-leaved tuckeroo with emergent hoop pine
Tree Layer: Closed-forest of *Argyrodendron trifoliolatum, A.* sp. (Kin Kin W.D.Francis AQ81198), *Flindersia australis, Premna lignum-vitae, Canthium lamprophyllum, Dendrocnide photinophylla, Drypetes deplanchei, Cupaniopsis parvifolia.* Emergents of *Araucaria cunninghamii, Ficus* spp..
Subcanopy Layer: *Austromyrtus bidwillii, Rhodamnia dumicola, Diospyros fasciculosa, Pouteria myrsinoides, Streblus brunonianus.*
Shrub Layer: *Acalypha capillipes, Alchornea ilicifolia, Randia chartacea, Canthium vacciniifolium, Carissa ovata, Cleistanthus cunninghamii, Solanum stelligerum, Alyxia ruscifolia.*
Ground Layer: *Harneria hygrophiloides, Lastreopsis* spp., *Gymnostachys anceps.*
Lianas: *Jasminum simplicifolium* subsp. *australiense, Parsonsia straminea, Capparis sarmentosa, Melodorum leichhardtii, Tetrastigma nitens, Dioscorea transversa.*
Epiphytes: *Pyrrosia confluens, Platycerium superbum.*
Ecological Notes: This unit is confined to northern parts of the region, and occurs on relatively deep soils in areas of low-hilly terrain with moderate rainfall, e.g. Kalpowar State Forest. In structure and species composition, it is probably most similar to G9.
Area in Conservation Reserves: 0 ha

I2. This unit has been amalgamated with I6.

I3. **Semi-evergreen vine thicket to (minor) araucarian microphyll vine thicket communities of *Backhousia kingii*, also axe-breaker, prickly pine, brush poison tree, small-leaved coondoo with emergent narrow-leaved bottle tree, southern siris, hoop pine**

Tree Layer: Low closed-forest to low open-forest of *Backhousia kingii* (locally dominant), *Geijera paniculata, Bursaria incana, Excoecaria dallachyana, Pouteria cotinifolia, Grevillea helmsii, Macropteranthes leiocaulis,*
Canthium odoratum, Bosistoa medicinalis (lower slopes). Emergents of *Brachychiton rupestris, Archidendropsis thozetiana,* also *Araucaria cunninghamii, Flindersia australis.*

Shrub Layer: *Croton acronychioides, Turraea pubescens, Austromyrtus bidwillii, Acalypha eremorum,* (juvenile) *Backhousia kingii, Abutilon indicum.*

Ground Layer: *Ancistrachne uncinulata, Cyperus gracilis.*

Lianas: *Jasminum* spp., *Tetrastigma nitens, Tinospora smilacina, Secamone elliptica, Parsonsia* spp., *Pandorea pandorana, Cissus opaca.*

Ecological Notes: This unit occurs on soils which are relatively shallow, stony loams to clay loams on a range of substrates including metasediments and intermediate and acid volcanics.

Area in Conservation Reserves: 83 ha (NP 83 ha)

I4. Araucarian microphyll vine forest or thicket with emergent hoop pine
Tree Layer: Closed-forest to low open-forest of *Baloghia inophylla, Olea paniculata, Diospyros pentamera, Drypetes deplanchei, Streblus brunonianus, Aphananthe philippinensis, Mallotus philippensis, Canthium lamprophyllum, Harpullia pendula.* Numerous emergents of *Araucaria cunninghamii.*
Low Tree Layer: *Austromyrtus bidwillii, Bouchardatia neurococca, Acronychia laevis, Croton acronychioides.*
Ground Layer: *Cleistanthus cunninghamii, Wilkiea macrophylla, Alchornea ilicifolia.*
Lianas: *Tetrastigma nitens, Hippocratea barbata, Tylophora benthamii***.**
Epiphytes: *Lastreopsis microsora, Adiantum hispidulum, Polystichum fallax.*
Ecological Notes: This unit occurs in steep drainage lines and adjacent slopes on mountainous terrain in the northern part of the region, e.g. Kroombit Tops. The substrates include intermediate and acid volcanics and associated sediments.
Area in Conservation Reserves: 232 ha (NP 232 ha)

I5. Microphyll/notophyll vine forest or thicket of yellow tulip, scaly ebony, white tamarind, red kamala, python tree, peanut tree, ribbonwood, Burdekin plum
Tree Layer: Closed-forest to low closed-forest of *Drypetes deplanchei, Diospyros geminata, Elattostachys xylocarpa, Mallotus philippensis, Austromyrtus bidwillii, Sterculia quadrifida, Terminalia porphyrocarpa, Briedelia leichhardtii, Euroschinus falcata, Capparis arborea, Pleiogynium timorense, Strychnos psilosperma.*
Shrub Layer: *Carissa ovata, Breynia oblongifolia, *Lantana camara, Turraea pubescens, Acronychia laevis.*
Ground Layer: *Oplismenus aemulus, Adiantum hispidulum, Ancistrachne uncinulata, Pseuderanthemum variable, *Rivina humilis.*
Lianas: *Melodorum leichhardtii, *Passiflora suberosa, Smilax australis, Dioscorea transversa, Secamone elliptica, Cissus oblonga, Glossocarya hemiderma.*
Ecological Notes: This unit occurs on a range of parent materials in near-coastal hilly to mountainous areas in the northernmost part of the region. Deciduous and semi-deciduous species are prominent, e.g. *Sterculia quadrifida, Terminalia porphyrocarpa, Euroschinus falcata, Pleiogynium timorense.*
Area in Conservation Reserves: 0 ha

I6. Araucarian microphyll/notophyll vine forest to thicket of brush caper berry, yellow tulip, python tree, peanut tree, three-veined laurel, shining-leaved stinging tree with emergent hoop pine

Tree Layer: Closed-forest to low closed-forest of *Capparis arborea, Drypetes deplanchei, Austromyrtus bidwillii, Sterculia quadrifida, Cryptocarya triplinervis, Dendrocnide photinophylla*. Emergents of *Araucaria cunninghamii*.

Shrub Layer: **Lantana camara, Turraea pubescens, Alchornea ilicifolia, Carissa ovata.*

Ground Layer: *Pseuderanthemum tenellum, Ancistrachne uncinulata.*

Lianas: *Smilax australis, Melodorum leichhardtii, Pleogyne australis, Geitonoplesium cymosum, Capparis sarmentosa.*

Ecological Notes: This unit shares many of the ecological attributes of Units I4 and I5. It occupies gullies and associated slopes on steep-hilly and mountainous terrain on a range of parent materials, including intermediate and acid volcanics and metasediments. The unit is confined to central and northern parts of the region.

Area in Conservation Reserves: 43 ha (NP 43 ha)

I7. Notophyll vine forest or notophyll feather palm vine forest (gully rainforests) of mango bark, yellow carabeen, soft corkwood, rose marara, crabapple, booyong, domatia tree with emergents of figs, brush box, eucalypts, hoop and bunya pine, often with an understorey of piccabeen palms

Tree Layer: Closed-forest to tall closed-forest of *Canarium australasicum, Sloanea woollsii, Caldcluvia paniculosa, Pseudoweinmannia lachnocarpa, Schizomeria ovata, Argyrodendron trifoliolatum* (Conondale), *A. actinophyllum* subsp. *actinophyllum* (Conondale), *A.* sp. (*Kin Kin W.D.Francis AQ81198*) (Buderim), *Endiandra discolor,* also *Xanthostemon oppositifolius* (Kin Kin area), *Syzygium luehmannii, Pouteria* spp., *Gmelina leichhardtii, Elaeocarpus grandis* (streams), Emergents of *Ficus* spp., *Lophostemon confertus, Eucalyptus* spp., also *Araucaria* spp. and *Agathis robusta* (Kin Kin area).

Subcanopy layer: *Niemeyera chartacea, Archontophoenix cunninghamiana* (locally dominant), *Litsea* spp., *Cryptocarya macdonaldii, Sloanea australis, Sarcopteryx stipata, Alangium villosum* subsp. *polyosmoides.*

Shrub Layer: *Neolitsea dealbata***,** *Cyathea leichhardtiana, Linospadix monostachya, Psychotria simmondsiana, Tasmannia insipida, Randia benthamiana, Wilkiea macrophylla.*

Ground Layer: *Lastreopsis* spp., *Lomandra spicata, L. hystrix* (watercourses), (juvenile) *Archontophoenix cunninghamiana*.

Lianas: *Calamus muelleri, Flagellaria indica, Freycinetia scandens, Austrosteenisia glabristyla* (Conondale), *Trophis scandens, Ripogonum elseyanum, Melodinus australis.*

Epiphytes: *Microsorum scandens, Arthropteris tenella, Pothos longipes, Platycerium bifurcatum, Asplenium australasicum.*
Ecological Notes: This unit comprises notophyll vine forest communities which occur extensively in southern parts of the region on sediments, metasediments and mixed volcanic substrates. These "gully rainforests" commonly occupy sheltered valley situations in areas of relatively high rainfall, and frequently have an understorey dominated by *Archontophoenix cunninghamiana* (notophyll feather palm vine forest). At their driest extreme, e.g. the lower slopes of Buderim and Beechmont plateaus, *Araucaria cunninghamii, Backhousia myrtifolia* and/or *Choricarpia leptopetala* become prominent (araucarian microphyll/notophyll vine forest).
Area in Conservation Reserves: 2852 ha (NP 2804 ha; CP 41 ha; RR 7 ha)

I8. Gympie messmate/pink bloodwood/small-fruited grey gum open-forest
Tree Layer: Open-forest to tall open-forest of *Eucalyptus cloeziana*. Frequently occurring species are *Corymbia intermedia, E. propinqua*. Occasional species are *E. grandis, C. citriodora, E. acmenoides, Syncarpia glomulifera.*
Shrub Layer: Includes *Acacia leiocalyx, Acacia oshanesii, Alphitonia excelsa, Acacia fimbriata, Trema tomentosa*.
Ground Layer: Includes *Cymbopogon refractus, Ottochloa gracillima, Dianella caerulea, Scleria sphacelata, Lomandra multiflora.*
Ecological Notes: Occurs on slopes and ridges on grey sandy loams to clay loams. Confined to the Gympie area.
Area in current conservation reserves: 11 ha (CP 11 ha)

I9. Unit I9 no longer exists in the seamless coverage: around Dayboro I9 has been changed to E9 on seamless coverage; while areas around Mt Mee on basalt have been included with G43.
(*Eucalyptus tereticornis, E. microcorys, Lophostemon confertus* and scrub)

I12. Small-fruited grey gum/grey ironbark open-forest
Tree Layer: Woodland to open-forest of *Eucalyptus propinqua* and *E. siderophloia,* with *Corymbia intermedia*. Frequent species are *E. microcorys, E. acmenoides, Lophostemon confertus, E. carnea, E. moluccana, E. biturbinata, E. crebra*. There is sometimes a lower tree layer of *Allocasuarina torulosa* or *A. littoralis.*
Shrub Layer: Includes *Acacia aulacocarpa, Acacia leiocalyx, Alphitonia excelsa, Maytenus silvestris* and sometimes rainforest species.
Ground Layer: Includes *Themeda triandra, Imperata cylindrica, Lepidosperma laterale, Lomandra multiflora*.
Ecological Notes: Occurs on ridges and slopes in higher rainfall areas, on loamy soils derived from metamorphics, sandstones and siltstones.
Notes: This unit also includes H8. This unit was previously listed under Woodlands.
Area in current conservation reserves: 5063 ha (NP 4916 ha; CP 145 ha; RR 2 ha)

I10. White mahogany/brown bloodwood/narrow-leaved ironbark woodland at Bania State Forest

Tree Layer: Woodland to open-woodland of *Eucalyptus acmenoides, Corymbia trachyphloia*. Frequent species are *E. crebra, Angophora leiocarpa, Angophora* sp. nov., *C. citriodora, E. major, E. longirostrata*.

Shrub Layer: Includes *Pultenaea villosa, Jacksonia scoparia, Acacia penninervis, A. aulacocarpa.*

Ground Layer: Includes *Cymbopogon refractus, Imperata cylindrica, Entolasia stricta, Eremochloa bimaculata, Panicum effusum.*

Ecological Notes: Occurs on gentle to moderate slopes on sandy or loamy soils derived from metamorphics, mostly around 400-500 metres altitude.

Area in current conservation reserves: 0 ha

I11. Narrow-leaved ironbark/silver-leaved ironbark woodland
Tree Layer:
a) & b) Woodland of *Eucalyptus crebra,* frequently with *E. melanophloia,* and sometimes including *Corymbia tessellaris* or *C. intermedia.*
Shrub Layer:
a) Sparse, includes *Acacia leiocalyx, *Lantana camara.*
b) Dense, includes rainforest shrubs such as *Elattostachys xylocarpa, Croton insularis.*
Ground Layer:
a) Dense, including *Cyperus gracilis, Bothriochloa decipiens, Aristida* spp., *Glycine tabacina.*
b) Sparse, including *Cyperus gracilis, Ottochloa gracillima.*
Ecological Notes: Occurs on ridges and slopes at low altitudes, generally away from the coast, on a variety of geologies, but mostly metamorphics. Association b) occurs in close proximity to rainforest communities. This unit is closely related to G41, and could be considered its southern replacement.
Notes: Association b) now includes Unit G40.
Area in current conservation reserves: 11 ha (NP 11 ha)

I12. This unit has been moved to the Open-forests section

I13. Narrow-leaved ironbark/blue gum woodland on lower hillslopes
Tree Layer: Woodland of *Eucalyptus crebra* and *E. tereticornis*. Frequent species are *E. melanophloia, Corymbia tessellaris, Angophora subvelutina*. Occasional species are *C. clarksoniana* and *A. leiocarpa.*
Shrub Layer: Shrub layer generally absent.
Ground Layer: Includes *Arundinella nepalensis, Themeda triandra, Heteropogon contortus.*
Ecological Notes: Occurs on low ridges and lower slopes of hills, on a variety of geological types, including alluvium.
Area in current conservation reserves: 1200 ha (NP 1058 ha; CP 142 ha)

G28. Rosewood communities
Tree Layer: Woodland of *Acacia rhodoxylon* with *Brachychiton australis, B. rupestris, Euroschinus falcatus, Flindersia australis, Acacia fasciculifera.*
Shrub Layer: Includes *Alphitonia excelsa, Croton insularis, Notelaea microcarpa, *Lantana camara, Acalypha* sp.
Ground Layer: Includes *Ancistrachne uncinulata, Drynaria rigidula x D. sparsisora, Melodorum leichhardtii.*
Ecological Notes: Grey loam derived from metamorphics.
Notes: This unit has been moved from Section G - "Basalt".
Area in current conservation reserves: 12 ha (NP 10 ha; RR 2 ha)

J1. Notophyll and notophyll feather palm vine forests ("gully rainforests") of soft corkwood, yellow carabeen, mango bark, corduroy tamarind, laurels with emergent eucalypts and brush box, sometimes with an understorey of piccabeen palms

Tree Layer: Closed-forest of *Caldcluvia paniculosa, Sloanea woollsii, Canarium australasicum, Mischarytera lautereriana, Alectryon subcinereus, Cryptocarya macdonaldii, C. glaucescens, C. erythroxylon, Ceratopetalum apetalum* (Kroombit Tops), *Sloanea macbrydei* (Kroombit Tops and Many Peaks Range), *Litsea leefeana, L. reticulata, Elaeocarpus kirtonii, Mischocarpus pyriformis, Archontophoenix cunninghamiana* (locally dominant), *Cinnamomum oliveri, Planchonella queenslandica, Diospyros pentamera, Endiandra discolor, Gmelina leichhardtii, Helicia glabriflora, Synoum glandulosum.* Emergents of *Eucalyptus* spp., *Lophostemon confertus.*

Shrub Layer: *Neolitsea dealbata, Cordyline rubra, Cyathea leichhardtiana, Rapanea* sp. (Coolum P.R.Sharpe 3240), *Tasmannia insipida.*

Ground Layer: *Blechnum cartilagineum, Lastreopsis microsora, Adiantum silvaticum, Aneilema acuminatum,* (juvenile) *Archontophoenix cunninghamiana.*

Lianas: *Cissus* spp., *Ripogonum album, Morinda jasminoides, Flagellaria indica, Melodinus australis, Trophis scandens.*

Epiphytes: *Platycerium bifurcatum.*

Ecological Notes: This unit is confined to central and northern parts of the region and occupies relatively moist, sheltered situations on acid and intermediate volcanics and metasediments at higher elevations. It has close structural and floristic affinities with the notophyll vine forests of Unit I7.
Area in Conservation Reserves: 157 ha (NP 157 ha)

J2. Araucarian notophyll/microphyll or araucarian microphyll vine forest of southern siris, booyong, brush caper berry, yellow tulip, shining-leaved stinging tree, lacebark tree with emergent hoop pine

Tree Layer: Closed-forest to low closed-forest of *Archidendropsis thozetiana, Argyrodendron* spp., *Capparis arborea, Drypetes deplanchei, Dendrocnide photinophylla, Brachychiton discolor, Pouteria myrsinoides, Diospyros geminata, Notelaea microcarpa, Streblus brunonianus, Strychnos psilosperma.* Emergents of *Araucaria cunninghamii.*

Shrub Layer: **Lantana camara, Carissa ovata, Breynia oblongifolia, Pavetta australiensis, Alchornea ilicifolia, Alyxia ilicifolia* subsp. *magnifolia, Solanum stelligerum.*

Ground Layer: *Oplismenus aemulus, Pseuderanthemum variable, Ancistrachne uncinulata.*

Lianas: *Smilax australis, Melodorum leichhardtii, Dioscorea transversa, *Solanum seaforthianum, Tetrastigma nitens.*

Ecological Notes: This unit occurs in central and northern parts of the region on acid and intermediate volcanics and metasediments. It is particularly characterised by the co-occurrence of *Araucaria cunninghamii* and *Archidendropsis thozetiana* - the latter may occur both as a component of the canopy and as an emergent. The unit intergrades considerably with Units I1 and I6.

Area in Conservation Reserves: 438 ha (438 NP ha)

J3. This unit has been moved to the Woodlands section

J4. White mahogany/turpentine/bloodwood open-forest on high altitude ranges
Tree Layer: Woodland to open-forest of *Eucalyptus acmenoides* and *Syncarpia glomulifera.* Frequently occurring species are *Corymbia intermedia, C. trachyphloia.* Occasionally present are *E. crebra, Lophostemon* sp. aff. *confertus, E. resinifera* and *E. major.*
Shrub Layer: Very sparse, including *Allocasuarina torulosa.*
Ground Layer: Very sparse to dense, including *Themeda triandra, Xanthorrhoea latifolia, Macrozamia miquelii, Imperata cylindrica.*
Ecological Notes: Occurs on protected southerly and easterly slopes in rugged, high altitude ranges. Soils are brown sandy loams derived from granite, granodiorite or volcanic rock.
Area in current conservation reserves: 0 ha

J5. Blue Mountains ash open-forest
Tree Layer: Open-forest of *Eucalyptus oreades,* with *E. campanulata.*
Shrub Layer: Mid-dense shrub layer includes *Trochocarpa laurina, Cassinia compacta, Hakea eriantha, Banksia integrifolia, Acacia falciformis.*
Ground Layer: Sparse to mid-dense ground layer includes *Poa sieberiana, Sticherus flabellatus, Hibbertia dentata, Helichrysum elatum, Dampiera purpurea.*
Ecological Notes: Occurs above 900m altitude on rhyolite.
Area in current conservation reserves: 369 ha (NP 369 ha)

J3. White cypress pine/narrow-leaved ironbark/silver-leaved ironbark woodland
Tree Layer: Woodland of *Callitris glaucophylla* and *Eucalyptus crebra.* Frequently occurring are *Eucalyptus melanophloia, E. exserta, Corymbia clarksoniana.*
Shrub Layer: Includes *Petalostigma pubescens, Acacia grandifolia, Alphitonia excelsa.*
Ground Layer: Includes *Aristida spuria, Cymbopogon refractus.*
Ecological Notes: Occurs on rhyolitic hills or ridge slopes.
Notes: This unit was previously listed under Open-forests.
Area in current conservation reserves: 0 ha

J6. Scribbly gum/red bloodwood/Queensland white stringybark woodland on rhyolite ranges

Tree Layer: Open-forest to open-woodland, of *Eucalyptus racemosa, Corymbia gummifera* and *E. tindaliae.* Frequently occurring are *E. carnea, E. resinifera.* Occasionally present are *E. notabilis, E. microcorys* and *Syncarpia glomulifera.* A lower tree layer of *Allocasuarina torulosa* or *A. littoralis* is frequently present.

Shrub Layer: Includes *Leptospermum trinervium, Banksia spinulosa* var. *collina, Monotoca scoparia, Acacia myrtifolia, Acacia suaveolens, Pultenaea retusa* and *Oxylobium ilicifolium.*

Ground Layer: Sparse to mid-dense, includes *Xanthorrhoea latifolia, X. macronema, Lomandra* spp., *Lepidosperma laterale, Entolasia stricta, Themeda triandra, Imperata cylindrica* and *Pteridium esculentum.*

Ecological Notes: Occurs on coastal ranges, on shallow sandy soil derived from rhyolite.

Area in current conservation reserves: 169 ha (NP 169 ha)

J7. Pink bloodwood/Queensland peppermint woodland
Tree Layer: Woodland of *Corymbia intermedia.* Frequently occurring is *Eucalyptus exserta.* Occasionally present are *Corymbia clarksoniana, E. crebra* and *E. tereticornis.*
Shrub Layer: Sparse, including *Acacia aulacocarpa, Acacia leiocalyx, Lophostemon suaveolens.*
Ground Layer: Includes *Eremochloa bimaculata, Themeda triandra, Xanthorrhoea latifolia, Heteropogon contortus.*
Ecological Notes: Occurs from ridge-tops to mid-slopes and gently undulating terrain in coastal areas, including continental islands. Soils are sandy loams derived from granodiorite, volcanic breccia, sandstone or siltstone.
Area in current conservation reserves: 1591 ha (NP 1548 ha; RR 43 ha)

J8. This unit has been moved to the Open-woodlands section.

J9. Large-fruited yellowjacket woodland
Tree Layer: Woodland of *Corymbia watsoniana.* Frequently occurring species are *Corymbia trachyphloia, Eucalyptus fibrosa* subsp. *fibrosa, E. apothalassica, Angophora leiocarpa* and *Allocasuarina littoralis.* Occasionally present are *E. crebra* and *E. dura.*
Shrub Layer: Includes *Pultenaea* spp.
Ground Layer: Includes *Lomandra* spp., *Entolasia stricta.*
Ecological Notes: Occurs on rhyolite on undulating terrain on low mountain ranges and on jump-ups and ridges. Confined to the extreme west of the bioregion.
Area in current conservation reserves: 0 ha

J10. After further examination it was decided that Ipswich and Caboolture units fitted better into H21, while all the remaining units have been reassigned to H24. (*Eucalyptus acmenoides, Corymbia intermedia*)

J11. White mahogany/pink bloodwood woodland on hilly terrain at high altitude
Tree Layer: Open-woodland to open-forest of *Eucalyptus acmenoides, Corymbia intermedia.* Occasionally present is *E. crebra, E. melliodora,* (*E. longirostrata, Corymbia trachyphloia* on Kroombit Tops).
Shrub Layer: Sparse, including *Lophostemon* sp. aff. *confertus, Acacia aulacocarpa, Alphitonia excelsa, Allocasuarina torulosa.*
Ground Layer: Includes *Poa labillardieri, Macrozamia mountperriensis, M. miquelii, Xanthorrhoea latifolia, Themeda triandra, Ottochloa nodosa, Alloteropsis semialata* (and *Poa cheelii* on Kroombit Tops).
Ecological Notes: Occurs on loamy soils, derived from granitic or basic volcanic rocks, on flat to moderately steep slopes, at high altitude.
Area in current conservation reserves: 173 ha (NP 173 ha)

J12. White mahogany/brown bloodwood/smooth-barked apple woodland at moderate altitude away from the coast
Tree Layer: Woodland to open-forest of *Eucalyptus acmenoides, Corymbia trachyphloia.* Frequently occurring are *Angophora leiocarpa, E. exserta, C. intermedia, C. clarksoniana.* Occasionally present is *E. major.*
Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Jacksonia scoparia, Acacia leiocalyx.*
Ground Layer: Sparse, includes *Xanthorrhoea johnsonii, Themeda triandra.*
Ecological Notes: Occurs on upper slopes of hilly terrain on loamy soil derived from granite, rhyolite and, at Kroombit Tops, sandstone.
Notes: After further investigation it has been decided that H31 should be part of J12.
Area in current conservation reserves: 2406 ha (NP 2406 ha)

J13. White mahogany/spotted gum/brown bloodwood woodland on granite ranges

Tree Layer: Woodland of *Eucalyptus acmenoides, Corymbia citriodora, C. trachyphloia.* Frequently occurring is *E. crebra.* Occasionally present are *E. melliodora, C. intermedia, E. major, Angophora leiocarpa.*

Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Acacia penninervis, Jacksonia scoparia.*

Ground Layer: Includes *Macrozamia miquelii, Aristida queenslandica, Eremochloa bimaculata, Entolasia stricta.*

Ecological Notes: Occurs on grey to brown loams and sandy loams on upper slopes and ridgetops in rugged high altitude granite ranges, and occasionally undulating tablelands.

Area in current conservation reserves: 0 ha

J14. White mahogany/narrow-leaved ironbark/thin-leaved stringybark woodland
Tree Layer: Open-forest to woodland of *Eucalyptus acmenoides, E. crebra, E. eugenioides, Corymbia intermedia.* Occasionally present are *Lophostemon confertus, Angophora floribunda, E. biturbinata, E. moluccana, C. tessellaris.*
Shrub Layer: Sparse tall shrub layer includes *Allocasuarina torulosa* and *Lophostemon confertus,* while mid-dense low shrub layer includes *Lomatia silaifolia, Jacksonia scoparia, Xanthorrhoea latifolia, Podolobium ilicifolium.*
Ground Layer: Dense ground layer includes *Themeda triandra, Imperata cylindrica, Cymbopogon refractus, Pteridium esculentum.*
Ecological Notes: Occurs on foothills, mid-slopes, benches and crests of Mt Fraser and another mountain south of Biggenden. Geology includes anorthoclase and riebeckite trachyte.
Area in current conservation reserves: 0 ha

J15. Castletower ironbark/white mahogany/brown bloodwood communities
Tree Layer: Open-woodland, low woodland, woodland, or open-forest of *Eucalyptus decolor, E. acmenoides, Corymbia trachyphloia.* Frequently occurring is *Syncarpia glomulifera.* Occasionally present are *E. major, E. resinifera, E. montivaga, E. longirostrata, E. exserta.*
Shrub Layer: Includes *Lophostemon* sp. aff. *confertus, Acacia blakei, Allocasuarina* spp., *Phyllanthus gasstroemii.*
Ground Layer: Sparse grassy to shrubby ground layer includes *Themeda triandra, Arundinella nepalensis, Eremochloa bimaculata, Eriachne pallescens, Xanthorrhoea latifolia, Bossiaea* sp. and *Monotoca* sp.
Ecological Notes: Occurs on high altitude steep slopes with large granite or rhyolite outcrops, or mountain crests on volcanic breccia.
Area in current conservation reserves: 324 ha (NP 324 ha)

J16. Gum-topped ironbark communities
Tree Layer: Open-woodland to woodland of *Eucalyptus dura, Corymbia trachyphloia* and *E. acmenoides.* Frequently occurring are *E. crebra, E. exserta.* Occasionally present are *E. apothalassica, C. citriodora.*
Shrub Layer: Includes *Acacia blakei, Acacia grandifolia, Lophostemon confertus, Leptospermum* spp., *Allocasuarina inophloia.*
Ground Layer: Includes *Xanthorrhoea latifolia, X. johnsonii, Arundinella nepalensis, Entolasia stricta, Aristida queenslandica* var. *dissimilis.*
Ecological Notes: Occurs on rocky ridge crests, low plateaux, jump-ups and rugged mountain ranges.
Notes: J27 has now been included in this unit.
Area in current conservation reserves: 2566 ha (NP 2566 ha)

J17. Thin-leaved stringybark/grey gum/narrow-leaved ironbark woodland on coarse sands
Tree Layer: Woodland of *Eucalyptus eugenioides, E. biturbinata/longirostrata, E. crebra,* and *Corymbia trachyphloia* with *E. tereticornis* and *Angophora subvelutina* also occurring on lower slopes.
Shrub Layer: Includes *Alphitonia excelsa, Acacia neriifolia, *Lantana camara, Breynia oblongifolia, Cassinia quinquefaria, Kunzea flavescens, Jacksonia scoparia.*
Ground Layer: Includes *Gahnia aspera, Dianella brevipedunculata, Aristida calycina, Melichrus urceolatus, Persoonia sericea.*
Ecological Notes: Undulating to hilly terrain, on coarse sands derived from granite.
Area in current conservation reserves: 626 ha (NP 626 ha)

J18. This unit has been moved to the Shrublands section (Non-forest Communities).

J19. Queensland ash woodland
Tree Layer: Open-woodland to open-forest of *Eucalyptus montivaga.* Frequently occurring are *E. acmenoides, Corymbia trachyphloia, C. intermedia.*
Shrub Layer: Includes *Allocasuarina littoralis, A. torulosa, Lophostemon* sp. aff. *confertus.*
Ground Layer: Includes *Xanthorrhoea latifolia, Entolasia* spp., *Pteridium esculentum, Microlaena stipoides, Monotoca* sp., *Drynaria rigidula.*
Ecological Notes: Occurs on high altitude, often rocky, mountain peaks and ranges, predominantly on trachyte or granite, but can also be on sandstone.
Area in current conservation reserves: 139 ha (NP 139 ha)

J20. Narrow-leaved ironbark/blue gum woodland with grass-tree understorey
Tree Layer: Woodland of *Eucalyptus crebra, E. tereticornis, Angophora subvelutina, Corymbia tessellaris.*
Shrub Layer: Dominated by *Xanthorrhoea glauca.*
Ground Layer: Includes *Cymbopogon refractus, Themeda triandra, Capillipedium spicigerum, *Melinis repens.*
Ecological Notes: Occurs on upper slopes of a hill, on brown sandy-loam derived from dolerite.
Area in current conservation reserves: 0 ha

J21. Bulloak/dwarf paperbark open-woodland
Tree Layer: Low open-woodland to open-woodland of *Allocasuarina luehmannii* and *Melaleuca nervosa* f. *nervosa.* Frequently present is *Eucalyptus exserta.* Occasionally present are emergent *E. crebra* or *E. populnea.*
Shrub Layer: Shrub layer usually absent.
Ground Layer: Includes *Eremochloa bimaculata.*
Ecological Notes: Occurs on gently undulating coastal plain, on gleyed podzolic soil derived from granodiorite.
Area in current conservation reserves: 0 ha

J22. Broad-leaved white mahogany/brush box low open-woodland
Tree Layer: Low open-woodland of *Eucalyptus carnea* and *Lophostemon confertus.*
Shrub Layer: Includes *Acacia aulacocarpa.*
Ground Layer: Includes *Acacia hubbardiana* and *Themeda triandra.*
Ecological Notes: Occurs on crest and upper slopes of Mt Coolum, on trachyte.
Area in current conservation reserves: 9 ha (NP 9 ha)

J23. Narrow-leaved ironbark open-woodland
Tree Layer:
a) Open-woodland of *Eucalyptus crebra, Lophostemon* sp. aff. *confertus* and *Corymbia clarksoniana*. Frequent species are *E. exserta, C. trachyphloia.*
b) Open-woodland to woodland of *Eucalyptus crebra*. Infrequent species are *E. melanophloia, E. acmenoides.*
Shrub Layer:
a) Includes *Acacia* spp., *Lophostemon* sp. aff. *confertus.*
b) Shrub layer generally absent.
Ground Layer:
a) Includes *Heteropogon contortus, Aristida queenslandica, Capillipedium spicigerum, Eragrostis brownii, Themeda triandra.*
b) Includes *Heteropogon contortus, Cymbopogon refractus, Aristida gracilipes.*
Ecological Notes: Association a) occurs on steep hillsides with very shallow soil derived from acid volcanic substrate. Association b) occurs on undulating terrain at low to moderate altitudes, on loams or clay-loams derived from metamorphics.
Area in current conservation reserves: 933 ha (NP 933 ha)

J24. Rough-barked apple/forest she-oak/blue gum open-woodland on high altitude escarpments
Tree Layer: Open-woodland of *Angophora subvelutina, Allocasuarina torulosa, Eucalyptus tereticornis, E. campanulata.* Other species are *E. biturbinata, E. melliodora.*
Shrub Layer: Includes *Banksia integrifolia, Acacia melanoxylon, Acacia obtusifolia, Doryanthes palmeri, Xanthorrhoea glauca.*
Ground Layer: Includes *Leucopogon juniperinus, Poa spp., Themeda triandra, Danthonia induta.*
Ecological Notes: Occurs on upper slopes of plateau escarpments, on very shallow soil, with areas of bare rock.
Notes: After further investigation, the description of this unit has been altered somewhat and it has been moved from Shrublands to Open-woodlands.
Area in current conservation reserves: 1323 ha (NP 1323 ha)

J25. This unit is a Non-forest Community.
J26. This unit is a Non-forest Community.
J27. This unit has been amalgamated with J16.
J28. This unit is a Non-forest Community.
J29. This unit is a Non-forest Community.
J30. This unit is a Non-forest Community.
J31. This unit is a Non-forest Community.

J8. Heathy open eucalypt woodland on rhyolite plugs on the Sunshine Coast
Tree Layer: Open-woodland of *Corymbia trachyphloia, Eucalyptus carnea.* Frequent species are *E. crebra, E. exserta* and *Lophostemon confertus.*
Shrub Layer: Includes *Leptospermum luehmannii, L. microcarpum* and *Keraudrenia hillii.*
Ground Layer: Includes *Themeda triandra, Calytrix tetragona, Plectranthus graveolens* and *Cheilanthes sieberi.*
Ecological Notes: Occurs on skeletal soils on the top of trachyte or rhyolite mountains, including the Glasshouse Mountains.
Notes: This unit was previously listed in the Woodland section.
Area in current conservation reserves: 218 ha (NP 218 ha)

K1. White mahogany/blue gum open-woodland with grass-tree understorey on serpentinite

Tree Layer: Woodland to open-woodland of *Eucalyptus acmenoides, E. tereticornis, Corymbia intermedia, E. crebra.* Occasional species are *C. clarksoniana, Lophostemon confertus.*

Shrub Layer: Dominated by *Xanthorrhoea johnsonii,* with *Leptospermum microcarpum, Jacksonia scoparia.*

Ground Layer: Includes *Cyperus gracilis, Themeda triandra, Aristida* spp.*, Wahlenbergia gracilis.*

Ecological Notes: Occurs on moderate to steep ridges, with shallow loamy soil derived from serpentinite.

Area in current conservation reserves: 0 ha

4. CHAPTER FOUR BROAD FOREST TYPES

The 151 forest map units have been amalgamated into 20 broad forest types. These have been used in the fauna project for modelling the distribution of species. The broader units have been necessary to summarise the finer units such as forest map units or regional ecosystems to enable vegetation to be used as a term for modelling. The groups have been formed on the basis of the structure, dominant species, forest growth cycle relationships and habitat. A panel of Queensland and Commonwealth experts were involved in grouping the vegetation units into the broad forest types. Members of the panel were Simon Bennett, Teresa Eyre, Anne Kelly, Jasmyn Lynch, John Neldner, Andrew Taplin and Peter Young.

Summary distribution maps and descriptions are presented below. A list of the vegetation map units making up each broad forest type is also supplied.

Forest Type 1a.
Wet sclerophyll forest containing species of high value/high quality timber, actively managed for saw-log timber (eg. *Eucalyptus grandis, E. microcorys, E. saligna, E. cloeziana, E. campanulata, E. dunnii, Syncarpia glomulifera*) but not dominated by *E. pilularis* or *Corymbia citriodora*. This forest type is dominated by species of seed-resprouters with only little advanced and lignotuberous growth present in the understorey when in an undisturbed state. The forest type is tall closed-forest with a well developed understorey in which rainforest components, including ferns and palms, may be well represented and exceed 6m in height, or the understorey may be dominated by sclerophyll shrubs. Grasses are absent or sparse in the ground layer. Therefore this forest type is generally subject to a low grazing intensity. This forest type excludes communities dominated by *E. pilularis* and/or *C. citriodora* (see Forest Types 2 & 3).

Component vegetation map units: G19, G20, G21, G24, G27, G30, H13 & I8.

Forest Type 1b.
Wet sclerophyll forest on lowland alluvials, containing *Eucalyptus grandis*, sometimes with *Lophostemon confertus, Syncarpia glomulifera* which are actively managed for sawlog timber. There is a well developed understorey dominated by rainforest species and/or sclerophyllous shrubs. This forest type is subject to low grazing intensity.

Component vegetation map units: D3 & G22.

Forest Type 2.
Wet sclerophyll to mixed forest dominated by *Eucalyptus pilularis* but may include other species such as *E. microcorys, E. acmenoides, Corymbia citriodora, Syncarpia* spp. as sub-dominants. The forest type is open-forest to tall open-forest. An inability to reproduce from lignotuberous growth is a feature of this forest type, although regeneration from coppice after fire in early years is possible. The dominant form of regeneration is by large episodic seedling regeneration following major canopy disturbance when a suitable seed bed is present. Advance growth is rarely present in undisturbed forests and only marginally more likely to occur in disturbed forest. Grasses may be well to poorly represented in the understorey. Characteristic grass species are *Themeda triandra* and *Imperata cylindrica*, however intensive grazing is not possible without thinning or clearing to enhance the growth of grasses.

Component vegetation map units: B8, G23, G35, H11 & H12.

Forest Type 3a.
Mixed forest on higher quality sites which are dominated by *Corymbia citriodora* but include other species such as *Eucalyptus pilularis* and/or *E. acmenoides.* In these communities where site quality is high and canopy dense, regrowth by lignotubers is less prevalent, hence the preponderance of species which lack lignotubers. Shrubs and ferns generally occur in the understorey. Where present, grass species are dominated by *Themeda triandra* and *Imperata cylindrica* in areas of higher site quality, however, as with Forest Type 2 intensive grazing is not possible without thinning or clearing.

Component vegetation map units: H21 & H39.

Forest Type 3b.
Dry sclerophyll forest on lower quality sites dominated by *Corymbia citriodora* but including other species such as *C. clarksoniana, C. intermedia, Eucalyptus crebra, E. fibrosa* subsp. *fibrosa, E. exserta* and *Angophora leiocarpa.* Sub-dominant species in this forest type are generally lignotuberous. The dominant grass species include *Heteropogon contortus, Bothriochloa bladhii* and *Themeda triandra.* This forest type is subject to moderate or high grazing intensity.

Component vegetation map units: H16, H19 & H20.

Forest Type 4a.
Mixed open-forest containing species of moderate value which may include *Eucalyptus propinqua, E. acmenoides, E. siderophloia, , E. campanulata, E. tereticornis, E. crebra, E. fibrosa* subsp. *fibrosa, Corymbia citriodora, C. intermedia, E. moluccana, E. longirostrata, E. carnea,* with a high proportion of suppressed trees present. This forest type varies in the method of regeneration depending on the dominant canopy species. Much of this forest type contains some advanced growth but it is often inadequate to restock the forest or is weighted towards one species in a mixed forest. Lignotuberous species will tend to displace non-lignotuberous species where disturbances to the canopy and forest floor are insufficient to give the latter species a comprehensive advantage. Monocalyptus and bloodwoods occupy the more infertile forest soils and may be replaced by Symphyomyrtus species and/or *C. citriodora* on more fertile soils, and may approach Forest Type 1. The understorey composition varies depending on site quality, ranging from ferns in sites of higher quality to sclerophyllous shrubs and grasses in drier areas. Where the understorey is dominated by *Heteropogon contortus* and *Themeda triandra* this forest type is extensively grazed and modified for grazing activities. Grazing intensity varies according to the amount of clearing, fire and the grazing history, as these activities tend to displace the more palatable *T. triandra* in favour of *H. contortus*.

Component vegetation map units: D2, D4, E6, E13, G26, G29, G33, G34, G38, G39, G43, H9, H22, H24, H25, H26, H29, H30, H32, I10, I12, J4, J5, J11, J12, J13, J14, J15, J17 & J19.

Forest Type 4b.
Mixed forest dominated by *Eucalyptus tereticornis* on river flats and valleys. Other species include *Corymbia intermedia, C. tessellaris, C. clarksoniana, Angophora subvelutina* and *E. nobilis.* A well-developed shrub layer is usually absent. This forest type is generally intensively managed for grazing as the ground layer is dominated by grasses. *Heteropogon contortus* is the most characteristic species, although *Bothriochloa bladhii* and *Themeda triandra* can sometimes dominate.

Component vegetation map units: E9, E10, E11, E12, E14, G36 & H7.

Forest Type 5a.
Coastal woodland generally dominated by *Eucalyptus racemosa*. Other species include *E. umbra, E. tindaliae, E. bancroftii, Corymbia gummifera,* sometimes with *Angophora leiocarpa.* The species in this forest type have low commercial value and are infrequently harvested for sawlogs. The grass flora of these lowland areas is low in diversity. *Themeda triandra* is the most common grass, although *Imperata cylindrica* often becomes dominant when some clearing has taken place. Intensive use for grazing is not possible without expensive land improvement.

Component vegetation map units: B7, B9, B10, B12, D6, D7, D8, D9, H14, H17, H34, H36 & J6.

Forest Type 5b.
Open-forest to open-woodland of species such as *Eucalyptus crebra, E. melanophloia, E. populnea, Corymbia intermedia, E. planchoniana, E. decorticans, E. dura, Angophora floribunda, A. leiocarpa, E. tereticornis, E. moluccana*, sometimes with *Melaleuca* spp. The species in this forest type have low commercial value and are infrequently harvested for sawlogs. Shrubs are sparse. Grasses are well represented in the ground layer, thus this forest type is subject to high grazing intensity. This forest type is dominated by species favouring lignotuberous and advanced growth regeneration in which there may be a prolonged lignotuberous phase, where site quality is low. Establishment of seedlings may occur over time, related to periodic occurrences of suitable seedbeds (resulting from disturbance) and a reduction in grazing pressure. Where the understorey is dominated by *Heteropogon contortus* and *Themeda triandra* this forest type is extensively grazed and modified for grazing activities. Again, a combination of partial clearing, fire and grazing has tended to displace *T. triandra* and other species in favour of *H. contortus* which is more fire resistant and has more efficient seedling regeneration than *T. triandra*.

Component vegetation map units: E7, E8, F1, G31, G32, G41, H6, H10, H23, H27, H28, H35, H37, H40, H45, H46, I11, I13, J3, J7, J8, J9, J16, J18, J20, J22, J23, J24 & K1.

Forest Type 6.
Rainforest. This forest type is protected from timber harvesting and is fire sensitive. Grasses are generally sparse or absent and therefore this forest type is subject to very low grazing pressure.

Rainforest can be divided into 4 broad groups;

6a. Upland cool complex notophyll vine forest
6b. Lowland notophyll vine forest and mid complex notophyll vine forest on the sand islands and in gully situations
6c. Araucarian notophyll/microphyll vine forest
6d. Semi-evergreen vine thicket

Forest Type 6a. Upland cool complex notophyll vine forest

Component vegetation map units: G2, G4, G5 & G16.

Forest Type 6b. Lowland notophyll vine forest and mid complex notophyll vine forest on the sand islands and in gully situations

Component vegetation map units: B2, B3, B4, B5, B6, E1, E3, E4, E5, G1, G10, I5, I7 & J1.

Forest Type 6c. Araucarian notophyll/microphyll vine forest

Component vegetation map units: G3, G8, G9, G11, G13, G17, G18, I1, I4, I6 & J2.

Forest Type 6d. Semi-evergreen vine thicket

Component vegetation map units: G7, H1, H4, H5 & I3.

Forest Type 7.
Notophyll vine forest with eucalypt emergents. These eucalypts are generally fire sensitive. Grazing intensity is low due to minimal grass cover.

Component vegetation map units: G25.

Forest Type 8a.
Melaleuca open-forests and woodlands of lowland coastal areas.

Component vegetation map units: C2, C3, C4 & D10.

Forest Type 8b.
Other non-eucalypt forests, including those dominated by *Callitris* spp., *Casuarina* spp., *Allocasuarina* spp., *Acacia harpophylla, A. shirleyi, A. rhodoxylon, Lophostemon suaveolens.*

Component vegetation map units: A2, B14, C1, D1, G28, H43, H44 & H47.

Forest Type 9.
Non-forest vegetation (heathland, banksia forest, low coastal complex < 5m, mallee shrublands, montane heath and grassland communities).

Component vegetation map units: B1, B11, B17, B20, C5, C6, C7, C8, C9, D11, D12, G42, H41, J21, J25, J26, J28, J29, J30 & J31.

Forest Type 10.
Natural lakes and sedgelands.

Component vegetation map units: C10.

Forest Type 11.
Mangroves and saltmarshes.

Component vegetation map units: A1 & A3.

Forest Type 12.
Sand blows.

Component vegetation map unit: B21.

APPENDIX 1 - METADATA

SEAMLESS SOUTH-EASTERN QUEENSLAND METADATA

Dataset TITLE
Vegetation Survey and Mapping of the South-eastern Queensland Biogeographic Region (1997)

Dataset CUSTODIAN
Queensland Herbarium, Queensland Department of Environment

Dataset JURISDICTION
Queensland

Description ABSTRACT
Vegetation mapping for the SEQ biogeographic region (1:100,000 scale), based on surveys of vegetation communities. Seamless polygon coverages for the region include two themes: 'pre-clearing' and 'remnant' vegetation; and an associated legend of vegetation types. Mapping was based on tiles, usually 1:100,000 mapsheets within the region. Each tile includes the above themes and additional coverages for site survey locations and traverses.

1:100,000 Map Sheet	**Authors**
Beenleigh.	R. M. Dowling & H. Cartan (1997)
Biggenden.	P.Grimshaw (1997)
Biloela.	E. J. Thompson (1997)
Brisbane.	R.M. Dowling, W.J.F. McDonald & T. S. Ryan (1997).
Bundaberg.	A.R.Bean (1997)
Caboolture.	D.C.Johnson and P.A.R. Young (1997)
Calliope.	E. J. Thompson (1997)
Caloundra.	Ryan T.S., Elsol, J.A. and Sattler, P.S. (1997)
Childers.	K.M.Sparshott (1997)
Dingo.	R. M. Dowling and K.M.Stephens (1997)
Eidsvold (SEQ portion).	K.M. Sparshott (1997)
Esk.	D.C.Johnson, K.M.Stephens, R.M.Dowling & S.C.Sullivan (1997)
Fraser Island special 1:50 000 scale, covers all Waddy Point and Happy Valley, and 50% Wide Bay.	J.P. Stanton (1979, updated to 1997)
Gayndah.	P.Grimshaw (1997)
Gladstone.	E. J. Thompson (1998)
Goomeri.	L. Pedley, W.J.F. McDonald & M. Watson (1997)
Gympie	A.R.Bean, W.J.F.McDonald, C.S.Sandercoe & M.Watson (1997)
Helidon.	P.Grimshaw (1997)
Ipswich.	K.M.Stephens & H.Cartan (1997)
Kingaroy.	L. Pedley, P.A.R. Young & W.J.F. McDonald (1997)
Laguna Bay.	A.R.Bean, W.J.F.McDonald, C.S.Sandercoe & M.Watson (1997)

Maryborough.	P.Grimshaw (1997)
Miriam Vale.	E. J. Thompson (1997)
Mitchell Creek.	E. J. Thompson (1997)
Monto.	A.R.Bean (1997)
Mount Lindesay.	S.C. Sullivan & P.A.R. Young (1997)
Mount Perry.	K.M. Sparshott (1997)
Mundubbera (SEQ portion).	P.Grimshaw (1997)
Murgon.	L. Pedley, W.J.F. McDonald & M. Watson (1997)
Murwillumbah.	W.J.F. McDonald and S. C. Sullivan (1997)
Nambour.	A.R.Bean, W.J.F.McDonald, & M. Watson (1997)
Nanango.	D.C.Johnson, W.J.F. McDonald & M. Watson (1997)
Oakey (SEQ portion)	E. J. Thompson (1997)
Pialba.	K.M.Sparshott (1997)
Rodds Bay.	E. J. Thompson (1997)
Rosedale.	A.R.Bean (1997)
Scoria.	A.R.Bean (1997)
Toowoomba (SEQ portion)	P.Grimshaw (1997)
Warwick.	T.S. Ryan and P.A.R. Young (1997)
Wide Bay.	K.M.Sparshott and C.S. Sandercoe (1997)

The seamless coverage may be referenced as Sparshott, K.M., Bean, A.R., Thompson, E.J., Grimshaw, P., Johnson, D.C., McDonald, W.J.F., Pedley, L ., Dowling, R.M., Stephens, K.M., Stanton, J.P., Ryan, T.S., Sandercoe, C.S., Young, P.A.R., Sullivan, S.C., Cartan, H., Watson, M. and Neldner, V.J. (1997). *Pre-clearing and remnant vegetation of the South-eastern Queensland Biogeographic Region. 1:100 000 scale digital mapping coverages.* Queensland Herbarium, Queensland Department of Environment and Heritage, Brisbane and Environment Australia, Commonwealth Department of the Environment, Sport and Territories, Canberra.

Description SEARCH WORD(S)
VEGETATION
VEGETATION Surveys & Mapping
VEGETATION Structure
FLORA

Description GEOGRAPHIC EXTENT NAME(S)
South-eastern Queensland biogeographic region

Dataset Currency BEGINNING DATE
01JAN1995

Dataset Currency ENDING DATE
20FEB1998

Dataset Status PROGRESS
Complete

Dataset Status MAINTENANCE AND UPDATE FREQUENCY
Irregular

Access STORED DATASET FORMAT(S)
DIGITAL - Arc/Info Rev. 7.1.2

Access AVAILABLE FORMAT TYPE(S)
DIGITAL
NON DIGITAL - Plotted Maps

Access ACCESS CONSTRAINTS
The conditions of use are detailed in the data usage agreement signed between the Custodian and the Recipient. No third party usage is permitted other than indicated in the agreement.

Data Quality LINEAGE
Data Sources: 1992-1995 rectified Landsat TM imagery as either hardcopy 1:100,000 photographic reproductions, (from a commercial source) or rectified imagery supplied by the Queensland Department of Natural Resources, SLATS program. 1:85,000 B&W aerial photography (c.1962-1986)(and 1952 for Dingo pre-clearing coverage). Vegetation boundaries derived from photo/image interpretation, site data, traverses, 1:250,000 Geology Series maps and other geology data where available, topographic maps and existing field data and maps (vegetation survey, land system survey, historical survey records, soil and / or geology survey).
Processing Steps: Existing vegetation boundaries derived from image interpretation, site data, traverses and existing data. Structural classification system based on Walker and Hopkins (1990). Vegetation boundaries for Miriam Vale, Gladstone and SEQ section of Eidsvold and Oakey drawn on aerial photographs and digitised using DMS SinglePhoto software. On most northern tiles, linework drawn on 1:100,000 Landsat imagery prints, then manually digitized or scanned (ARC/INFO format). Existing digital data of vegetation mapping provided the basis for most southern tiles. Remnant coverages derived from Landsat imagery, on-screen digitising, and amended according to field survey. Field survey provided partial verification of vegetation boundaries.

Data Quality POSITIONAL ACCURACY
Polygons 100m - 1000m; Traverses 10m - 300m; Sites 10m - 100m. Positional accuracy of polygons is noted in the field “L”, which is a reliability code and given as either A, B or C for high, moderate and low confidence in accuracy of polygon boundaries. Positional accuracy of polygons is to be ascertained by the recipient on the basis of the positioning and frequency of sites and traverses, along with the "Pred" polygon attribute, which refers to the reliability of interpretation of remotely sensed data (aerial photographs and rectified Landsat TM imagery).

Data Quality ATTRIBUTE ACCURACY
Reliability code is contained in the field ‘V’ which refer to vegetation attribute (VEG, PERCENT) accuracy and given as either A, B or C for high, moderate and low confidence in accuracy of polygon attributes. A further determinant of accuracy can be ascertained from the two fields ‘PH’ and “IM’ which give a percentage value of the intact vegetation on the aerial photography and Landsat imagery respectively.

Data Quality LOGICAL CONSISTENCY

Logical consistency has been determined through the following:

- All polygons visually checked at 1:100,000 scale and through topological consistency checks.
- A test of consistency for vegetation unit values (VEG, PERCENT) between the pre-clearing and remnant coverages.

Data Quality COMPLETENESS

Tiles making up the seamless coverage have been edge-matched. The universal vegetation units for each polygon are contained in the attribute fields, UUVEG and UUPERCENT, UUVEG1-UUVEG4, UUP1-UUP4, an asterisk preceding a UU code means the vegetation is disturbed. These fields were translated from the original codes. The original vegetation units for each tile (mapsheet) remain in the attribute fields, VEG and PERCENT in order of dominance, and each vegetation unit in V1-V4 and their proportions in the fields P1-P4. The fields 'A-F' relate to the source data used for each tile, this code is present if applicable. 'A' refers to historical survey records, 'B' to environmental modelling, 'C' to previous vegetation survey, 'D' to previous land system survey, 'E' to previous soil survey, and 'F' to previous geology survey.

The minimum mappable area is 20 hectares (10ha in special cases). Where more than 50% of crown cover was cleared on the Landsat imagery, the area was generalised as cleared. All polygons were sampled depending on accessibility and time constraints; however, in accordance with the requirements for a Regional Forest Agreement, extra sites were selected in forested areas. The secondary and tertiary site data from vegetation survey is held in the CORVEG database and referenced by a 'site' point coverage. Some tiles have a quaternary site coverage, 'quatsite'. Most tiles also have 'traverse' line coverages.

Contact Information CONTACT ORGANISATION
Queensland Herbarium, Queensland Department of Environment

Contact Information CONTACT POSITION
Chief Botanist

Contact Information MAIL ADDRESS1
Brisbane Botanic Gardens Mt Coot-tha
Mt Coot-tha Road

Contact Information SUBURB/PLACE/LOCALITY
TOOWONG

Contact Information STATE/LOCALITY 2
QLD

Contact Information COUNTRY
AUSTRALIA

Contact Information POSTCODE
4066

Contact Information TELEPHONE
07 3896 9326

Contact Information FACSIMILE
07 3896 9624

Contact Information ELECTRONIC MAIL ADDRESS
Queensland.Herbarium@env.qld.gov.au

Metadata Date METADATA DATE
20 FEB1998

Additional Metadata ADDITIONAL METADATA
Metadata for each tile (based on 1:100,000 mapsheets) available on QSIIS Directory, 1998.

Thompson, E.J., Bean, A.R., Dillewaard, H.A., *Methodology for Vegetation Survey and Mapping of Eastern Queensland*, Queensland Herbarium (Version 5, September 1996).

BIGGENDEN METADATA

Dataset TITLE
Vegetation Survey and Mapping of South-eastern Queensland Biogeographical region.
Biggenden 1:100,000 map sheet , P.Grimshaw (1997)

Dataset CUSTODIAN
Queensland Herbarium, Queensland Department of Environment

Dataset JURISDICTION
Queensland

Description ABSTRACT
Vegetation mapping on a 1:100,000 map sheet basis, resulting from botanical surveys for this purpose.
Set of polygon coverages in well-defined themes: pre-clearing vegetation and remnant vegetation.
Legend of vegetation types included as INFO file. Also included: single coverages of survey traverses and survey sites for all sheets. Complete site data are stored in the Queensland Herbarium CORVEG database.

Description SEARCH WORD(S)
VEGETATION
VEGETATION Surveys & Mapping
VEGETATION Structure
FLORA

Description GEOGRAPHIC EXTENT NAME(S)
BIGGENDEN 9346 1:100 000 Map Sheet

Dataset Currency BEGINNING DATE
01AUG1995

Dataset Currency ENDING DATE
08MAR1996

Dataset Status PROGRESS
Complete

Dataset Status MAINTENANCE AND UPDATE FREQUENCY
Irregular

Access STORED DATASET FORMAT(S)
DIGITAL - Arc/Info Rev. 7

Access AVAILABLE FORMAT TYPE(S)
DIGITAL
NON DIGITAL - Plotted Maps

Access ACCESS CONSTRAINTS
The conditions of use are detailed in the data usage agreement signed between the Custodian and the Recipient. No third party usage is permitted other than indicated in the agreement.

Data Quality LINEAGE
Source Data: 1992 Landsat TM imagery rectified to 1:100,000 topographic maps; 1:85,000 B&W aerial photography, dated May/June 1962; 1:250,000 Geology Series maps; topographic maps; field survey; existing field data and P.A.R.Young 1:25,000 Mt.Walsh Vegetation map and site data (28 tertiary level sites); site data Young & McDonald (various lists and sites to tertiary and quaternary level); and SEQ Project site data P.Grimshaw 1995/6 (24 secondary, 182 quaternary and 37 observational sites)
Processing Steps: Vegetation boundaries derived from photo/image- interpretation, site data, traverses and existing data. Structural classification system based on Walker and Hopkins (1990). Vegetation boundaries drawn on aerial photographs and/or 1:100,000 Landsat imagery prints, then manually digitized (using DMS Single Photo) or scanned and vectorised (ARC/INFO format). Vegetation boundaries sometimes adjusted to concur with digital Landsat imagery displayed in background. Field survey provided partial verification of vegetation boundaries.

Data Quality POSITIONAL ACCURACY
ORIGINAL VERSION:
Polygons 100m - 1000m; Traverses 10m - 300m; Sites 10m - 100m. Positional accuracy of polygons is to be ascertained by the recipient on the basis of the positioning and frequency of sites and traverses, along with the "Pred" polygon attribute, which refers to the reliability of interpretation of remotely sensed data (aerial photographs and rectified Landsat TM imagery). “Pred” is defined as 1, 2 or 3. (1 = low confidence in extrapolation, difficult to interpret photopattern or image; 2 = moderate confidence, some difficulty in interpreting vegetation types; 3 = high confidence, most vegetation types interpreted from photopattern and/or Landsat imagery.)
NEW / RECENT MAP SHEETS:
Polygons 100m - 1000m; Traverses 10m - 300m; Sites 10m - 100m. Positional accuracy of polygons is noted in the field “L”, which is a reliability code and given as either A, B or C for high, moderate and low confidence in accuracy of polygon boundaries. The level is derived on the basis of the positioning and frequency of sites and traverses, and the distinctiveness of discrete boundaries. The level relates to the reliability of interpretation of remotely sensed data and other data sources.

Data Quality ATTRIBUTE ACCURACY
Attribute accuracy of polygons is noted in the field “V”, which is a reliability code and given as either A, B or C for high, moderate and low confidence in accuracy of polygon attributes. The level is determined on the basis of the reliability of interpretation of photopattern /reflectance of remotely sensed data and on the positioning and frequency of sites and traverses, the percentage of intact vegetation on a remotely sensed data, given in separate fields, (for aerial photography, “Ph” and for Landsat imagery “Im”) and the availability of other data sources as listed in the data source fields.

Data Quality LOGICAL CONSISTENCY
At this stage the coverages, *pre-clearing* and *remnant*, should be considered in DRAFT form and subject to changes due to edge-matching and legend matching.

Data Quality COMPLETENESS
Refer to information contained in the Methodology for Vegetation Survey and Mapping of Eastern Queensland. Vegetation mapping covers the entire sheets; however, in accordance with the requirements for a Regional Forest Agreement, extra sites were selected in forested areas. The minimum mappable area is 20 hectares (10ha in special cases). Where more than 50% of crown cover was cleared on the 1992 Landsat imagery, the area was generalised as cleared. Polygons were sampled depending on accessibility and time constraints. Extrapolation for the estimation of proportions of pre-clearing vegetation types on extensive areas of intensively cultivated land was problematic.

Contact Information CONTACT ORGANISATION
Queensland Herbarium, Queensland Department of Environment

Contact Information CONTACT POSITION
Chief Botanist

Contact Information MAIL ADDRESS1
80 Meiers Road

Contact Information SUBURB/PLACE/LOCALITY
INDOOROOPILLY

Contact Information STATE/LOCALITY 2
QLD

Contact Information COUNTRY
AUSTRALIA

Contact Information POSTCODE
4068

Contact Information TELEPHONE
07 3896 9325

Contact Information FACSIMILE
07 3896 9624

Contact Information ELECTRONIC MAIL ADDRESS
Not available

Metadata Date METADATA DATE
21JAN1997

Additional Metadata ADDITIONAL METADATA

McDonald, W.J.F., and Dillewaard, H.A., (1994) *CORVEG* (Version 2.3) Vegetation and Flora Database for Queensland, Queensland Herbarium, Queensland Department of Environment, Brisbane.

Neldner, V.J., (1993) *Vegetation survey and mapping in Queensland*, Queensland Botany Bulletin No.12, Queensland Department of Environment, Brisbane.

Thompson, E.J., Bean, A.R., Dillewaard, H.A., *Methodology for Vegetation Survey and Mapping of Eastern Queensland*, Queensland Herbarium (Version 5, September 1996).

APPENDIX 2 - EXAMPLE OF CORVEG VEGETATION SITE

CORVEG Data Retrieval
SITE DATA FOR VR_NUM 642024

Project Name: SEQ
Site Number: 24
Sample level: D
Sample Type: C
Sample Area: 1000
Date (D,M,Y): 17 MAR 1997
Recorder: P.GRIMSHAW + G.P.TURPIN
Derivation of Position: A
Map Name: HELIDON
Map Number: 9342
Map scale: 100000
AMG Zone: 56 433258 6907130
Latitude: 27 57 33
Longitude: 152 19 17
Pastoral District: Moreton
Biogeographic Region: South-eastern Queensland
Locality: BLACKFELLOWS CRK GLENROCK PROPERTY
Landform Situation: L
Landform Element: SFS
Landform Pattern: VM
Slope Position: L
Slope Angle: 27
Aspect Bearing: 10
Aspect Compass: N
Altitude: 600
Soil code (HERBRECS): H
Top Soil Colour: F
Top Soil Texture: B
Geology code (HERBRECS): S
Geology Map unit: Tm
Structural classification: W
Basal area derivation: B
Vegetation Unit number: 2e
Bioregion vegunit number: G32
Site context / notes: *EUCALYPTUS CREBRA, CORYMBIA INTERMEDIA, ANGOPHORA FLORIBUNDA, EUCALYPTUS TERETICORNIS* TALL WOODLAND
Ground cover % (L,R,B,C): 15 3 7 -
Old Growth Characters: 3 - D -

Floristic Data for Site

NAME	ID	MISC	QT	LIFEFORM
Acacia maidenii				
Angophora floribunda				
Aristida personata	C			
Asperula conferta	C			
Bothriochloa decipiens				
Brachychiton populneus				
Cassinia quinquefaria				
Chloris divaricata				
Chloris truncata				
Commelina cyanea				
Corymbia intermedia				
Cymbopogon refractus				
Cyperus fulvus				
Cyperus gracilis				
Desmodium brachypodum				
Desmodium gunnii				
Desmodium varians				
Dianella caerulea				
Eragrostis leptostachya				
Eragrostis spartinoides				
Eremophila debilis				
Eucalyptus crebra				
Eucalyptus crebra x *E. melanophloia*				
Eucalyptus tereticornis				
Exocarpos cupressiformis				
Gahnia aspera				
Galactia tenuiflora				
Glossocardia bidens				
Heteropogon contortus				
Lespedeza juncea				
Melinis repens	W			
Mentha gracilis				
Olearia elliptica				
Opuntia tomentosa	W			
Panicum effusum var. *effusum*				
Paspalidium distans				
Paspalidium jubiflorum	C			
Plectranthus graveolens				
Rhynchosia minima var. *minima*	C			
Rostellularia adscendens				
Sigesbeckia orientalis	W			
Sporobolus elongatus				
Tephrosia purpurea var. *purpurea*	C			
Themeda triandra				
Vernonia cinerea				
Wahlenbergia stricta				
Wedelia spilanthoides				
Zornia dyctiocarpa				

Species Cover by Strata

Species name	E	T1	T2	T3	S1	S2	G
Acacia maidenii					<1		
Angophora floribunda		2	2				
Aristida personata							<1
Asperula conferta							1
Bothriochloa decipiens							15
Brachychiton populneus						<1	
Cassinia quinquefaria					5		
Chloris divaricata							<1
Chloris truncata							1
Commelina cyanea							<1
Corymbia intermedia		5	5				
Cymbopogon refractus							10
Cyperus fulvus							<1
Cyperus gracilis							<1
Desmodium brachypodum							1.5
Desmodium gunnii							<1
Desmodium varians							<1
Dianella caerulea							<1
Eragrostis leptostachya							<1
Eragrostis spartinoides							<1
Eremophila debilis							<1
Eucalyptus crebra		22	15	10			
Eucalyptus crebra x *E. melanophloia*						1.5	
Eucalyptus tereticornis		1					
Exocarpos cupressiformis					2		
Gahnia aspera							1
Galactia tenuiflora							<1
Glossocardia bidens							<1
Heteropogon contortus							<1
Lespedeza juncea							1
Melinis repens							1
Mentha gracilis							<1
Olearia elliptica							2
Opuntia tomentosa							<1
Panicum effusum var. *effusum*							<1
Paspalidium distans							1
Paspalidium jubiflorum							<1
Plectranthus graveolens							1
Rhynchosia minima var. *minima*							2
Rostellularia adscendens							1
Sigesbeckia orientalis							<1
Sporobolus elongatus							1
Tephrosia purpurea var. *purpurea*							<1
Themeda triandra							2
Vernonia cinerea							<1
Wahlenbergia stricta							<1
Wedelia spilanthoides							1.5
Zornia dyctiocarpa							<1

Strata Details For Site

Stratum	Cover measure	Basal Area factor	Stem Count plot size	Cover plot size	Ht (m) AVG	Ht min	Ht max	Cover AVG	Comin	Comax
T1	F	1	500	1000	17			30		
T2	F	1	500	1000	10			23		
T3	F	1	500	1000	6			10		
S2	F	1	500	1000	2			9		
G	V	1		1000	1					

Stem Count by Species by Strata (stems per hectare)

Species name	E	T1	T2	T3	S1	S2
Angophora floribunda					20	
Brachychiton populneus						20
Corymbia intermedia			80			
Eucalyptus crebra		140	180	80		
Eucalyptus crebra x *E. melanophloia*						20
Eucalyptus tereticornis		20	20			
Exocarpos cupressiformis						40

Basal Area by Species by Strata (square meters per hectare)

Species name	E	T1	T2	T3	S1	S2
Angophora floribunda		1.0				
Corymbia intermedia		1.0				
Eucalyptus crebra		10.0				
Eucalyptus tereticornis		1.0				

Relative Crown Covers (percent)

Species name	Senescent	Mature	Regrowth
Angophora floribunda		7	
Corymbia intermedia		15	
Eucalyptus crebra		75	
Eucalyptus tereticornis		3	

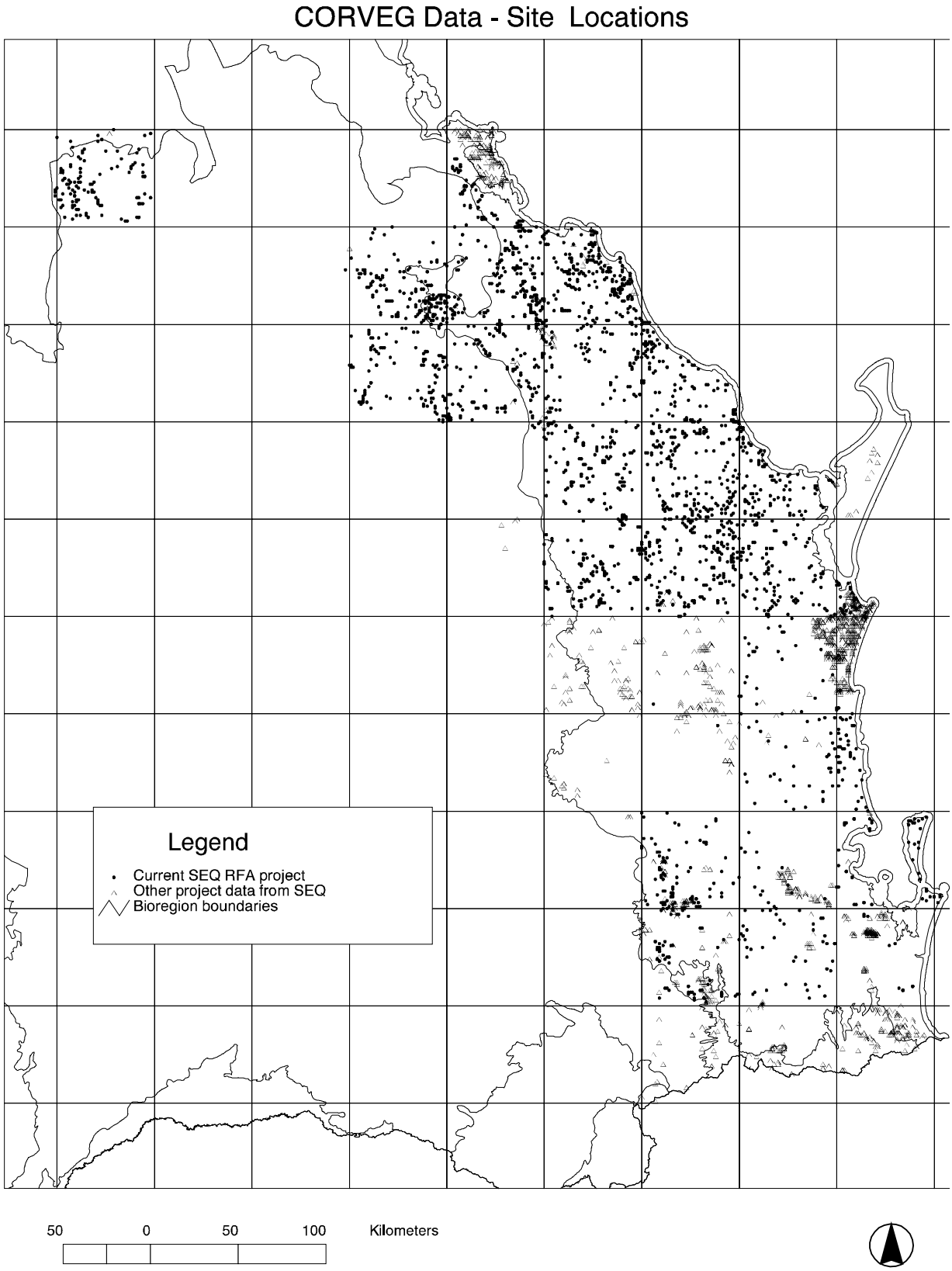

Figure 2. Location of CORVEG sites.

APPENDIX 3 - BOTANICAL NAME - COMMON NAME LIST

This list is based on the list of botanical names-common names formed by Pauline Stewart of Department of Natural Resources for the RFA workshops with South-eastern Queensland beekeepers. Some additional common names have been added. Common names vary greatly within interest groups, eg. standard trade names are used by foresters, while different common names may be used by naturalists. Common names may vary in different localities, and any one plant may have a number of common names. Only the most widely used common names for South-eastern Queensland are included. The species included are mainly trees and shrubs that dominate and characterise the various vegetation units. Some species do not have known common names.

BOTANICAL NAME	COMMON NAMES
Acacia amblygona	prickly wattle, fan-leaf wattle
Acacia aulacocarpa	hickory wattle, brown salwood
Acacia bakeri	marblewood
Acacia complanata	flatstem wattle
Acacia fasciculifera	rosewood
Acacia flavescens	toothed wattle
Acacia harpophylla	brigalow
Acacia leiocalyx subsp. *leiocalyx*	black wattle, Brisbane black wattle, curracabah
Acacia leptocarpa	north coast wattle
Acacia maidenii	Maiden's wattle
Acacia melanoxylon	blackwood, black wattle
Acacia penninervis	veined wattle, mountain hickory
Acacia podalyriifolia	silver wattle, Queensland silver wattle
Acacia rhodoxylon	rosewood, ringy rosewood
Acacia shirleyi	lancewood
Acacia suaveolens	sweet wattle
Acacia ulicifolia	prickly moses
Acalypha eremorum	soft acalypha
Acmena smithii	lilly pilly
Acronychia imperforata	beach acronychia
Acronychia laevis	hard aspen, glossy acronychia, white lilly pilly
Acrostichum speciosum	mangrove fern
Acrotriche aggregata	tall ground berry
Aegiceras corniculatum	river mangrove
Agathis robusta	kauri pine
Alchornea ilicifolia	native holly
Allocasuarina inophloia	thready-barked she-oak, threadybark, flame sheoak
Allocasuarina littoralis	black sheoak
Allocasuarina luehmannii	bulloak
Allocasuarina torulosa	mountain oak, rose sheoak, forest oak, forest she-oak

BOTANICAL NAME	COMMON NAMES
Alloteropsis semialata	cockatoo grass
Alphitonia excelsa	red ash, soapbush, soap tree
Alyxia ruscifolia subsp. *ruscifolia*	chainfruit
Angophora floribunda	roughbark apple, rough-barked apple
Angophora leiocarpa	apple, rusty gum, smooth-barked apple
Angophora subvelutina	creek apple, broadleaf apple
Angophora woodsiana	smudgee
Aotus lanigera	pointed aotus
Aphananthe philippinensis	rough-leaved elm, axe-handle wood, grey handlewood
Araucaria bidwillii	bunya pine
Araucaria cunninghamii	hoop pine
Archidendropsis thozetiana	southern siris
Archontophoenix cunninghamiana	piccabeen palm, Bangalow palm
Argyrodendron actinophyllum subsp. *actinophyllum*	black booyong
Argyrodendron sp. (Kin Kin W.D.Francis AQ81198)	rusty tulip oak
Argyrodendron spp.	booyong
Argyrodendron trifoliolatum	crow's foot elm, white booyong, hickory, stave wood, silky elm, brown oak, brown tulip oak
Arytera divaricata	coogera, gap axe, rose tamarind
Atalaya salicifolia	brush whitewood
Austromyrtus bidwillii	python tree, smooth-barked ironwood
Austromyrtus dulcis	midyim, midgen berry
Austrosteenisia blackii	bloodvine
Avicennia marina	grey mangrove
Baccharis halimifolia	groundsel bush
Backhousia angustifolia	narrow-leaved backhousia
Backhousia myrtifolia	grey myrtle, carrol, ironwood
Baeckea frutescens	weeping baeckea
Baeckea stenophylla	weeping baeckea
Baeckea virgata	twiggy baeckea, twiggy myrtle, wild may
Baloghia inophylla	scrub bloodwood
Banksia aemula	wallum banksia
Banksia integrifolia	coast banksia, honeysuckle oak
Banksia integrifolia var. *compar*	coast banksia, honeysuckle oak
Banksia oblongifolia	dwarf banksia
Banksia robur	broad-leaved banksia, swamp banksia
Banksia serrata	red honeysuckle
Baumea articulata	jointed twigrush
Baumea juncea	bare twigrush
Baumea rubiginosa	soft twigrush

BOTANICAL NAME	COMMON NAMES
Baumea teretifolia	twigrush
Blechnum cartilagineum	gristle fern
Blechnum indicum	bungwall, swamp water fern
Boronia falcifolia	wallum boronia
Bosistoa pentacocca	native almond
Bothriochloa decipiens	pitted bluegrass
Bouchardatia neurococca	union nut
Brachychiton australis	broad-leaved bottle tree, bottle tree
Brachychiton discolor	lacebark tree
Brachychiton populneus subsp. *populneus*	kurrajong
Brachychiton rupestris	narrow-leaved bottle tree, bottle tree, Queensland bottle tree
Bruguiera gymnorhiza	large-fruited orange mangrove, black mangrove
Bursaria incana	prickly pine
Caldcluvia paniculosa	soft corkwood
Callistemon salignus	white bottlebrush, willow bottlebrush
Callistemon viminalis	red bottlebrush, river bottlebrush, weeping bottlebrush, drooping bottlebrush
Callitris baileyi	scrub cypress pine
Callitris columellaris	Bribie Island pine, dune cypress
Callitris endlicheri	black cypress pine
Callitris glaucophylla	white cypress pine
Callitris sp.	cypress pine
Calytrix tetragona	fringe myrtle, heath myrtle
Canarium australasicum	mango bark
Canthium coprosmoides	supple jack, coastal coffee bush
Canthium lamprophyllum	large-leaved canthium
Canthium oleifolium	myrtle tree, wild lemon
Capillipedium parviflorum	scented top
Capparis arborea	brush caper berry
Carissa ovata	blackberry, kunkerberry, currantbush
Cassytha glabella forma *glabella*	dodder laurel
Castanospermum australe	Moreton Bay chestnut, black bean
Casuarina cristata	belah
Casuarina cunninghamiana	river sheoak, river oak
Casuarina equisetifolia	beach casuarina, shingle oak, coast she-oak, beach she-oak
Casuarina equisetifolia subsp. *incana*	beach casuarina, shingle oak, coast she-oak
Casuarina glauca	swamp she-oak
Casuarina littoralis	black she-oak
Casuarina torulosa	forest she-oak
Ceratopetalum apetalum	coachwood

BOTANICAL NAME	COMMON NAMES
Ceriops tagal	yellow leaved spurred mangrove
Choricarpia subargentea	giant ironwood
Cinnamomum oliveri	Oliver's sassafras, camphorwood
Citronella moorei	churnwood
Cleistanthus cunninghamii	omega
Commersonia bartramia	brown kurrajong
Corymbia bunites	yellowjacket
Corymbia citriodora	lemon-scented gum, lemon-scented iron gum, spotted gum
Corymbia clarksoniana	southern long-fruited bloodwood, Clarkson's bloodwood
Corymbia erythrophloia	gum-topped bloodwood, variable-barked bloodwood, red-barked bloodwood
Corymbia gummifera	red bloodwood
Corymbia hendersonii	Henderson's bloodwood
Corymbia intermedia	pink bloodwood, red bloodwood
Corymbia tessellaris	carbeen, Moreton Bay ash
Corymbia trachyphloia subsp. *trachyphloia*	brown bloodwood
Corymbia watsoniana subsp. *watsoniana*	large-fruited yellow jacket
Corynocarpus rupestris subsp. *arborescens*	southern corynocarpus
Croton acronychioides	thick-leaved croton
Croton insularis	native cascarilla bark, Queensland cascarilla, silver croton
Cryptocarya erythroxylon	pigeonberry ash
Cryptocarya glaucescens	silver sycamore (timber), jackwood
Cryptocarya macdonaldii	McDonald's laurel, McDonald's cryptocarya
Cryptocarya spp.	laurels
Cryptocarya triplinervis	three-veined laurel, brown laurel, three-veined Cryptocaria
Cupaniopsis anacardioides	tuckeroo
Cupaniopsis parvifolia	small-leaved tuckeroo, green-leaved tamarind
Dendrocnide excelsa	giant stinging tree
Dendrocnide photinophylla	mulberry-leaved stinger, shiny-leaved stinging tree
Dillwynia floribunda	showy parrot pea
Diospyros australis	black plum, yellow persimmon
Diospyros geminata	scaly ebony, native ebony
Diospyros pentamera	grey persimmon, black myrtle, myrtle ebony
Diospyros spp.	ebony
Diploglottis australis	native tamarind, tamarind
Dissiliaria baloghioides	hauer, lancewood
Dodonaea triangularis	hop bush

BOTANICAL NAME	COMMON NAMES
Dodonaea triquetra	large-leaved hop bush
Dodonaea viscosa	sticky hopbush
Drynaria rigidula	rock fern, basket fern
Drypetes deplanchei	grey boxwood, yellow tulip
Dysoxylum gaudichaudianum	ivory mahogany
Ehretia membranifolia	peach bush, weeping koda
Elaeocarpus eumundii	white quandong
Elaeocarpus grandis	blue quandong, silver quandong, blue fig, white quandong, cooloon
Elaeocarpus reticulatus	blueberry ash, ash quandong
Elattostachys xylocarpa	white tamarind
Eleocharis equisetina	spikerush
Empodisma minus	spreading rope rush
Endiandra discolor	domatia tree
Endiandra sieberi	hard corkwood, till
Entolasia stricta	wiry panic
Epacris microphylla	coral heath
Epacris pulchella	wallum heath
Eragrostis brownii	Brown's lovegrass
Eragrostis leptostachya	paddock love grass
Eriostemon myoporoides subsp. *queenslandicus*	wallum wax flower
Eucalyptus acmenoides	yellow stringybark, white mahogany
Eucalyptus albens	white box
Eucalyptus andrewsii	New England blackbutt, New England ash
Eucalyptus apothalassica	western yellow stringybark
Eucalyptus baileyana	Bailey's stringybark
Eucalyptus bancroftii	orange gum, Bancroft's red gum
Eucalyptus biturbinata	grey gum
Eucalyptus camaldulensis	river red gum
Eucalyptus cambageana	coowarra box
Eucalyptus campanulata	New England blackbutt
Eucalyptus carnea	white mahogany, broad-leaved white mahogany
Eucalyptus cloeziana	Gympie messmate, yellow messmate
Eucalyptus codonocarpa	bell-fruited mallee
Eucalyptus conica	fuzzy box
Eucalyptus corynodes	Cracow ironbark
Eucalyptus crebra	narrow-leaved ironbark
Eucalyptus decolor	Castletower ironbark
Eucalyptus decorticans	gum-topped ironbark
Eucalyptus dunnii	Dunn's white gum
Eucalyptus dura	gum-topped ironbark

BOTANICAL NAME	COMMON NAMES
Eucalyptus eugenioides	thin-leaved stringybark, white stringybark
Eucalyptus exserta	Queensland peppermint, bendo
Eucalyptus fibrosa subsp. *fibrosa*	broad-leaved ironbark
Eucalyptus grandis	flooded gum, rose gum
Eucalyptus hallii	Goodwood gum
Eucalyptus laevopinea	silvertop stringybark
Eucalyptus longirostrata	grey gum
Eucalyptus major	grey gum, mountain grey gum
Eucalyptus melanoleuca	Yarraman ironbark
Eucalyptus melanophloia	silver-leaved ironbark, silver ironbark
Eucalyptus melliodora	yellow box, yellow jacket
Eucalyptus mensalis	stringybark
Eucalyptus microcarpa	grey box
Eucalyptus microcorys	tallow wood
Eucalyptus moluccana	gum-topped box, grey box
Eucalyptus montivaga	Queensland ash
Eucalyptus nobilis	manna gum
Eucalyptus notabilis	Blue Mountains mahogany
Eucalyptus oreades	Blue Mountains ash
Eucalyptus orgadophila	mountain coolibah
Eucalyptus pilularis	blackbutt
Eucalyptus planchoniana	Planchon's stringybark
Eucalyptus platyphylla	poplar gum
Eucalyptus populnea	poplar box, bimble box
Eucalyptus propinqua	grey gum, small-fruited grey gum
Eucalyptus racemosa	scribbly gum
Eucalyptus resinifera	red mahogany
Eucalyptus rhombica	Binjour ironbark
Eucalyptus robusta	swamp mahogany, swamp messmate
Eucalyptus saligna subsp. *saligna*	Sydney blue gum
Eucalyptus seeana	narrow-leaved red gum
Eucalyptus siderophloia	grey ironbark
Eucalyptus sideroxylon	mugga
Eucalyptus sphaerocarpa	Blackdown stringybark
Eucalyptus suffulgens	ironbark
Eucalyptus tenuipes	narrow-leaved mahogany
Eucalyptus tereticornis	blue gum, forest red gum
Eucalyptus tindaliae	Tindale's stringybark, Queensland white stringybark
Eucalyptus umbra subsp. *umbra*	broad-leaved white mahogany
Eucalyptus watsoniana	large-fruited yellowjacket
Euroschinus falcata	pink poplar, chinaman's cedar, ribbonwood, maiden's blush, cudgerie

BOTANICAL NAME	COMMON NAMES
Excoecaria agallocha	milky mangrove, blind-your-eye
Excoecaria dallachyana	scrub poison tree, blind-your-eye, brush poison tree
Exocarpos latifolius	native cherry, scrub cherry, sandalwood, scrub ballart
Ficus fraseri	shiny sandpaper fig, white sandpaper fig
Ficus obliqua	small-leaved Moreton Bay fig
Ficus platypoda	small-leaved Moreton Bay fig, rock fig, rock breaker fig
Ficus racemosa	cluster fig
Ficus spp.	figs
Ficus watkinsiana	Watkin's fig, strangler fig, green-leaved Moreton Bay fig
Flindersia australis	teak, crow's ash
Flindersia bennettiana	Bennett's ash
Flindersia collina	broad-leaved leopard tree, leopard ash
Flindersia schottiana	bumpy ash, cudgerie, silver ash
Flindersia xanthoxyla	long jack, yellow-wood
Gahnia aspera	razor grass, cut sedge
Gahnia clarkei	tall sawsedge
Gahnia sieberiana	sword grass, sawsedge
Geijera paniculata	axe-breaker, capivi
Geijera parviflora	wilga
Geijera salicifolia var. *latifolia*	broad-leaved brush wilga
Gleichenia microphylla	scrambling coral fern, coral fern, umbrella fern
Glochidion lobocarpum	cheese tree
Glochidion sumatranum	umbrella cheese tree, buttonwood
Gmelina leichhardtii	white beech
Goodenia rotundifolia	roundleaf goodenia, fan flower
Grevillea banksii	Banks' grevillea, white grevillea, red-flowered silky oak, dwarf silky oak
Grevillea hilliana	white yiel-yiel
Grevillea robusta	silky oak
Guioa semiglauca	guioa, wild quince
Halosarcia indica	samphire
Halosarcia indica subsp. *leiostachya*	samphire
Harpullia hillii	blunt-leaved tulip tree, Hill's tulipwood
Harpullia pendula	tulipwood
Hibbertia scandens	climbing guinea flower
Hodgkinsonia ovatiflora	golden ash
Ipomoea pes-caprae subsp. *brasiliensis*	dune morning glory
Jacksonia scoparia	broom, dogwood
Jagera pseudorhus	foambark, ferntree, pink tamarind
Juncus kraussii	sea rush

BOTANICAL NAME	COMMON NAMES
Lantana camara var. *camara*	Lantana
Lepidosperma laterale	sword sedge, variable swordsedge
Lepidosperma longitudinale	pithy swordsedge
Lepironia articulata	twigrush
Leptospermum liversidgei	wild may
Leptospermum neglectum	tea-tree
Leptospermum polygalifolium	wild may, yellow tea-tree, tantoon
Leptospermum semibaccatum	wallum tea-tree
Leptospermum trinervium	woolly tea-tree
Leucopogon leptospermoides	beard heath
Leucopogon margarodes	beard heath
Leucopogon pedicellatus	wallum beard heath
Leucopogon pimeleoides	beard heath
Litsea reticulata	bolly gum
Livistona australis	cabbage palm, cabbage tree palm, fan palm
Livistona decipiens	weeping cabbage palm, ribbon fan palm
Lomandra hystrix	longleaf matrush
Lomandra longifolia	spinyhead matrush, longleaf matrush
Lophostemon confertus	brush box, pink box
Lophostemon sp. aff. *confertus*	supplejack
Lophostemon suaveolens	swamp box, swamp mahogany
Lysicarpus angustifolius	budgeroo
Lysiphyllum carronii	ebony tree
Lysiphyllum hookeri	Queensland ebony, Hooker's bauhinia
Maclura cochinchinensis	cockspur vine, cockspur thorn
Mallotus claoxyloides	odourbush, green kamala, white kamala
Mallotus discolor	white kamala
Mallotus philippensis	red kamala
Melaleuca bracteata	black ti-tree, river ti-tree, black tea-tree
Melaleuca dealbata	swamp tea-tree, paperbark
Melaleuca fluviatilis	paperbark
Melaleuca leucadendra	broad-leaved tea-tree
Melaleuca linariifolia var. *trichostachya*	flaxleaf paperbark
Melaleuca nervosa	paperbark
Melaleuca nervosa forma *nervosa*	dwarf paperbark
Melaleuca nervosa forma *pendulina*	paperbark
Melaleuca nodosa	pricklyleaf paperbark
Melaleuca quinquenervia	swamp paperbark, paper-barked tea-tree, broad-leaved tea-tree, paperbark
Melaleuca sieberi	paperbark
Melaleuca tamariscina subsp. *irbyana*	scale-leaved paperbark
Melaleuca thymifolia	thyme honeymyrtle

BOTANICAL NAME	COMMON NAMES
Melaleuca trichostachya	flaxleaf paperbark
Melaleuca viridiflora	paperbark ti-tree, broad-leaved ti-tree, broad-leaved paperbark
Melastoma affine	black-mouth bush, blue tongue
Melia azedarach	white cedar
Melicope erythrococca	tingletongue
Melicope micrococca	white evodia, white euodia, hairy-leaved doughwood
Microlaena stipoides	weeping grass, rice meadowgrass
Mischarytera lautereriana	corduroy tamarind
Monotoca scoparia	prickly broom heath, tree heath
Neolitsea dealbata	white bolly gum
Notelaea microcarpa	small-fruited mock olive
Nothofagus moorei	Antarctic beech
Olea paniculata	native olive
Orites excelsa	prickly ash
Owenia venosa	emu apple, crow's apple, rose apple
Pandanus tectorius	screw pine
Passiflora suberosa	corky passionfruit, small passion flower
Pavetta australiensis	butterfly bush
Persoonia virgata	small-leaved geebung
Petalostigma pubescens	quinine
Petalostigma triloculare	quinine tree, quinine berry, forest quinine
Petrophile shirleyae	cone bush
Phebalium nottii	pink phebalium
Phyllota phylicoides	yellow peabush
Pinus elliottii	slash pine
Planchonella queenslandica	blush coondoo
Planchonia careya	cockatoo apple
Platysace linearifolia	narrow-leaf platysace
Plectranthus graveolens	flea bush
Pleiogynium timorense	Burdekin plum, tulip plum
Poa labillardieri	tussock grass
Podocarpus elatus	brown pine, she pine, plum pine
Polyscias elegans	silver basswood, celery wood
Pouteria cotinifolia	coondoo, small-leaved coondoo
Pouteria myrsinoides	blunt-leaved coondoo, yellow plumwood
Pouteria pohlmaniana	engraver's wood, yellow boxwood
Premna lignum-vitae	lignum-vitae, satinwood
Pseudoraphis spinescens	spiny mudgrass
Pseudoweinmannia lachnocarpa	marara, rose marara
Psychotria loniceroides	hairy psychotria
Pultenaea paleacea	bush pea
Pultenaea villosa	kerosene bush, hairy bush pea

BOTANICAL NAME	COMMON NAMES
Randia chartacea	narrow-leaved gardenia
Rhizophora stylosa	spotted mangrove, red mangrove
Rhodamnia acuminata	cooloola ironwood
Rhodomyrtus psidioides	native guava
Rhodosphaera rhodanthema	deep yellowwood
Ricinocarpos pinifolius	wedding bush
Rivina humilis	coralberry, turkeyberry
Sarcomelicope simplicifolia subsp. *simplicifolia*	yellow acronychia, yellow aspen, bauerella, yellow-wood
Schizomeria ovata	white cherry, crabapple
Sesuvium portulacastrum	sea purslane
Siphonodon australis	ivorywood
Sloanea woollsii	yellow carabeen, grey carrabeen, carobean, carrabin
Smilax australis	austral sarsaparilla, barbed-wire vine
Solanum stelligerum	devil's needles
Spinifex sericeus	beach spinifex
Sprengelia sprengelioides	sprengelia
Sterculia quadrifida	red fruited kurrajong, peanut tree
Streblus brunonianus	whalebone tree, white handlewood
Strychnos psilosperma	strychnine
Suaeda australis	seablite
Syncarpia glomulifera subsp. *glomulifera*	turpentine
Syncarpia hillii	satinay, fraser island satinay
Syzygium australe	scrub cherry, brush cherry, creek lilly pilly, creek satinash
Syzygium francisii	giant water gum
Syzygium luehmannii	small-leaved lilly pilly, cherry alder, riberry, cherry satinash
Syzygium oleosum	blue cherry, blue lilly pilly, scented satinash
Themeda triandra	kangaroo grass
Timonius timon var. *timon*	timonius
Toona ciliata	red cedar
Triodia mitchellii	spinifex
Triplarina volcanica	triplarina
Vigna marina	coastal bean, dune bean
Waterhousea floribunda	weeping cherry, weeping myrtle, weeping lilly pilly, weeping satinash
Wilkiea macrophylla	large-leaved wilkiea
Xanthorrhoea fulva	swamp grass-tree
Xanthorrhoea glauca	grass-tree, blackboy
Xanthorrhoea johnsonii	grass-tree
Xanthorrhoea latifolia subsp. *latifolia*	grass-tree
Xanthostemon oppositifolius	southern penda

BOTANICAL NAME	COMMON NAMES
Xylomelum salicinum	woody pear
Zoysia macrantha	prickly couch

REFERENCES

AUSLIG (1990). *Vegetation. Atlas of Australian Resources.* Third Series, Volume 6. Australian Survey and Land Information Group, Canberra.

Catterall, C.P. and Kingston, M. (1993). *Remnant Bushland of South-eastern Queensland in the 1990's: its distribution, loss, ecological consequences, and future prospects.* Institute of Applied Ecological Research, Griffith University and Brisbane City Council, Brisbane.

Dowling, R.M. and McDonald, W.J.F. (1976). *Moreton Region Vegetation Map Series: Brisbane*. Botany Branch, Queensland Department of Primary Industries, Brisbane.

Elsol, J.A. and Dowling, R.M. (1978). *Moreton Region Vegetation Map Series: Beenleigh*. Botany Branch, Queensland Department of Primary Industries, Brisbane.

Elsol, J.A. and Sattler, P.S. (1979). *Moreton Region Vegetation Map Series: Caloundra.* Botany Branch, Queensland Department of Primary Industries, Brisbane.

ESD Working Group, 1991. Ecologically Sustainable Forest Use - Final Report

Fensham, R.J. and Fairfax, R.J. (1997) The use of the land survey record to reconstruct pre-European vegetation patterns in the Darling Downs, Queensland, Australia. *Journal of Biogeography* 24: 827-836.

Fensham, R.J., McCosker, J.C. and Cox, M.J. (1998). Estimating clearance of Acacia dominated ecosystems in central Queensland using land system mapping data. *Australian Journal of Botany* 46:305-319.

Food and Agriculture Organisation of the United Nations (FAO) (1979). Soil Survey Investigations For Irrigation. *Soil Bulletin 42.* FAO, Rome.

Gunn, R.H. (1988). Developing land survey specifications. In R.H. Gunn, J.A. Beattie, R.E. Reid and R.H.M. van der Graaff (eds*), Australian Soil and Land Survey Handbook: Guidelines for Conducting Surveys.* Inkata Press, Melbourne, pp. 73-89.

Henderson, R.J.F. (ed.) (1997). *Queensland Plants. Names and Distribution*. Queensland Herbarium, Department of Environment, Brisbane.

JANIS (1996). Draft Nationally Agreed Criteria for the Establishment of a Comprehensive, Adequate and Representative Reserve System for Forests in Australia. Joint ANZECC-MCFSA National Forest Policy Statement Implementation Subcommittee, Canberra.

Kirkpatrick, J.B. and Dickinson, K.J.M (1986). Achievements, concepts and conflict in Australian small-scale vegetation mapping. *Australian Geographical Studies* **24**:222-234.

McDonald, W.J.F. and Dillewaard, H.A. (1994). CORVEG (Version 2.0) Vegetation and Flora Data Base for Queensland. Queensland Herbarium, Queensland Department of Environment and Heritage, Brisbane.

McDonald, W.J.F. and Whiteman, W.G. (1979). *Moreton Region Vegetation Map Series: Murwillumbah*. Botany Branch, Queensland Department of Primary Industries, Brisbane.

McDonald, W.J.F. and Elsol, J.A. (1984). *Summary Report for Caloundra, Brisbane, Beenleigh and Murwillumbah Sheets.* Moreton Region Vegetation Map Series, Queensland Department of Primary Industries, Brisbane.

Neldner, V.J. (1984). *South Central Queensland*. *Vegetation Survey of Queensland.* Queensland Department of Primary Industries Botany Bulletin No. **3**.

Neldner, V.J. (1993). *Vegetation Survey and Mapping in Queensland.* Queensland Botany Bulletin No. 12. Queensland Department of Environment and Heritage, Brisbane.

Neldner V.J. and Clarkson J.R. (1995). Vegetation Survey and Mapping of Cape York Peninsula. Cape York Peninsula Land Use Strategy, Office of the Co-ordinator General and Department of Environment and Heritage, Queensland Government, Brisbane.

Neldner V.J., Crossley D.C. and Cofinas M. (1995). Using Geographical Information Systems (GIS) to determine the adequacy of sampling in vegetation surveys. *Biological Conservation* **73**:1-17.

Pedley, L. and Bean, A.R. (1997). Vegetation communities of the Gympie 1:250 000 sheet. Digital coverage, Queensland Herbarium, Department of Environment.

Reid, R.E. (1988). Soil survey specifications. In R.H. Gunn, J.A. Beattie, R.E. Reid and R.H.M. van der Graaff (eds.), *Australian Soil and Land Survey Handbook: Guidelines for Conducting Surveys.* Inkata Press, Melbourne, pp. 60-72.

Sandercoe, C.S (1985). 1:25,000 Womalah State Forest Vegetation Map.

SLATS (1997). The State Landcover and Tree Study (SLATS). Interim report. Queensland Department of Natural Resources, Brisbane.

Specht, R.L. (1970). Vegetation. In G.W. Leeper (ed.), *The Australian Environment* (4th edition). CSIRO and Melbourne University Press, pp. 44-67.

Stanton, J.P. (1979). Fraser Island vegetation map. 1:50 000 scale. Department of Forestry, Queensland.

Thackway, R. and Cresswell, I.D. (Eds.) (1995). An Interim Biogeographic Regionalisation for Australia: a framework for establishing a national system of reserves. Version 4.0. Australian Nature Conservation Agency, Canberra.

Thompson, E.J., Bean, A.R. and Dillewaard, H.A. (1996). Methodology for vegetation survey and mapping of Eastern Queensland. Queensland Herbarium, Department of Environment, Brisbane.

Walker, J. and Hopkins, M.S. (1990). Vegetation. In R.C. McDonald, R.F. Isbell, J.G. Speight, J. Walker and M.S. Hopkins (eds), *Australian Soil and Land Survey Field Handbook*. Second edition. Inkata Press, Melbourne, pp. 58-86.

Webb, L.J. (1978). A general classification of Australian rainforests. *Australian Plants* **9**:349-363.

Young, P.A.R. (in prep). South-eastern Queensland. In P.S. Sattler and R.D. Williams, *The Conservation Status of Queensland's Bioregional Ecosystems.* Department of Environment, Brisbane.

Young, P.A.R. and Oliver, G.N. (1986). 1:25,000 Bunya Mountains Indicative Vegetation Community Map. Department of Environment, Brisbane.

Young, P.A.R. and McDonald, T.J. (1989). *Vegetation Map and Description. Warwick, Southeastern Queensland.* Scale 1:250 000. Botany Bulletin No. **8**, Queensland Department of Primary Industries, Brisbane.

Young, P.A.R., Wilson, B.A., McCosker J.C., Fensham, R.J., Morgan, G. and Taylor, P.M. (in prep.) Brigalow In: *The Conservation Status of Queensland's Bioregional Ecosystems.* Queensland Department of Environment, Technical Bulletin, Brisbane.

ABBREVIATIONS

B & W	Black and White (referring to aerial photographs)
CAR	Comprehensive, Adequate and Representative
CRA	Comprehensive Regional Assessment
CYPLUS	Cape York Peninsula Land Use Strategy
DEST	Commonwealth Department of Environment, Sport and Territories
DNR	Queensland Department of Natural Resources
DoE	Queensland Department of Environment
FAO	Food and Agriculture Organisation of the United Nations
JANIS	Joint ANZECC-MCFSA National Forest Policy Statement Implementation Subcommittee
NFI	National Forest Inventory
PFC	Projective Foliage Cover
REs	Regional Ecosystems
RFA	Regional Forest Agreement
SEQ	South-eastern Queensland
SLATS	State Landcover and Tree Study
UMA	Unique Mapping Area