

Table 8 (continued): Woody vegetation change by Carnahan Present Vegetation Map class (1988–2003).

Carnahan vegetation class	Description	Clearing 1997–1999		Clearing 1999–2001		Clearing 2001–2003	
		rate (,000ha/yr)	% of State clearing total	rate (,000ha/yr)	% of State clearing total	rate (,000ha/yr)	% of State clearing total
F3	Other herbaceous plants 30–70% foliage cover	0.02	0.00	0.00	0.00	0.00	0.00
F4	Other herbaceous plants >70% foliage cover	2.91	0.68	3.41	0.59	3.01	0.57
G2	Tussocky or tufted grasses 10–30% foliage cover	4.75	1.11	11.19	1.95	7.93	1.51
G3	Tussocky or tufted grasses 30–70% foliage cover	49.82	11.69	48.58	8.47	32.49	6.17
G4	Tussocky or tufted grasses >70% foliage cover	1.71	0.40	1.73	0.30	1.18	0.22
H2	Hummock grasses 10–30% foliage cover	0.00	0.00	0.01	0.00	0.00	0.00
L1	Low trees (<10m) <10% foliage cover	25.15	5.90	65.63	11.44	74.57	14.17
L2	Low trees (<10m) 10–30% foliage cover	42.26	9.92	69.95	12.19	57.83	10.99
L3	Low trees (<10m) 30–70% foliage cover	0.66	0.15	1.19	0.21	0.68	0.13
L4	Low trees (<10m) >70% foliage cover	0.03	0.01	0.05	0.01	0.08	0.01
M1	Medium trees (10–30m) <10% foliage cover	129.05	30.28	156.25	27.24	131.04	24.90
M2	Medium trees (10–30m) 10–30% foliage cover	139.41	32.72	183.74	32.03	153.85	29.24
M3	Medium trees (10–30m) 30–70% foliage cover	27.99	6.57	28.45	4.96	38.19	7.26
M4	Medium trees (10–30m) >70% foliage cover	0.48	0.11	0.66	0.12	0.49	0.09
S1	Tall shrubs (>2m) <10% foliage cover	1.47	0.34	2.64	0.46	23.22	4.41
S2	Tall shrubs(>2m) 10–30% foliage cover	0.38	0.09	0.17	0.03	1.15	0.22
T3	Tall trees (>30m) 30–70% foliage cover	0.00	0.00	0.00	0.00	0.00	0.00
Z1	Low shrubs (<2m) <10% foliage cover	0.00	0.00	0.01	0.00	0.51	0.10
Z3	Low shrubs (<2m) 30–70% foliage cover	0.03	0.01	0.00	0.00	0.01	0.00
Total		426.12	100.00	573.67	100.00	526.23	100.00

4.5 Woody Vegetation Change by Biomass

Data from many studies on eucalypt, acacia and rainforest sites were assembled and the relationships between stand basal area and biomass calculated for the 1997–1999 SLATS report (DNR, 2000).

These equations were applied to pre-clearing live stand basal area as mapped by SLATS to estimate live above and below ground (root) biomass cleared. It is estimated that approximately 26 Mt of dry biomass or 13 Mt of carbon were cleared during the 2001–2002 period and 29 Mt of dry biomass or 14.5 Mt of carbon were cleared in the 2002–2003 period. At this stage no account is made for dead timber cleared or of the lower biomass found in regrowth communities. While the biomass cleared will eventually decay, the rate of release of CO₂ depends to a great extent on the clearing method and post clearing management of woody debris (Henry *et al.*, 2002).

While SLATS scientists are in the field to validate the vegetation change mapping, they record additional information on the presence of woody debris following clearing. An example of the change in coarse woody debris at a field revisit site is shown in Figure 16. Figure 17 shows sites recorded during the 2004 field program which have been previously surveyed for coarse woody debris. Each location may have been surveyed one to four times in field studies since 1999. At each site a rating of coarse woody debris decline is recorded and a photo taken.



Figure 16: Revisit site showing change in coarse woody debris from 2000–2004.

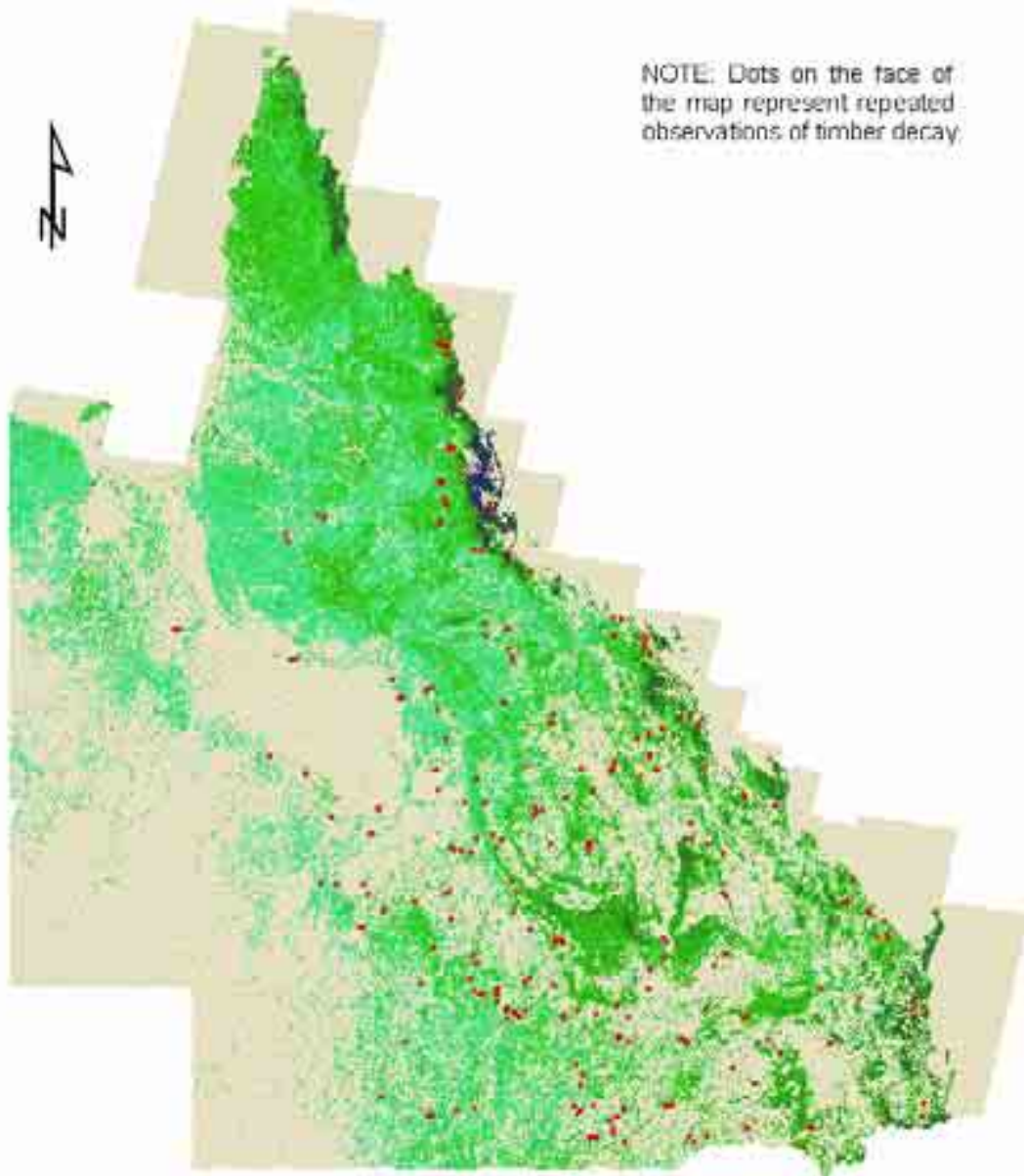
The rate of change of coarse woody debris is influenced by several factors including: the proposed land use, type of vegetation cleared, location and the economics of clearing. In recent years there seems to have been less emphasis on cleaning up following clearing with timber left to decay rather than being burnt. This practice is most common in the more arid regions but occurs in all regions where there is clearing. The coarse woody debris left following clearing provides benefits by reducing runoff and providing a habitat for flora and fauna.

QUEENSLAND

VEGETATION COVER AND LAND USE SHOWING FIELD REVISIT SITES 2001 - 2003



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Figure 17: Location of sites revisited during the 2004 field program.

Section 5. Regional Assessment of Woody Vegetation Change

The woody vegetation change mapping was analysed using Geographic Information System (GIS) overlays to calculate the rate of clearing as a percentage of the area of 2001 woody vegetation and the remaining woody vegetation cover in 2001. The following GIS layers were used:

- Biogeographic Regions and Sub-regions (Section 5.1, Figure 18 and 19)
- Catchments (Section 5.2, Figure 20 and 21)
- Local Government Areas (Section 5.3, Figure 22 and 23)
- Regional Vegetation Management Groups (Section 5.4, Figure 24 and 25)
- Natural Resource Management Regions (Section 5.5, Figure 26 and 27).

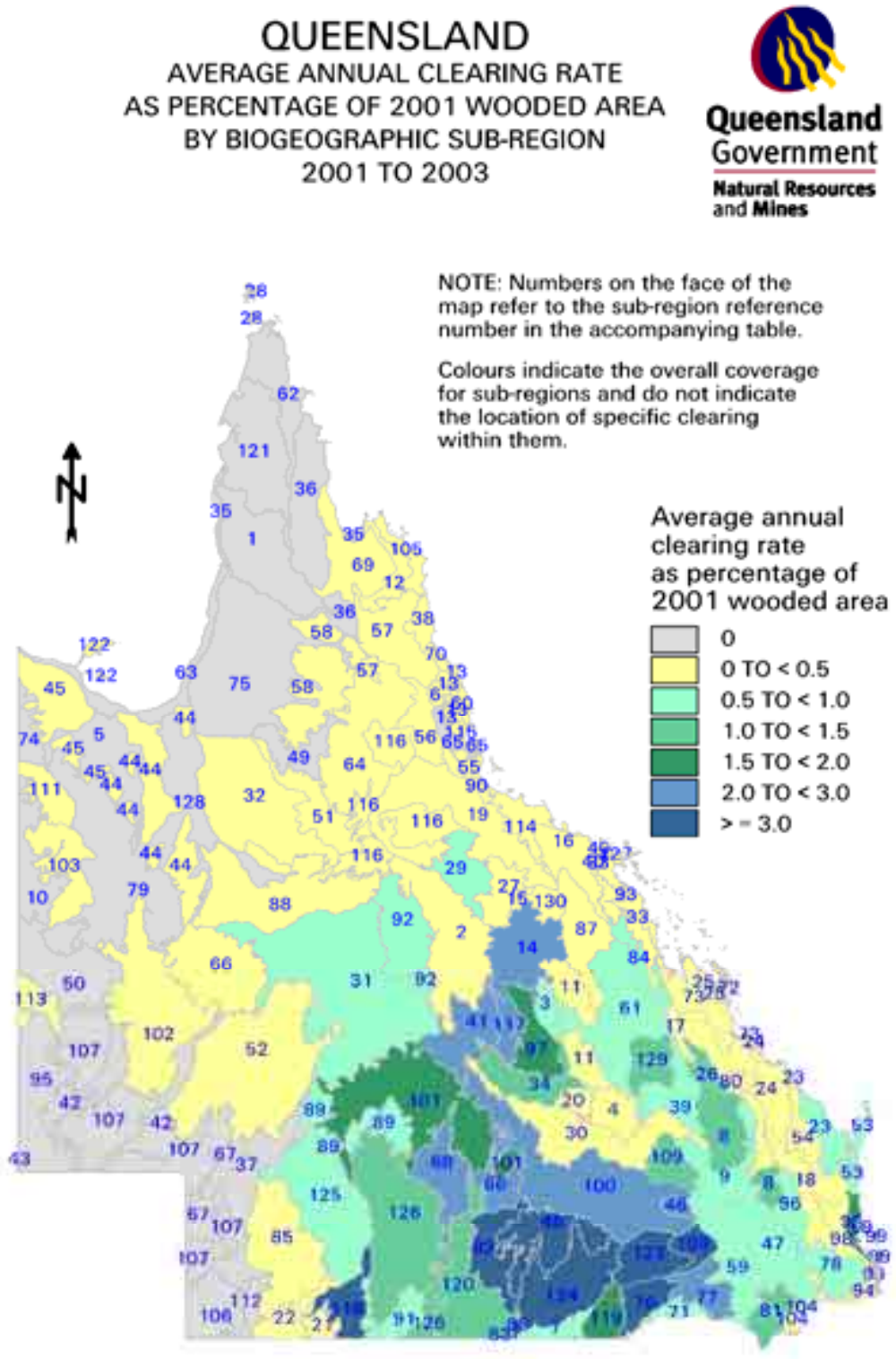
Clearing totals were accumulated for each of the GIS layers and statistics for each are provided in tabular form (Table 9–18).

A similar analysis was completed for native pasture communities, but these statistics are presented in tabular form only (Section 5.6, Table 19). The extent of native pasture communities in Queensland is displayed in Figure 28. The analysis of clearing by native pasture communities has shown clearing of trees has occurred in some Mitchell grass communities. This was clearing of Gidgee areas that were not mapped in the 1:2 000 000 pasture community map.

Note that in the catchment GIS layer, some of the coastal catchments have been amalgamated and named after one of the rivers; for example, the amalgamated Sunshine Coast catchments are called Maroochy.

This report contains only a selection of possible data tables. Spreadsheets containing additional data are available on request.

5.1 Woody Vegetation Change by Biogeographic Region and Sub-region



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Figure 18: Average annual clearing rate as a percentage of 2001 wooded area by Biogeographic Sub-region (2001–2003).

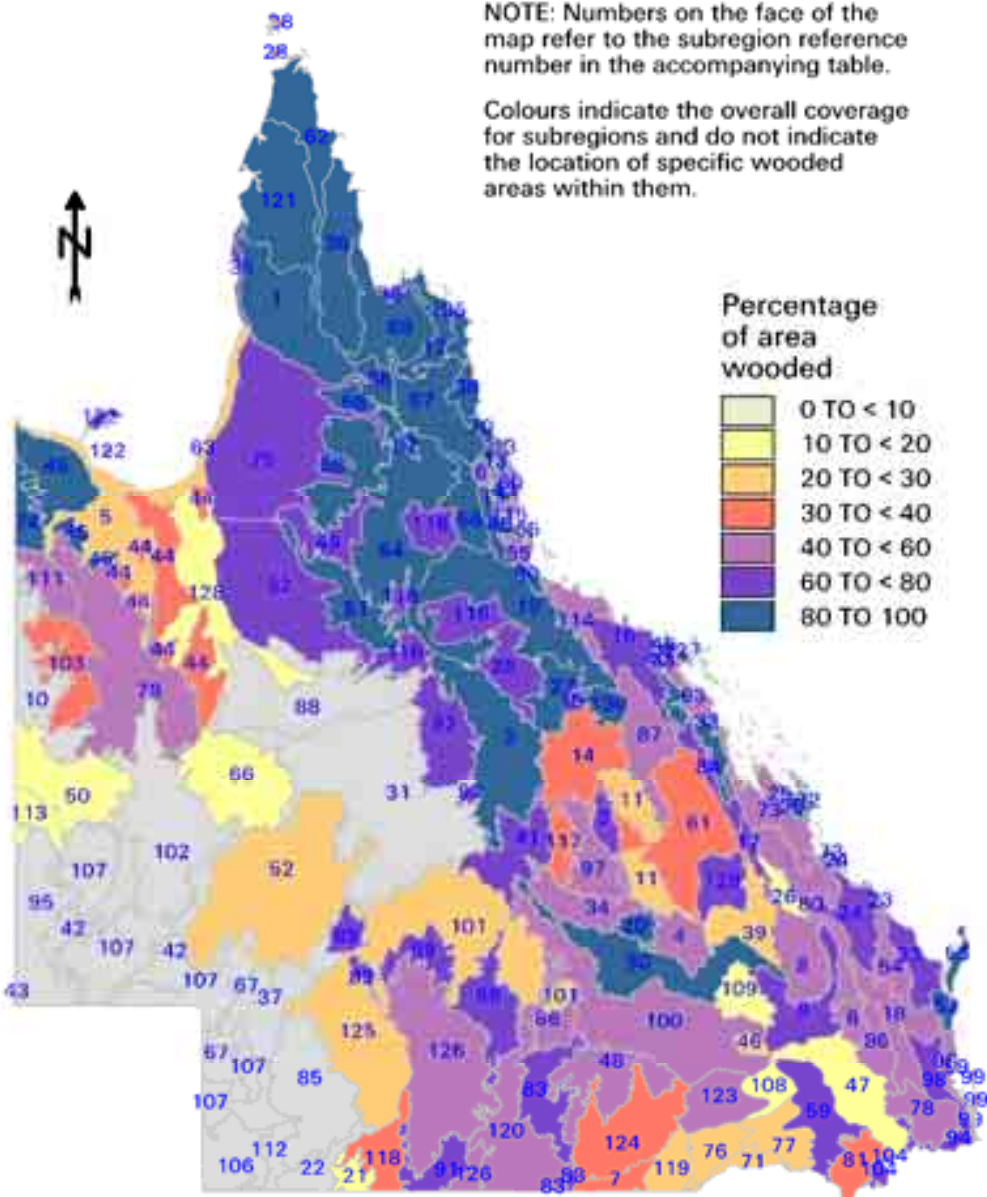
QUEENSLAND PERCENTAGE OF AREA WOODED BY BIOGEOGRAPHIC SUBREGION

2001



NOTE: Numbers on the face of the map refer to the subregion reference number in the accompanying table.

Colours indicate the overall coverage for subregions and do not indicate the location of specific wooded areas within them.



BIOGEOGRAPHIC SUB-REGION

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Figure 19: Percentage of area wooded by Biogeographic Sub-region (2001).

Table 9: Woody vegetation change by land cover by Biogeographic Region (2001–2003).

Biogeographic Region		Rate of woody vegetation change (,000ha/yr)							% Wooded vegetation cover 2001	% Total clearing in QLD
Name	Area (,000ha)	Pasture	Crops	Forest	Mining	Infra-structure	Settle-ment	Total		
Brigalow Belt	36391	189.978	0.138	0.069	1.325	1.822	0.038	193.369	47.01	36.62
Channel Country	23187	2.218	0.000	0.000	0.000	0.032	0.000	2.249	8.30	0.43
Central Mackay Coast	1459	1.140	0.173	0.265	0.000	0.037	0.008	1.624	76.26	0.31
Cape York Peninsula	12117	0.574	0.000	0.000	0.000	0.053	0.001	0.627	92.84	0.12
Desert Uplands	6884	40.613	0.000	0.000	0.000	0.289	0.000	40.902	73.02	7.75
Einasleigh Uplands	11886	1.307	0.040	0.000	0.034	0.853	0.004	2.238	85.38	0.42
Gulf Uplands	21793	0.915	0.002	0.000	0.002	1.414	0.000	2.334	60.69	0.44
Mitchell Grass Downs	24319	22.470	0.000	0.000	0.000	0.007	0.000	22.477	11.22	4.26
Mulga Lands	18745	240.131	0.000	0.000	0.000	0.231	0.000	240.361	51.06	45.52
Northern New England Tablelands	775	2.878	0.006	0.000	0.001	0.000	0.000	2.885	42.46	0.55
North West Highlands	7232	0.285	0.000	0.000	0.000	0.009	0.000	0.295	50.89	0.06
South Eastern Queensland	6174	8.718	0.136	5.219	0.247	0.649	2.650	17.620	57.41	3.34
Wet Tropical Rainforest	1993	0.683	0.188	0.131	0.000	0.046	0.021	1.069	79.69	0.20

Table 10: Woody vegetation change by land cover by Biogeographic Sub-region (2001–2003).

Biogeographic Sub-region			Rate of woody vegetation clearing (,000ha/yr)							% Wooded vegetation cover 2001	% Total clearing in QLD
Name	Map Ref. No.	Total area (,000ha)	Pasture	Crops	Forest	Mining	Infra-structure	Settle-ment	Total		
(Northern) Holroyd Plain	1	2575	0.014	0.000	0.000	0.000	0.001	0.000	0.016	86.96	0.00
Alice Tableland	2	2864	7.866	0.000	0.000	0.000	0.073	0.000	7.940	84.18	1.50
Anakie Inlier	3	355	2.252	0.000	0.000	0.013	0.044	0.000	2.309	75.41	0.44
Arcadia	4	708	1.192	0.000	0.000	0.000	0.001	0.000	1.193	54.16	0.23
Armraynald Plain	5	1589	0.000	0.000	0.000	0.000	0.004	0.000	0.004	20.99	0.00
Atherton	6	168	0.074	0.002	0.000	0.000	0.002	0.005	0.084	56.72	0.02
Balonne-Culgoa Fan, Culgoa - Bokhara	7	368	0.991	0.000	0.000	0.000	0.000	0.000	0.991	37.11	0.19
Banana-Auburn Ranges	8	1535	9.026	0.004	0.000	0.000	0.025	0.000	9.055	45.77	1.71
Barakula	9	1296	5.425	0.000	0.000	0.000	0.018	0.000	5.443	60.88	1.03
Barkly Tableland, Mitchell Grass Downs P2 Barkly	10	1662	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.64	0.00
Basalt Downs	11	1239	1.392	0.000	0.000	0.032	0.003	0.000	1.426	26.25	0.27
Battle Camp Sandstones	12	573	0.018	0.000	0.000	0.000	0.014	0.000	0.032	97.06	0.01
Bellenden Ker-Lamb	13	255	0.032	0.000	0.026	0.000	0.000	0.001	0.059	93.80	0.01
Belyando Downs	14	1786	18.487	0.000	0.000	0.000	0.364	0.000	18.851	39.30	3.57
Beucazon Hills	15	102	0.070	0.000	0.000	0.000	0.010	0.000	0.080	72.60	0.02
Bogie River Hills	16	1042	0.045	0.011	0.000	0.000	0.037	0.001	0.093	73.34	0.02
Boomer Range	17	211	0.363	0.000	0.000	0.000	0.000	0.000	0.363	61.76	0.07
Brisbane-Barambah Volcanics	18	807	0.746	0.000	0.056	0.000	0.002	0.001	0.805	42.55	0.15
Broken River	19	3276	0.268	0.000	0.000	0.003	0.276	0.001	0.549	84.71	0.10
Buckland Basalts	20	290	1.238	0.000	0.000	0.000	0.000	0.000	1.238	94.01	0.23
Bulloo Dunefields	21	325	0.002	0.000	0.000	0.000	0.000	0.000	0.002	10.22	0.00
Bulloo, Bulloo Overflow	22	618	0.001	0.000	0.000	0.000	0.012	0.000	0.014	5.74	0.00
Burnett-Curtis Coastal Lowlands	23	700	1.158	0.119	1.027	0.000	0.062	0.123	2.490	60.58	0.47
Burnett-Curtis Hills and Ranges	24	991	1.112	0.000	0.162	0.019	0.334	0.092	1.719	70.06	0.33
Byfield	25	120	0.143	0.000	0.237	0.000	0.000	0.001	0.380	93.18	0.07
Callide Creek Downs	26	298	0.673	0.000	0.000	0.022	0.001	0.000	0.695	17.40	0.13

Table 10 (continued): Woody vegetation change by land cover by Biogeographic Sub-region (2001–2003).

Biogeographic Sub-region			Rate of woody vegetation clearing (,000ha/yr)							% Wooded vegetation cover 2001	% Total clearing in QLD
Name	Map Ref. No.	Total area (,000ha)	Pasture	Crops	Forest	Mining	Infra-structure	Settle-ment	Total		
Cape River Hills	27	743	1.010	0.000	0.000	0.000	0.184	0.000	1.193	80.17	0.23
Cape York-Torres Strait	28	68	0.000	0.000	0.000	0.000	0.000	0.000	0.000	47.82	0.00
Cape Campaspe Plains	29	1006	6.603	0.000	0.000	0.000	0.092	0.000	6.695	73.51	1.27
Carnarvon Ranges	30	2293	7.378	0.000	0.000	0.000	0.006	0.000	7.384	85.61	1.40
Central Downs	31	6887	4.579	0.000	0.000	0.000	0.000	0.000	4.579	7.56	0.87
Claraville Plains	32	3790	0.107	0.000	0.000	0.000	0.620	0.000	0.727	79.73	0.14
Clarke-Connors Ranges	33	629	0.338	0.001	0.000	0.000	0.002	0.000	0.341	92.96	0.06
Claude River Downs	34	1044	8.571	0.000	0.000	0.000	0.002	0.000	8.573	56.49	1.62
Coastal Plains	35	262	0.000	0.000	0.000	0.000	0.000	0.000	0.000	63.20	0.00
Coen-Yamba Inlier (North & South)	36	2395	0.094	0.000	0.000	0.000	0.013	0.000	0.107	95.96	0.02
Cooper Plains	37	1844	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.16	0.00
Daintree-Bloomfield	38	360	0.028	0.000	0.000	0.000	0.008	0.003	0.039	95.28	0.01
Dawson River Downs	39	988	1.827	0.000	0.069	0.001	0.002	0.000	1.899	20.83	0.36
Debella	40	80	0.206	0.006	0.000	0.000	0.008	0.004	0.225	66.79	0.04
DEU4 (new subregion)	41	1434	20.730	0.000	0.000	0.000	0.124	0.000	20.854	61.39	3.95
Diamantina-Eyre, Diamantina Plains	42	2443	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.15	0.00
Dieri	43	13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.29	0.00
Donors Plateau	44	2450	0.512	0.000	0.000	0.000	0.078	0.000	0.590	30.55	0.11
Doomadgee Plains, Gulf Plains	45	1684	0.111	0.000	0.000	0.000	0.124	0.000	0.234	89.55	0.04
Dulacca Downs	46	162	0.831	0.000	0.000	0.000	0.000	0.000	0.831	23.40	0.16
Eastern Darling Downs	47	1646	1.552	0.000	0.000	0.001	0.001	0.013	1.567	16.28	0.30
Eastern Mulga Plains	48	1559	58.896	0.000	0.000	0.000	0.018	0.000	58.914	57.69	11.16
Georgetown-Croydon	49	914	0.016	0.000	0.000	0.000	0.012	0.000	0.028	77.89	0.01
Georgina Limestone	50	2043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.89	0.00
Gilberton Plateau	51	1316	0.031	0.000	0.000	0.000	0.254	0.000	0.285	92.45	0.05