# CASINO MANAGEMENT AREA EIS

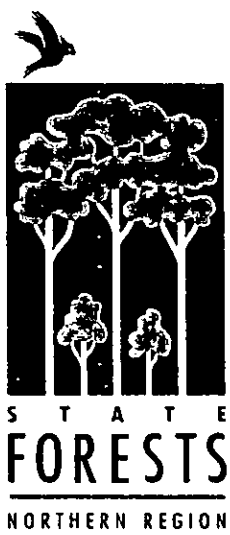
# SUPPORTING DOCUMENT No. 7

## FLORA SURVEY REPORT
## CASINO MANAGEMENT AREA
## NORTHERN REGION
## STATE FORESTS OF NEW SOUTH WALES

by

*Doug Binns*

1995



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# STATE FORESTS OF NEW SOUTH WALES

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*Doug Binns*

Research Division
State Forests of New South Wales

1995

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# *INTRODUCTION*

This report presents the results of recent surveys of vascular plant species undertaken in the State forests within Casino Management Area (herein referred to as CMA), in far north-eastern New South Wales, in the context of environmental assessment of proposed forestry activities. CMA is bounded by latitudes 28° 30' to 29° 30' S and longitudes 152° 15' to 153° 20' E and comprises approximately 140 000 ha of State forests. This area, its physical characteristics and management history are described by the Forestry Commission of New South Wales (1983a, 1983b).

The general aim of this study is to describe the vegetation in the context of management of the area for commercial forestry purposes. More specifically, the objectives are:

i) to describe the terrestrial vascular flora of the area, particularly the vegetation types and distribution, habitat and abundance of plant species;

ii) to relate vegetation types to Forest Type map units used for forest management purposes;

iii) to identify vascular plant species of particular botanical or conservation significance;

iv) to identify vegetation types or communities of botanical or conservation significance and suggest representative areas for reservation where considered necessary;

v) to compare the flora of areas of various forest management histories and consider likely impacts of proposed forestry operations on flora.

# METHODS

## 1. DATA COLLECTION

### (a) Data Sources and Plot Location

Descriptions of vegetation and assessment of impact are based on a series of non-permanent flora survey plots established in the area. There are several sources and several periods of field work from which data for this report were derived, as follows:

Austeco Pty Ltd
Data were part of an initial survey of the combined Grafton and Casino MAs. Plots were stratified by broad forest type and management history over the two management areas combined, with four replicates in each combination. The design was primarily for assessing impacts of forest management on fauna, and plots were generally close to road access. Plots in Grafton MA have been described by Moore and Floyd (1994). Field work was undertaken during the period November 1991 to February 1992, by A. Floyd, D. Moore and A. Benwell. Forty plots were within the CMA general boundary, thirty nine in State Forest (the other in Washpool National Park).

NPWS NEFBS (North-east Forests Biodiversity Study)
Data were part of a regional survey (north-east NSW, north of Hunter River and east of New England Highway), with plot locations stratified by 'environmental domain' (combinations of classes of lithology, temperature and rainfall) on a regional basis (National Parks and Wildlife Service 1995). Field work was carried out during December 1992 to April 1993. Ninety-nine plots were surveyed within the general boundary of CMA, including State Forest, National Park and other Crown land. Eighty-seven of these were in State Forest.

Binns
Additional plots were surveyed specifically for the present report, to complement the previous two surveys, using stratification by mapped forest types (Forestry Commission of New South Wales, 1989) as the basic strategy. Composite types were combined under the major constituent for stratification purposes, but most variants were sampled by at least one plot. As an overall strategy, plots were allocated to each forest type group depending on the extent of the type, as follows:

| Area of map unit | Minimum no. of plots |
|---|---|
| <200 ha | 1 |
| 200-1000 ha | 2 |
| 1000-5000 ha | 3 |
| 5000-10000 ha | 4 |
| >10000 ha | 4, or 1 per 5000 ha |

Plots additional to those already surveyed by Austeco and NEFBS were located in map units to meet the above criteria overall. The additional plots were located to avoid existing plots and were not constrained by road access. Plots in more extensive types were randomly selected but constrained to be in areas which could be sampled *en route* to those in restricted or unusual habitat types. This strategy was designed to ensure efficient sampling of the full range of types and habitats while reducing unproductive travelling time as far as possible. Plot locations were initially marked on topographic maps and the locations objectively transferred to the field. A total of 57 additional plots were surveyed.

As a basic criterion, the advantages of using mapped forest types as the basis for sampling are as follows:

i) They are broadly related to overstorey composition.
ii) They act as a surrogate which integrates a range of physical environmental attributes, providing greater efficency of sampling.
iii) They are part of a standard management system, which facilitates translation of survey results to management options.
iv) The use of forest type maps with a combination of survey results and broad area observations facilitates assessment of conservation adequacy and location of additional reserves.

During this supplementary survey, particular attention was also given to sampling or at least inspecting unusual or restricted habitats (e.g. rock outcrops, swamps, deep ravines).

A total of 196 plots were surveyed from the three sources combined, 183 of these in State forests in CMA. All plots were 50 m x 20 m rectangles. Approximate locations are shown in Figure 1 and grid references and other details are listed in Appendix 2. Distribution of plots among mapped forest types (MFT) is summarised in Table 1 and distribution among environmental classes is summarized in Table 2. Two MFTs were not sampled. MFT 7 was originally sampled as part of a combined strategy with Murwillumbah area, and was not sampled in CMA when it was decided to consider the areas separately. There are two patches of MFT 26, both of which were inspected but not sampled. One, in Washpool SF, was found to be not distinct from adjacent areas mapped as FT 23. The other, in Royal Camp SF, was a very extensive thicket of the exotic shrub *Lantana camara*, adjacent to a private property boundary and apparently resulting from previous clearing prior to dedication as State Forest.

*(b) Floristic and vegetation structural data*

For the three surveys, all vascular plant species which could be distinguished within a plot were recorded and identified as far as possible to species level. Plot searches were comprehensive, but inconspicuous species may have been overlooked in some cases. Vertical heights of vegetation strata were subjectively defined and recorded for each plot. Stratum limits of 0-1m, 1-6m, 6-20m and 20-35m and >35m were used as a guide for the coding of structural data, even though actual heights were recorded.

Cover codes, based on projected canopy cover, were estimated for each species. For the Austeco and Binns survey plots, a cover code for each species was also estimated within each vertical stratum. Codes are as follows:

| Cover Code | Projected Canopy Cover |
|---|---|
| 1 | < 5%, few individuals |
| 2 | < 5%, any number of individuals |
| 3 | 6-25% |
| 4 | 26-50% |
| 5 | 51-75% |
| 6 | > 75% |

In the Austeco and Binns plots, for all trees with stem diameter at breast height (1.3m) greater than 10cm, the number of stems of each species was recorded by 10 cm diameter classes, up to 50 cm. Diameter was recorded for all stems over 50 cm. In the NEFBS plots, diameters and species were recorded for the nearest 12 trees of any species. These data were used to calculate an estimate of basal area by species for each plot. All stumps were similarly recorded and the data used to give a measure of logging intensity within the plot.

During the Binns survey, the locations of any occurrences of significant species noted while traversing the area, additional to those occurring in plots, were also recorded.

**Figure 1**

**ENVIRONMENTAL IMPACT STATEMENT**
**CASINO MANAGEMENT AREA**

## FAUNA AND FLORA PLOT LOCATION

Scale 1 : 470 000

0 2 4 6 8 10 20km

N

- Environmental Impact Statement Boundary
- Management Area Boundary
- Major Road
- Railway
- Drainage

- State Forest
- Hardwood Plantation
- Softwood Plantation
- Timber Reserve
- National Park, Nature Reserve
- Unoccupied or Reserved Crown Land
- Leasehold Land
- Virtually Freehold Land
- Water
- Built Up Area

- Location of Fauna and Flora Plot (AUSTECO 1994)
- Additional Location of Flora Plots (BINNS 1995)

In producing this map, State Forests of NSW acknowledges the use of data supplied by NPWS.

STATE FORESTS
GIS Branch

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**Table 1.** Distribution of plots among mapped forest types (MFT). Area is calculated from GIS. No. of plots: A=Austeco; N=NEFBS; B=Binns; T=total. Composition by consituent types are listed where types are aggregated for sampling. Five plots in State forests sampled by NEFBS did not have mapped forest types recorded and are excluded from the table.

| | | No. of plots | | | | |
|---|---|---|---|---|---|---|
| Mapped FT | Area | A | N | B | T | Composition |
| 1 | 1 413 | 1 | - | 2 | 3 | 1 (1), 1a (2) |
| 2/3 | 1 500 | - | - | 3 | 3 | |
| 7 | ?24 | - | - | - | 0 | |
| 11 | 975 | 1 | - | 1 | 2 | |
| 21 | 3 980 | 1 | - | 2 | 3 | |
| 23 | 1 815 | - | - | 3 | 3 | 23 (1), 23/26 (2) |
| 26 | 143 | - | - | - | 0 | |
| 30 | 737 | - | 4 | - | 4 | 30/31 (1), 30/31/92 (3) |
| 31 | 9 379 | - | 4 | - | 4 | 31 (2), 31/92 (2) |
| 32 | 40 | - | - | 1 | 1 | |
| 36 | 1 610 | 1 | 3 | - | 4 | |
| 37 | 6 211 | 5 | 4 | - | 9 | 37a (8), 37b (1) |
| 38 | 1 129 | 3 | - | 1 | 4 | |
| 39 | 619 | - | 2 | 1 | 3 | 39 (2), 39b (1) |
| 40/41 | 1 876 | - | 1 | 2 | 3 | |
| 41 | 10 735 | 5 | 6 | - | 11 | 41 (7), 41/92 (2), 41/97 (2) |
| 46 | 414 | 1 | 1 | - | 2 | 46 (1), 46a (1) |
| 47 | 6 888 | 3 | 3 | 2 | 8 | 47 (2), 47a (3), 47b (3) |
| 48 | 1 643 | 3 | 2 | - | 5 | |
| 49/53 | 120 | - | - | 1 | 1 | |
| 51 | 92 | - | - | 1 | 1 | |
| 53 | 5 372 | 2 | 3 | - | 5 | 53 (4), 53b (1) |
| 60 | 2 615 | - | - | 3 | 3 | |
| 62 | 14 234 | 1 | 9 | 2 | 12 | 62 (2), 62a (2), 62b (3), 62/126 (2), 62/74a (2), 62/74b (1) |
| 65 | 3 662 | 2 | 5 | - | 7 | 65 (2), 65/85 (1), 65/126 (2) |
| 70/74 | 4 149 | - | - | 2 | 2 | |
| 71 | 7 177 | 2 | 6 | - | 8 | 71 (2), 71a /93/0, 71b (3) |
| 72 | 14 156 | 1 | 5 | - | 6 | 72 (1), 72/74 (5) |
| 74 | 20 339 | 5 | 4 | - | 9 | 74 (6), 74a (1), 74b (2) |
| 76 | 405 | 1 | 1 | - | 2 | |
| 80 | 143 | - | - | 3 | 3 | |
| 82 | 126 | - | - | 1 | 1 | |
| 83 | 23 | - | - | 1 | 1 | |
| 84 | 1 994 | - | 2 | 2 | 4 | 84 (2), 84/119 (1), 84/126 (1) |
| 85 | 363 | - | 2 | 1 | 3 | |
| 87 | 440 | - | 1 | 2 | 3 | |
| 92 | 2 514 | 1 | 5 | - | 6 | 92 (4), 92/126 (2) |
| 97 | 1 248 | - | 1 | 2 | 3 | |
| 117 | 216 | - | - | 2 | 2 | |
| 119 | 585 | - | 2 | - | 2 | |
| 126 | 277 | - | 1 | 1 | 2 | |
| 128 | 424 | - | - | 1 | 1 | |
| 129 | 767 | - | 3 | - | 3 | |
| 130 | 189 | - | 2 | 1 | 3 | |
| 163 | 2 356 | - | - | 5 | 5 | 163 (2), 163a (1), 163b (2) |
| 207 | 79 | - | 1 | - | 1 | |
| 231 | ? | - | - | 2 | 2 | |
| 234 | ? | - | - | 6 | 6 | |

**Table 2.** Distribution of plots among geology, temperature and rainfall classes.

| | | No. of plots | | |
|---|---|---|---|---|
| | | Rainfall (mm/yr) | | |
| Geology | Temperature | Dry (900-1100) | Wet (1100-1400) | V. wet (>1400) |
| Basic igneous | Warm (15-17° C) | - | 3 | 5 |
| | Very warm (>17° C) | - | 3 | - |
| Sedimentary, low quartz | Cool (12-15° C) | - | - | 1 |
| | Warm (15-17° C) | 1 | 3 | - |
| | Very warm (>17° C) | 15 | 52 | 8 |
| Acid volcanic | Cool (12-15° C) | - | - | 5 |
| | Warm (15-17° C) | - | 1 | 4 |
| | Very warm (>17° C) | - | 1 | - |
| Granitic | Cool (12-15° C) | - | - | 2 |
| | Warm (15-17° C) | - | 10 | - |
| | Very warm (>17° C) | 1 | 2 | - |
| Sed., high quartz | Very warm (>17° C) | - | - | 4 |
| Sandstone | Warm (15-17° C) | - | 1 | 1 |
| | Very warm (>17° C) | 3 | 39 | - |
| Quat. alluvium | Very warm (>17° C) | 8 | 12 | - |
| Quat. sediment | Very warm (>17° C) | - | - | 2 |

*(c) Environmental data*

At each plot, slope (in degrees), altitude, aspect, topographic position, drainage, percentage cover and particle size of surface rock and cover of outcropping bedrock were recorded. An assessment was made of previous disturbance by logging, fire and grazing, on the basis of any available visual evidence. An estimate of intensity and time since disturbance was recorded. Estimates for logging were checked against historical records. Any other unusual feature was also recorded.

The main variables used for ordination analyses described below in Section 5 were derived from environmental data as follows:

a Elevation in metres, from 1:25 000 topographic map.

top Topographic position, coded as 1=ridge crests, 2=upper slopes, 3=mid slopes, 4=lower slopes and alluvial flats, 5=riparian or swamp.

exp Degree of topographic exposure derived from combined aspect and position on slope classes, coded as 1=exposed (all ridge crests, upper slopes with aspect 0-135° or 225-360°, mid slopes with aspect 270-360°, 0-45°); 2=intermediate exposure (upper slopes with aspect 135-225°, mid slopes with aspect 45-135° or 225-270°, lower slopes with aspect 0-90°or 225-360°); 3=sheltered slopes (mid slopes with aspect 135-225°, lower slopes with aspect 90-225°); 4=riparian.

r Mean annual rainfall, provided by Simon Ferrier, NPWS, Armidale, estimated from climatic surface model from plot locations.

t Mean annual temperature, estimated as for rainfall.

ri Mean annual solar radiation, incorporating effects of cloud cover and topography, provided by Simon Ferrier, NPWS, Armidale.

fi Estimated intensity of most recent fire, coded as 0=no evidence; 1= low; 2=moderate; 3=high.

fa Estimated time since last fire, coded as 1=1-2 yr; 2=3-5 yr; 3=6-10 yr; 4=11-15 yr; 5=16-20 yr; 6=21-30 yr; 7=31-40 yr; 8=41-50 yr; 9=>50 yr.

li Logging intensity, coded as for fire.

la Time since logging, coded as for fire.

g Parent material, derived from 1:250 000 geology series and provided by S. Ferrier from digitized maps, coded as 1=basic igneous, 2=sedimentary, low quartz, 3=acid volcanics, 4=granitic, 5=sedimentary high quartz, 6=sandstone, 7=quaternary alluvium, 8=quaternary sand.

## *2. INFORMATION FROM OTHER SOURCES*

Additional records and information on plants of conservation significance were obtained from the NPWS ROTAP database, kindly provided by Tim Hager, and the Upper North East Significant Plants database, provided by Di Brown of the NPWS GIS unit, Armidale. In each case, records were obtained for rare or significant plants recorded within the rectangle bounded by latitude 28° 30' - 29° 30' S and longitude 152° 15' - 153° 20' E.

Rainforest was surveyed at low intensity relative to the complexity of rainforest communities in the area. Descriptions of rainforest communities were supplemented by descriptions of Floyd (1990). Other data were obtained from a register of herbarium specimens held at the State Forests herbarium at Coffs Harbour. Specimens were not examined and it is possible that some specimens in this collection may be misidentified.

## *3. TAXONOMY AND NOMENCLATURE*

Taxonomy and nomenclature follow the National Herbarium of N.S.W. This is mostly as published in Harden (1990, 1991, 1992, 1993), except where taxonomic revisions have been published more recently.

Some taxa could not always be confidently determined to species level. Particular difficulties were experienced with the following species or groups, mostly due to lack of suitable material:

*Angophora woodsiana / A. floribunda* Some specimens from sandstone substrates in the coastal ranges had intermediate pedicel length and could not be unequivocally assigned to either species using this character. These doubtful cases were referred to *A. woodsiana*.

*Austrosteenisia blackii / Derris involuta* These may have been confused in some cases.

*Eucalyptus intermedia / E. gummifera* These may not have been consistently separated, in the absence of fruiting material.

*Eucalyptus biturbinata / E. propinqua* Some records may have been incorrectly assigned, where fruiting material was unavailable.

*Eucalyptus* sp. aff. *acmenoides* A population on sandstone ridges in Mount Marsh SF is possibly an undescribed taxon but requires further investigation (K. Hill, National Herbarium of NSW, *pers. comm.*)

*Gonocarpus humilis / G. tetragynus* The distinction between these two is sometimes unclear.

*Opercularia diphylla / O. aspera* These may have been confused in the absence of fruting material.

## *4. ASSESSMENT OF CONSERVATION SIGNIFICANCE*

Each taxon of national conservation significance listed by Briggs and Leigh (1988), including recent revisions of status (J. Briggs, June 1995, pers. comm.) was assessed for its potential to occur in the State forests of CMA, based on known distribution and habitat. Species were assessed for State or regional conservation significance from Sheringham and Westaway (1995). Conservation significance of overstorey communities was assessed from Hager and Benson (1994) for eucalypt forest and Floyd (1980) for rainforest.

## *5. DATA ANALYSIS*

Floristic data were classified into vegetation communities by grouping floristically similar plots using a numerical hierarchical agglomerative classification process, using the Bray-Curtis association measure and a flexible UPGMA sorting strategy with beta = 0.0 (FUSE module of the PATN package, Belbin 1994). Although the procedure provides a repeatable and explicit method of defining communities, there are a number of critical decisions required which are essentially subjective and which may substantially affect the final community composition. The most important of these are the choice of beta and the choice of an appropriate level in the dendrogram to define communities. A beta value of zero was chosen to yield a 'space-conserving' fusion strategy which does not exaggerate floristic differences between groups. Communities were defined at dissimilarity levels of 0.6 and 0.8. These levels provide consistency with other recent surveys and provide a reasonable reflection of what are perceived as plant communities in the field.

Any community analysis must be regarded as only a guide to the tendency of certain groups of species to co-occur. It is a convenient means of examining and describing vegetation patterns rather than a definitive statement of vegetation composition. In any stand of vegetation, there is some degree of vertical layering or stratification. The analysis of a full floristic data set, including all strata, implicitly assumes that the overstorey and the various understorey strata respond similarly to environmental factors, and at similar spatial and temporal scales. In fact, this is unlikely to be the case. For example, at the extreme, canopy trees respond to environmental factors at a much broader scale than herbs in the lowest understorey stratum and the latter are much more likely to reflect recent disturbance events (such as fire) to which canopy species are relatively insensitive. Thus an analysis of all strata combined may obscure spatial patterns relating to these variations in responses. However, it is difficult to define limits which realistically and consistently allow separate analyses of strata across a range of vegetation types, and any defined limits are essentially arbitrary. In practice, an analysis of all species combined tends to be dominated by the influence of lower strata species, which usually contribute more than the canopy species to the overall floristic characterisation of a plot. There is thus a high degree of similarity between a full floristic analysis and understorey analysis, and patterns of canopy species composition tend to be obscured in the former. To allow consideration of these interactions, and to allow an assessment of conservation status of overstorey assemblages, two separate analyses were performed:

1. Basal area of all stems >10cm dbhob was used to define overstorey communities. Due to the influence of lower vegetation strata on the results of a full floristic classification, this analysis was considered essential to allow comparisons with existing vegetation classification schemes which are based solely on canopy composition, and consequently for assessment of conservation status of overstorey communities.

2. Total cover of all species, including canopy species.

As only cover-abundance codes were recorded for understorey floristic data, these were converted to percentages for analysis 2, as the mid-point of the cover class for cover >5% and using 1% and 3% for codes 1 and 2 respectively.

For examination of logging impact, fire impact and the influence of other environmental factors on plant community floristic composition, the full data matrix was reduced by excluding floristically disparate plots in habitats not subject to logging, such as rainforest, swamps and steep, rocky habitats. Also, species which occurred in five or fewer plots were omitted, leaving a matrix of cover codes for 188 sites x 474 species for analysis. Cover codes, rather than mid-point percentages as used for classification, were used to give greater relative weight to the influence of less common species.

Classification tree analysis (Clark and Pregibon 1991) was used to investigate patterns of floristic richness and distribution of broad floristic classes in relation to environmental variables. It was also used to refine the analysis of floristic patterns in relation to logging and fire, by conducting separate analyses on subsets of the data defined from combinations of environmental variables.

A constrained ordination method (Canonical Correspondence Analysis (Ter Brack 1986, 1987), abbreviated as CCA) was used to investigate patterns of floristic composition in relation to environmental parameters. This method arranges species along environmental gradients by constructing linear combinations of environmental factors which result in maximal separation of species distributions in ordination species-space. Ter Braak (1986) fully describes the underlying assumptions and strengths of this method. The main assumption is that individual species response models are all similar and all of unimodal, Gaussian form. Although it is doubtful whether this assumption is reasonable for most species, CCA is considered to be robust to moderate violations of assumptions (ter Braak 1987) and is potentially very powerful in revealing patterns of floristic composition in relation to environmental factors. It also has the advantage that the results are unaffected by correlations among environmental variables. It is being increasingly and very effectively used in ecological investigations of this type (e.g. Borcard et al 1992, McIntyre and Lavorel 1994). In interpreting the ordination diagram, environmental variables are represented by arrows, the length representing the strength of correlation between the environmental variable and the ordination axes, and the direction representing the direction of maximum change of the variable. Analyses were performed using programs written in Splus. Classes of qualitative environmental variables (lithology, exposure, topographic position, logging category) were transformed to a series of dummy binary variables as recommended by ter Braak (1987). The hypothesis of significance of the contribution of a variable relative to a random variable was tested using the Monte Carlo test with 100 random permutations. Variables which were not significant at the equivalent of $p=0.10$ were excluded from final analyses and discussion.

# *RESULTS*

## *1.FLORISTIC COMPOSITION AND COMMUNITIES*

A total of 979 native vascular plant taxa and 36 naturalized taxa was recorded from the 183 plots assessed in CMA during the field survey. This represents a floristic diversity comparable to that of the adjacent Grafton MA of similar size (999 taxa in 182 plots, Moore and Floyd 1994). Appendix 1 lists the species recorded from CMA by family, with their frequency of occurrence by broad vegetation type and logging category, and their occurrence by State forest.

All plots, including those in other tenures within the general boundary of CMA, were included in classification analyses. Forty-three floristic communities were defined at the 0.8 level of dissimilarity Two, each represented by a single plot, were floristically disparate communities which do not occur in SF and were subsequently excluded from further analysis and discussion. The two plots were NP7007, a littoral rainforest area in Bundjalung NP, and plot NP2080, a highly modified area in leasehold tenure with an usually high proportion of naturalized exotics, most of which are not recorded from SF. The dendrogram for the remaining 41 communities resulting from the classification is shown in Figure 2. The 41 floristic groups are briefly described below in six broad vegetation types, and diversity and main environmental features are summarized in Table 3. Species listed below are generally those which occur in at least 60% of plots in a group with a mean cover of at least 1, and are listed after each growth form in approximate order of abundance. In some cases, species which are locally abundant, but occur in fewer than 60% of plots are also included. Where a community is represented by a single plot, only a few of the most common species are listed.

### A. HEATH FOREST AND WOODLAND

This is open forest, low open forest or woodland, with a moderate to dense, low (1-2 m) understorey of sclerophyllous shrubs. This broad group occurs extensively on high quartz substrates, mostly sandstone, throughout the forests of the lowlands and coastal ranges in the east of CMA. Several communities also occur to a limited extent on granitic substrates in Ewingar SF. Communities of this group typically occupy ridges and more exposed slopes. They are regularly burnt, and most plots were estimated to have been burnt within the past five years.

CASf 1

Plots: A00004, A00006

Overstorey trees: *Eucalyptus gummifera, Eucalyptus baileyana, Eucalyptus pyrocarpa*

Small trees/shrubs: *Acacia complanata, Ceratopetalum gummiferum, Banksia oblongifolia, Leptospermum trinervium, Lomatia silaifolia, Leucopogon lanceolatus, Monotoca scoparia*

Ground cover: *Entolasia stricta, Hibbertia aspera, Lomandra filiformis, Patersonia glabrata, Pteridium esculentum, Persoonia tenuifolia*

CASf 2

Plots: A00021, A00024, A0022A, A0022B, BAN001, BAN002, BEL002, BEL003, EWI007, GIB001, GIB002, NP1018, NP1019, NP1104, NP1110, NP1122, NP1123, ROY001, ROY003

Overstorey trees: *Angophora woodsiana, Eucalyptus pilularis, Eucalyptus gummifera, Eucalyptus planchoniana*

Small trees/shrubs: *Persoonia stradbrokensis, Leptospermum trinervium, Platysace ericoides, Acacia complanata*

Ground cover: *Entolasia stricta, Phyllanthus thymoides, Themeda australis, Persoonia tenuifolia, Lepidosperma laterale, Dianella caerulea, Patersonia sericea, Xanthorrhoea latifolia, Daviesia umbellulata*

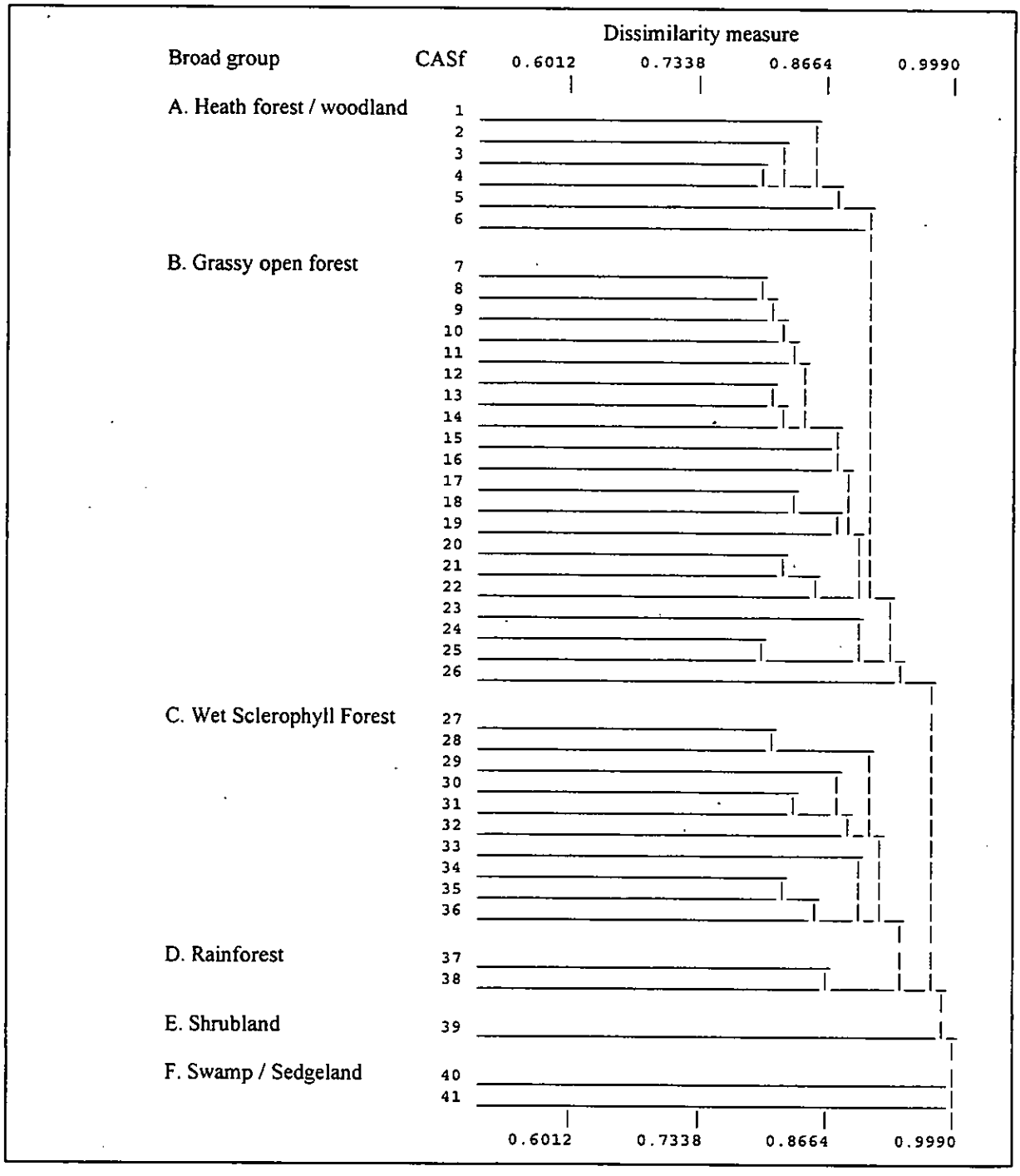


**Figure 2.** Dendrogram from floristic classification of percentage cover of all species, truncated at the 0.8 dissimilarity level.

CASf 3
Plots: NP1106, NP1107
Overstorey trees: *Angophora woodsiana, Eucalyptus bancroftii, Eucalyptus carnea, Eucalyptus resinifera*
Small trees/shrubs: *Allocasuarina torulosa, Dodonaea triquetra, Acacia concurrens, Alphitonia excelsa,*
Ground cover: *Lobelia gracilis, Cymbopogon refractus, Digitaria parviflora, Echinopogon caespitosus var. caespitosus, Fimbristylis cinnamometorum, Microlaena stipoides var. stipoides, Trachymene incisa ssp.incisa, Phyllanthus thymoides, Themeda australis, Dianella caerulea, Eustrephus latifolius, Glycine clandestina, Gompholobium pinnatum*

**Table 3.** Summary of floristic richness and main environmental characteristics of 41 floristic groups at 0.8 dissimilarity level.
n = number of plots; Richness N = number of native species per plot; Richness I = number of introduced species per plot; Lithology is coded as: Av = acid volcanic, Bi = Basic igneous, Gr = granitic, Qa = Quaternary alluvium, Sh = sedimentary, high quartz, Sl = sedimentary, low quartz, Sq = quartz sandstone; Fire is estimated time since last fire, coded as: 1 = 1-2 years, 2 = 3-5, 3 = 6-10, 4 = 11-15, 5 = 16-20, 6 = 21-30, 7 = 31-40, 8 = 41-50, 9 = 50+, shown as median and quartile range (q1-q3). State Forests are coded as Ban=Banyabba, Bel=Mount Belmore, Bil=Billilimbra, Bra=Braemar, Bun=Bungawalbin, Cam=Camira, Che=Cherry Tree, D=Devils Pulpit, Dou=Doubleduke, Ewi=Ewingar, Gib=Gibberagee, Mar=Mount Marsh, Mor=Mororo, Myr=Myrtle, Nev=Mount Neville, Pik=Mount Pikapene, Roy=Royal Camp, Sug=Sugarloaf, Tab=Tabbimoble, Was=Washpool, Whi=Whiporie; other lands are CL=leasehold, BNP=Bundjalung NP, NNR=Mount Neville NR.

| | | Richness N | | Richness I | | Rainfall (mm/yr) | | Temp (°C) | | Rad. Ind. (mj/m2/yr) | | | Fire | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CASf | n | mean | sd | mean | sd | mean | sd | mean | sd | mean | sd | Lithology | med | q1-q3 | State Forest |
| A. Heath Forest | | | | | | | | | | | | | | | |
| 1 | 2 | 29 | 11 | . | . | 1263 | 75 | 18.9 | 0.1 | 17.8 | 0.3 | Sq | 1.5 | 1-2 | Dou |
| 2 | 19 | 35 | 7 | 1 | . | 1260 | 77 | 17.9 | 0.9 | 17.8 | 0.7 | Gr,Sq,Sl | 1.0 | 1-2 | Ban,Bel,Dev,Ewi Gib,Nev,Roy,NNR |
| 3 | 2 | 48 | 9 | . | . | 1233 | 1 | 19.0 | 0.0 | 17.6 | 0.0 | Sl | 1.5 | 1-2 | Ban |
| 4 | 4 | 48 | 7 | 1 | 1 | 1090 | 28 | 18.7 | 0.3 | 18.2 | 0.5 | Sq,Sl | 2.5 | 2-3 | Sug,Roy |
| 5 | 5 | 38 | 6 | 1 | 0 | 1386 | 141 | 18.5 | 16.0 | 17.9 | 0.1 | Qa,Gr,Sh,Sl | 2.0 | 1-2 | Ewi,Mor,Tab |
| 6 | 3 | 28 | 9 | | | 1102 | 63 | 19.4 | 0.0 | 17.9 | 0.1 | Qa,Sq | 1.0 | 1-1 | Dou,Whi |
| B. Grassy forest | | | | | | | | | | | | | | | |
| 7 | 5 | 42 | 10 | . | . | 1292 | 40 | 17.6 | 1.2 | 17.5 | 0.2 | Gr,Sq,Sl | 2.0 | 1-2 | Dou,Mar,Whi |
| 8 | 32 | 36 | 8 | 2 | 2 | 1212 | 162 | 19.0 | 0.5 | 17.9 | 0.3 | Gr,Sq,Sl | 1.0 | 1-2 | Ban,Bel,Bra,Bun,Dev, Dou,Gib,Mar,Mor,Myr Tab,BNP |
| 9 | 6 | 41 | 12 | 6 | 3 | 1151 | 71 | 18.8 | 0.3 | 18.1 | 0.2 | Qa,Sq,Sh,Sl | 1.5 | 1-2 | Gib,Mar,Nev,Sug |
| 10 | 9 | 36 | 10 | 3 | 2 | 986 | 55 | 19.5 | 0.2 | 18.3 | 0.1 | Qa,Sq,Sl, | 2.0 | 1-2 | Bra,Bun,Ell,Myr,Roy |
| 11 | 1 | 38 | . | 1 | . | 1088 | . | 19.6 | . | 18.2 | . | Sl | 1 | . | Bun |
| 12 | 11 | 36 | 13 | 2 | 1 | 1258 | 62 | 17.7 | 0.7 | 17.7 | 0.6 | Sq,Sl | 2.0 | 1-3 | Bel,Gib,Mar,Ric,Was |
| 13 | 9 | 43 | 15 | 4 | 3 | 1254 | 124 | 17.9 | 0.8 | 17.6 | 0.6 | Bi,Av,Gr,Sq,Sl | 2.0 | 2-3 | Bel,Ewi,Ric,Sug |
| 14 | 5 | 65 | 12 | 3 | 2 | 1358 | 63 | 15.7 | 1.4 | 17.3 | 0.9 | Bi,Av,Sl | 2.0 | 1-4 | Bil,Ric,Was |
| 15 | 2 | 48 | 18 | 6 | 3 | 1153 | 35 | 18.1 | 0.4 | 18.3 | 0.4 | Gr | 1.0 | 1-1 | Ewi |
| 16 | 2 | 23 | 8 | 1 | . | 1206 | 51 | 18.0 | 0.7 | 17.7 | 0.1 | Sq,Sl | 1.5 | 1-2 | Mar |
| 17 | 6 | 41 | 5 | 1 | . | 1280 | 159 | 19.2 | 0.2 | 17.9 | 0.2 | Qa,Sq,Sh | 2.0 | 1-2 | Dev,Dou,CL |
| 18 | 2 | 53 | 1 | 2 | 1 | 1524 | 56 | 19.2 | 0.0 | 17.8 | 0.0 | Qs,Sl | 2.0 | 2-3 | Dou,BNP |
| 19 | 1 | 22 | . | . | . | 1190 | . | 19.4 | . | 18.0 | | Qa | 1.0 | . | Dou |
| 20 | 1 | 50 | . | 5 | . | 1200 | . | 19.4 | . | 18.0 | | Qa | 2.0 | . | Dou |
| 21 | 2 | 46 | 4 | 2 | . | 1371 | 239 | 19.2 | 0.0 | 18.2 | | Sq,Sh | 2.0 | 2-2 | Gib,CL |
| 22 | 1 | 38 | . | 1 | . | 1096 | . | 19.4 | . | 18.0 | | Qa | 9.0 | . | Dou,Tab |
| 23 | 2 | 31 | 6 | . | . | 1175 | 38 | 19.3 | 0.1 | 18.3 | 0.1 | Sq,Sl | 2.0 | 2-2 | Tab |
| 24 | 1 | 39 | . | . | . | 1430 | . | 19.4 | . | 17.8 | | Qs | 2.0 | . | BNP |
| 25 | 1 | 19 | . | 1 | . | 1190 | . | 19.4 | . | 18.0 | | Qa | 1.0 | . | Dou |
| 26 | 1 | 32 | . | . | . | 1464 | . | 15.0 | . | 17.2 | | Av | 2.0 | . | Bil |
| C. Wet sclerophyll forest | | | | | | | | | | | | | | | |
| 27 | 1 | 36 | . | . | . | 1214 | . | 18.2 | . | 17.6 | | Sl | 1.0 | . | Ric |
| 28 | 4 | 59 | 5 | 1 | 0 | 1214 | 63 | 18.0 | 0.4 | 16.8 | 0.7 | Sl | 7.5 | 5-9 | Bel,Pik,Was |
| 29 | 9 | 40 | 7 | 1 | 1 | 1203 | 35 | 17.8 | 0.4 | 17.8 | 0.7 | Bi,Sq,Sl | 3.0 | 3-8 | Bel,Che,Pik,Ric |
| 30 | 1 | 54 | . | 2 | . | 1186 | . | 17.8 | . | 18.0 | | Sl | 5.0 | . | Was |
| 31 | 1 | 43 | . | 1 | . | 1336 | . | 17.2 | . | 16.8 | | Sl | 4.0 | . | Was |
| 32 | 1 | 54 | . | 10 | . | 1278 | . | 17.0 | . | 18.0 | | Sq | 1.0 | . | Che |
| 33 | 4 | 47 | 16 | 2 | 1 | 1441 | 16 | 16.8 | 0.1 | 16.9 | 0.9 | Bi,Sq | 9.0 | 6-9 | Ric |
| 34 | 11 | 60 | 12 | 2 | 1 | 1392 | 87 | 15.5 | 0.9 | 17.7 | 0.7 | Av,Gr,Sl | 6.0 | 4-8 | Bil,Ewi |
| 35 | 4 | 59 | 5 | 2 | 0 | 1251 | 123 | 17.5 | 0.7 | 17.6 | 0.3 | Bi,Sl | 5.5- | 4-6 | Ric,Was |
| 36 | 5 | 54 | 14 | 1 | 0 | 1204 | 38 | 18.4 | 0.8 | 18.0 | 0.3 | Qa,Sq,Sl | 2.0 | 1-2 | Bel,Dou,Mar,NNR |
| D. Rainforest | | | | | | | | | | | | | | | |
| 37 | 4 | 65 | 25 | . | . | 1361 | 141 | 17.1 | 0.6 | 17.6 | 0.6 | Bi,Si | 9.0 | 7-9 | Ric |
| 38 | 8 | 60 | 12 | 1 | . | 1421 | 202 | 15.4 | 1.2 | 17.1 | 1.3 | Bi,Av,Gr,Sl | 9.0 | 9-9 | Ewi,Ric,Was |
| E. Shrubland | | | | | | | | | | | | | | | |
| 39 | 1 | 27 | . | . | . | 1362 | . | 17.0 | . | 18.4 | | Av | 9.0 | . | Mar |
| F. Sedgeland | | | | | | | | | | | | | | | |
| 40 | 1 | 19 | . | 5 | . | 1336 | . | 17.2 | . | 17.4 | | Sl | 9.0 | . | Ric |
| 41 | 1 | 6 | . | . | . | 1190 | . | 19.2 | . | 17.8 | | Qa | 9.0 | . | Dou |

CASf 4

Plots: NP2001, NP2095, NP2096, ROY002

Overstorey trees: *Angophora woodsiana, Eucalyptus pilularis, Eucalyptus tindaliae, Eucalyptus maculata, Eucalyptus gummifera, Syncarpia glomulifera*

Small trees/shrubs: *Acacia concurrens, Alphitonia excelsa, Allocasuarina torulosa, Breynia oblongifolia, Monotoca scoparia, Persoonia stradbrokensis*

Vines: *Eustrephus latifolius, Hardenbergia violacea*

Ground cover: *Lepidosperma laterale, Cymbopogon refractus, Laxmannia gracilis, Themeda australis, Vernonia cinerea var. cinerea, Imperata cylindrica var. major, Melichrus urceolatus, Entolasia stricta, Panicum effusum, Platysace ericoides, Aristida vagans, Dianella caerulea, Digitaria parviflora, Lomandra multiflora, Macrozamia fawcettii, Phyllanthus thymoides, Pratia purpurascens, Cheilanthes sieberi ssp. sieberi, Commelina cyanea*

CASf 5

Plots: MOR001, NP1012, NP1126, NP1128, NP2040

Overstorey trees: *Angophora woodsiana,*

Small trees/shrubs: *Allocasuarina littoralis, Persoonia stradbrokensis, Leucopogon lanceolatus var. lanceolatus, Banksia oblongifolia, Acacia myrtifolia, Melaleuca sieberi, Pultenaea retusa, Pimelea linifolia ssp.linifolia, Banksia spinulosa var. collina, Mirbelia rubiifolia, Hakea salicifolia*

Ground cover: *Ptilothrix deusta, Entolasia stricta, Themeda australis, Dianella caerulea, Aristida warburgii, Gompholobium pinnatum, Gonocarpus tetragynus, Imperata cylindrica var. major, Lepidosperma laterale, Dampiera stricta, Lomandra longifolia, Patersonia sericea*

CASf 6

Plots: NP1115, WHP001, WHP002

Overstorey trees: *Eucalyptus signata, Angophora woodsiana*

Small trees/shrubs: *Leptospermum polygalifolium, Banksia oblongifolia, Leptospermum trinervium, Leucopogon lanceolatus var. gracilis, Melaleuca sieberi, Acacia ulicifolia, Lissanthe sp A, Phyllota phylicoides, Leucopogon leptospermoides*

Vines: *Cassytha glabella*

Ground cover: *Entolasia stricta, Patersonia sericea*

## B. GRASSY OPEN FOREST

This broad group is characterised by a moderately dense to dense ground cover of grasses with usually a sparse shrub stratum. Communities in this group occur very extensively on a range of sedimentary substrates throughout CMA, but especially in the forests of the coastal lowlands and coastal ranges. Overall, this is the most extensive broad group in the area. This group and the Heath Forest and Woodland group overlap substantially in floristic composition and are not well separated by the environmental variables used in the analysis. Both broad groups tend to be associated with high temperatures, low rainfall, high radiation index and recent fires. Although the impression gained in the field is that the Heath Forest and Woodland group is less regularly burnt, this is not reflected in the summary of estimates of time since most recent fire, with both groups mostly having been burnt in the previous five years. The relative distribution of these two groups is probably mostly related to soil properties (which were not measured). Group B seems to be associated with soils of higher clay content, and often occurs in areas of generally flatter topography, or depositional parts of the catenary on high quartz parent materials.

CASf 7

Plots: A00005, A00025, NP1021, NP1022, NP2039

Overstorey trees: *Angophora woodsiana, Eucalyptus pilularis, Eucalyptus gummifera,*

Small trees/shrubs: *Allocasuarina torulosa, Persoonia stradbrokensis, Leucopogon lanceolatus var. lanceolatus, Breynia oblongifolia, Trochocarpa laurina, Lomatia silaifolia*

Vines: *Hardenbergia violacea, Eustrephus latifolius, Smilax australis,*

Ground cover: *Imperata cylindrica var. major, Themeda australis, Pteridium esculentum, Dianella caerulea, Patersonia glabrata, Entolasia stricta, Vernonia cinerea var. cinerea, Glycine clandestina, Monotoca scoparia var. scoparia, Poranthera microphylla, Hybanthus stellarioides*

CASf 8

Plots: A00010, A0CL35, A0CL36, ABAN30, ABAN31, ABAN32, ABAR37, BUN003, BUN005, MYR002, NP1009, NP1010, NP1013, NP1096, NP1101, NP1102, NP1111, NP1113, NP1114, NP1119, NP1120, NP1124, NP1125, NP1127, NP1129, NP1130, NP1131, NP1132, NP7004, NP7005, NP7010, NP7014

Overstorey trees: *Eucalyptus intermedia, Eucalyptus henryi*

Small trees/shrubs: *Alphitonia excelsa, Allocasuarina torulosa*

Vines: *Eustrephus latifolius*

Ground cover: *Entolasia stricta, Imperata cylindrica var. major, Vernonia cinerea var. cinerea, Cymbopogon refractus, Themeda australis, Aristida vagans, Pratia purpurascens, Echinopogon caespitosus var. caespitosus, Glycine clandestina, Desmodium rhytidophyllum, Pteridium esculentum*

CASf 9

Plots: A00007, AWHP33, NP1112, NP2002, NP7015, NP7016

Overstorey trees: *Eucalyptus tereticornis, Angophora subvelutina*

Small trees/shrubs: *Lantana camara, Breynia oblongifolia, Alphitonia excelsa, Glochidion ferdinandi,*

Ground cover: *Imperata cylindrica var. major, Vernonia cinerea var. cinerea, Centella asiatica, Conyza* spp., *Themeda australis, Eragrostis leptostachya, Cymbopogon refractus, Desmodium varians, Hybanthus stellarioides, Pratia purpurascens, Glycine tabacina, Aristida vagans*

CASf 10

Plots: BRA001, BRA002, BUN001, BUN004, ELL001, MYR001, NP1097, NP1121, NP2079

Overstorey trees: *Eucalyptus moluccana, Eucalyptus siderophloia, Eucalyptus intermedia, Lophostemon suavolens*

Small trees/shrubs: *Alphitonia excelsa,*

Ground cover: *Imperata cylindrica var. major, Aristida vagans, Cymbopogon refractus, Themeda australis, Vernonia cinerea var. cinerea, Panicum simile, Phyllanthus virgatus, Brunoniella australis, Cheilanthes sieberi ssp. sieberi, Laxmannia gracilis, Entolasia stricta, Murdannia graminea, Lomandra filiformis, Alloteropsis semialata, Lomandra longifolia, Sporobolus diander*

CASf 11

Plot: BUN002

Canopy Trees: *Eucalyptus intermedia, Eucalyptus microcorys, Eucalyptus siderophloia, Eucalyptus signata*

Subcanopy Trees, Shrubs: *Acacia concurrens, Acacia leiocalyx, Allocasuarina torulosa, Alphitonia excelsa, Angophora woodsiana, Angophora paludosa*

Ground cover: *Entolasia marginata, Imperata cylindrica var. major, Lomandra laxa, Vernonia cinerea* var. *cinerea, Oplismenus imbecillus*

CASf 12

Plots: A00011, A00013, A00014, GIB003, NP1024, NP1025, NP1026, NP1103, NP2008, NP2027, WAS003

Overstorey trees: *Eucalyptus siderophloia, Eucalyptus maculata, Eucalyptus propinqua, Eucalyptus moluccana*

Small trees/shrubs: *Allocasuarina torulosa, Breynia oblongifolia, Trochocarpa laurina,*

Vines: *Eustrephus latifolius, Hardenbergia violacea*

Ground cover: *Imperata cylindrica var. major, Themeda australis, Entolasia stricta, Oplismenus aemulus var. aemulus, Vernonia cinerea var. cinerea, Dianella caerulea, Sorghum leiocladum*

CASf 13

Plots: A00018, EWI003, NP1105, NP2003, NP2009, NP2012, NP2035, NP2036, NP2037

Overstorey trees: *Eucalyptus propinqua, Eucalyptus tereticornis, Eucalyptus acmenioides, Eucalyptus maculata*

Small trees/shrubs: *Allocasuarina torulosa, Breynia oblongifolia*

Vines: *Desmodium rhytidophyllum, Eustrephus latifolius,*

Ground cover: *Themeda australis, Vernonia cinerea var. cinerea, Imperata cylindrica var. major, Sorghum leiocladum, Viola betonicifolia, Acacia melanoxylon, Glycine clandestina, Oplismenus aemulus var. aemulus, Sigesbeckia orientalis, Desmodium varians, Poa labillardieri var. labillardieri, Desmodium brachypodum*

CASf 14

Plots: BIL003, BIL004, BIL006, NP2081, WAS004

Overstorey trees: *Eucalyptus microcorys, Eucalyptus saligna*

Small trees/shrubs: *Allocasuarina torulosa, Acacia irrorata ssp. irrorata, Acacia maidenii, Solanum densevestitum, Trochocarpa laurina, Rapanea variabilis, Breynia oblongifolia, Polyscias elegans, Psychotria loniceroides, Citriobatus pauciflorus*

Vines: *Glycine tabacina, Desmodium varians, Hibbertia scandens, Cissus antarctica, Desmodium rhytidophyllum, Hardenbergia violacea, Eustrephus latifolius, Rubus parvifolius*

Ground cover: *Poa labillardieri var. labillardieri, Dianella caerulea, Imperata cylindrica var. major, Doodia aspera, Pratia purpurascens, Vernonia cinerea var. cinerea, Lomandra longifolia, Sorghum leiocladum, Viola betonicifolia, Dichondra repens, Entolasia stricta, Oxalis chnoodes, Microlaena stipoides var. stipoides, Hybanthus stellarioides, Hydrocotyle peduncularis, Lagenifera stipitata, Lepidosperma laterale, Oplismenus imbecillus, Plectranthus parviflorus, Gonocarpus humilis, Leucopogon lanceolatus var. lanceolatus, Lomandra multiflora*

CASf 15

NP2044, NP2045,

Overstorey trees: Eucalyptus melanophloia, *Eucalyptus umbra, Eucalyptus intermedia, Eucalyptus propinqua*

Small trees/shrubs: *Allocasuarina torulosa*

Ground cover: *Microlaena stipoides var. stipoides, Cymbopogon refractus, Aristida ramosa, Aristida vagans, Cheilanthes sieberi ssp. sieberi, Desmodium rhytidophyllum, Eragrostis leptostachya, Fimbristylis dichotoma, Glycine clandestina, Panicum effusum, Paspalum distichum, Vernonia cinerea var. cinerea, Bothriochloa decipiens, Chrysocephalum apiculatum, Commelina cyanea*

CASf 16

Plots: A00023, A00026

Overstorey trees: *Eucalyptus maculata, Eucalyptus tindaliae, Eucalyptus crebra, Eucalyptus moluccana, Eucalyptus tereticornis, Eucalyptus umbra*

Small trees/shrubs: *Alphitonia excelsa, Acacia concurrens, Allocasuarina littoralis, Jacksonia scoparia*

Ground cover: *Themeda australis, Eragrostis spartinoides, Aristida calycina, Cymbopogon refractus, Lomandra filiformis, Dianella caerulea, Lepidosperma laterale, Lomandra multiflora*

CASf 17

Plots: A00008, A00009, NP1016, NP1116, NP1117, NP7008

Overstorey trees: *Eucalyptus resinifera, Eucalyptus pilularis, Lophostemon suavolens, Syncarpia glomulifera, Eucalyptus intermedia*

Small trees/shrubs: *Leptospermum polygalifolium, Elaeocarpus reticulatus, Hakea salicifolia, Acacia concurrens, Breynia oblongifolia, Leucopogon lanceolatus var. lanceolatus,*

Vines: *Kennedia rubicunda, Pandorea pandorana, Smilax australis, Eustrephus latifolius*

Ground cover: *Pteridium esculentum, Entolasia stricta, Imperata cylindrica var. major, Restio tetraphyllus, Pomax umbellata, Pratia purpurascens, Lomandra longifolia, Dianella caerulea, Murdannia graminea, Vernonia cinerea var. cinerea, Gahnia clarkei*

CASf 18

Plots: NP7012, NP7013

Overstorey trees: *Eucalyptus robusta, Eucalyptus resinifera, Lophostemon suavolens*

Small trees/shrubs: *Melaleuca quinquenervia, Alphitonia excelsa, Persoonia stradbrokensis, Lantana camara*

Vines: *Parsonsia straminea*

Ground cover: *Imperata cylindrica var. major, Baumea juncea, Centella asiatica, Dianella caerulea, Geitonoplesium cymosum, Lomandra longifolia, Paspalum distichum, Vernonia cinerea var. cinerea, Gahnia clarkei, Isachne globosa, Panicum simile, Ptilothrix deusta, Themeda australis*

CASf 19
Plot: NP1118
Overstorey trees: *Eucalyptus seeana*
Small trees/shrubs: *Melaleuca sieberi*
Ground cover: *Gahnia sieberiana, Ischaemum australe, Panicum simile, Themeda australis*

CASf 20
Plot: DOU002
Canopy trees: *Casuarina glauca, Lophostemon suavolens, Melaleuca nodosa*
Small trees, Shrubs: *Acacia leiocalyx, Acmena smithii, Callistemon salignus, Persoonia stradbrokensis*
Ground cover: *Dichondra repens, Oplismenus imbecillus, Billardiera scandens, Centratherum punctatum ssp.australianum, Dianella caerulea, Entolasia marginata, Imperata cylindrica var. major, Microlaena stipoides var. stipoides, Oxalis exilis, Smilax australis, Vernonia cinerea var. cinerea, Viola hederacea*

CASf 21
NP7006, NP7011
Overstorey trees: *Eucalyptus robusta*
Small trees/shrubs: *Melaleuca nodosa, Leucopogon lanceolatus var. lanceolatus, Persoonia stradbrokensis, Alphitonia excelsa, Austromyrtus dulcis, Leptospermum polygalifolium*
Vines: *Parsonsia straminea, Smilax australis*
Ground cover: *Themeda australis, Lomandra longifolia, Imperata cylindrica var. major, Lagenifera stipitata, Oplismenus aemulus var. aemulus, Cymbopogon refractus, Dianella caerulea, Hypericum gramineum, Panicum simile, Pratia purpurascens, Trachymene incisa ssp.incisa*

CASf 22
Plots: NP7009
Overstorey trees: *Eucalyptus grandis,Eucalyptus tereticornis*
Small trees/shrubs: *Alphitonia excelsa, Leptospermum brachyandrum, Lophostemon suavolens, Tristaniopsis laurina*
Vines: *Geitonoplesium cymosum, Morinda jasminoides*
Ground cover: *Cyperus exaltatus, Lomandra longifolia, Ottochloa gracillima*

CASf 23
Plots: DOU001, NP1014
Overstorey trees: *Eucalyptus fibrosa, Syncarpia glomulifera, Eucalyptus maculata, Eucalyptus henryi, Eucalyptus resinifera, Eucalyptus umbra*
Small trees/shrubs: *Hakea salicifolia, Daviesia ulicifolia, Notelaea ovata, Pultenaea spinosa, Pultenaea villosa*
Vines: *Billardiera scandens, Cassytha glabella*
Ground cover: *Entolasia stricta, Lomandra filiformis, Lepidosperma laterale, Dianella caerulea, Patersonia glabrata, Lomandra confertifolia ssp. pallida*

CASf 24
Plots: NP1011
Overstorey trees: *Lophostemon suavolens, Melaleuca quinquenervia*
Ground cover: *Themeda australis, Restio pallens, Leptocarpus tenax, Lepyrodea interrupta, Entolasia stricta, Schoenus melanostachys*

CASf 25
Plots: NP1017
Overstorey trees: *Eucalyptus tereticornis; Lophostemon suavolens*
Small trees/shrubs: *Melaleuca styphelioides*
Ground cover: *Commelina cyanea, Entolasia stricta, Oplismenus aemulus*

CASf 26
Plot: BIL001
Canopy trees: *Eucalyptus campanulata*
Small trees, shrubs: *Acacia falciformis, Lomatia silaifolia, Eucalyptus scias ssp. apoda*
Vines: *Billardiera scandens*

Ground cover: *Calochlaena dubia, Dianella caerulea, Entolasia stricta, , Eustrephus latifolius, Goodia lotifolia, Hardenbergia violacea, Hibbertia empetrifolia, Hibbertia scandens, Imperata cylindrica var. major, Lomandra filiformis, Pteridium esculentum*

## C. WET SCLEROPHYLL FOREST

This floristically diverse group occurs extensively in the escarpment ranges, in Richmond Range, Ewingar, Washpool and Billilimbra SFs, and on more sheltered sites in the coastal forests. Communities in this group are associated with lower temperatures, lower radiation index, higher rainfall, less recent fire and parent materials with lower quartz content, than those of the Heath and Grassy groups. Most plots have an overstorey of eucalypts or *Lophostemon confertus*, but this group includes some rainforest stands which are floristically more similar to this group than the other rainforest communities of group D.

CASf 27
Plots: A00015
Overstorey trees: *Eucalyptus grandis, Lophostemon confertus*
Small trees/shrubs: *Callistemon salignus, Cupaniopsis parvifolia, Rhodamnia rubescens, Guioa semiglauca*
Vines: *Ripogonum album, Smilax australis, Cissus antarctica, Austrosteenisia blackii*

CASf 28
Plots: BEL001, PIK001, PIK002, WAS001
Overstorey trees: *Cupaniopsis parvifolia, Mallotus philippensis, Drypetes australasica, Diospyros australis, Siphonodon australe, Austromyrtus bidwillii, Elattostachys xylocarpa, Excoecaria dallachiana, Alstonia constricta, Araucaria cunninghamii, Diospyros pentamera, Croton insularis, Eucalyptus rummeryi*
Small trees/shrubs: *Citriobatus pauciflorus, Alyxia ruscifolia, Cassine australis, Alchornea ilicifolia, Maytenus bilocularis, Casearia multinervosa, Lantana camara, Maclura cochinchinensis, Canthium buxifolium, Cleistanthus cunninghamii, Scolopia braunii, Capparis arborea, Wikstroemia indica*
Vines: *Austrosteenisia blackii, Cissus antarctica, Rauwenhoffia leichhardtii, Secamone elliptica, Embelia australiana, Smilax australis, Geitonoplesium cymosum*
Epiphytes: *Dendrobium fairfaxii, Pyrrosia rupestris*
Ground cover: *Pellaea falcata var. nana, Pseuderanthemum variabile*

CASf 29
Plots: A00020, NP1098, NP1099, NP1100, NP2004, NP2005, NP2007, NP2010, NP2014
Overstorey trees: *Eucalyptus maculata, Eucalyptus propinqua*
Small trees/shrubs: *Lantana camara, Breynia oblongifolia, Maytenus bilocularis, Psychotria loniceroides, Acacia maidenii*
Vines: *Cissus antarctica, Pandorea pandorana, Geitonoplesium cymosum*
Ground cover: *Pseuderanthemum variabile, Gahnia aspera, Dianella caerulea*

CASf 30
Plots: A0031C
Overstorey trees: *Eucalyptus acmenioides, Eucalyptus siderophloia*
Small trees/shrubs: *Allocasuarina torulosa, Guioa semiglauca, Trochocarpa laurina, Lantana camara, Acacia maidenii, Psychotria loniceroides, Olearia nernstii, Livistona australis*
Vines: *Celastrus australis*
Ground cover: *Doodia aspera, Poa sieberiana*

CASf 31
Plot: WAS002
Canopy trees: *Eucalyptus acmenioides, Eucalyptus siderophloia*
Small trees, shrubs: *Acacia irrorata, Callistemon salignus, Citriobatus pauciflorus, Croton verreauxii, Austromyrtus* sp., *Guioa semiglauca*
Ground cover: *Commelina cyanea, Dianella caerulea, Lepidosperma laterale, Pseuderanthemum variabile*

CASf 32
Plots: NP2006
Overstorey trees: *Eucalyptus grandis, Eucalyptus microcorys*
Small trees/shrubs: *Lantana camara, Melia azedarach var. australasica, Melicope micrococca*
Ground cover: *Austrocynoglossum latifolium, Rubus rosifolius, Senecio bipinnatisectus*

CASf 33
Plots: A00017, A0012A, A0012B, RIC005
Overstorey trees: *Eucalyptus grandis*
Small trees/shrubs: *Synoum glandulosum, Dysoxylum fraseranum, Eupomatia laurina, Polyscias elegans, Rhodamnia rubescens, Dendrocnide excelsa, Daphnandra species A, Neolitsea australiensis, Dendrocnide photinophylla, Elattostachys nervosa, Arytera divaricata, Guioa semiglauca, Mallotus philippensis*
Vines: *Cissus antarctica, Cissus hypoglauca, Dioscorea transversa, Palmeria scandens, Ripogonum elseyanum*
Ground cover: *Diplazium australe, Alpinia caerulea, Lastreopsis microsora*

CASf 34
Plots: A00027, A00028, A00030, BIL002, BIL005, BIL007, EWI008, NP2038, NP2041, NP2042, NP2043
Overstorey trees: *Eucalyptus microcorys, Lophostemon confertus, Eucalyptus saligna*
Small trees/shrubs: *Synoum glandulosum, Psychotria loniceroides, Cryptocarya rigida, Trochocarpa laurina, Caldcluvia paniculosa, Eupomatia laurina, Cordyline stricta, Archontophoenix cunninghamiana, Livistona australis, Cyathea australis, Rhodamnia rubescens, Cordyline petiolaris*
Vines: *Geitonoplesium cymosum, Cissus antarctica, Smilax australis, Cissus hypoglauca, Rubus sp. (aff. moorei), Parsonsia induplicata, Palmeria scandens,*
Ground cover: *Blechnum cartilagineum, Lastreopsis decomposita, Platycerium bifurcatum ssp. bifurcatum, Lomandra longifolia, Viola hederacea, Dianella caerulea, Gahnia melanocarpa, Cryptocarya microneura, Asplenium australasicum, Davallia pyxidata, Rapanea variabilis, Celastrus subspicatus, Acacia irrorata ssp. irrorata, Cyperus disjunctus, Eucalyptus laevopinea*

CASf 35
Plots: A0031B, A0031D, NP2011, NP2013
Overstorey trees: *Lophostemon confertus, Eucalyptus saligna,*
Small trees/shrubs: *Croton verreauxii, Cryptocarya microneura, Rhodamnia rubescens, Synoum glandulosum, Citriobatus pauciflorus, Guioa semiglauca, Neolitsea dealbata, Cordyline petiolaris, Eupomatia laurina, Psychotria loniceroides, Cryptocarya obovata, Mallotus philippensis, Drypetes australasica, Livistona australis, Diospyros australis, Alectryon subcinereus*
Vines: *Cissus antarctica, Embelia australiana, Smilax australis, Dioscorea transversa, Austrosteenisia blackii*
Epiphytes: *Platycerium bifurcatum ssp. bifurcatum, Dictymia brownii*
Ground cover: *Doodia aspera, Adiantum formosum, Alpinia caerulea, Pseuderanthemum variabile, Lastreopsis microsora, Blechnum cartilagineum*

CASf 36
Plots: BEL004, DOU003, NP1015, NP1020, NP1023
Overstorey trees: *Lophostemon confertus, Syncarpia glomulifera, Eucalyptus intermedia*
Small trees/shrubs: *Trochocarpa laurina, Allocasuarina torulosa, Breynia oblongifolia, Synoum glandulosum*
Vines: *Smilax australis, Geitonoplesium cymosum, Cissus hypoglauca, Glycine clandestina, Eustrephus latifolius, Hibbertia dentata*
Ground cover: *Dianella caerulea, Pteridium esculentum, Viola hederacea, , Calochlaena dubia, Entolasia stricta, Oplismenus aemulus*

D. SUBTROPICAL RAINFOREST

Mostly closed forest to tall closed forest. This group occurs only in the forests of the escarpment ranges, in Washpool, Ewingar and Richmond Range SFs, mostly on volcanic substrates, in areas of high rainfall and low radiation index. It is strongly characterized by being long unburnt (mostly at least 50 years).

CASf 37

Plots: A00016, A00019, RIC006, RIC007

Overstorey trees: *Baloghia inophylla, Diospyros pentamera, Heritiera actinophylla, Heritiera trifoliolata, Araucaria cunninghamii, Syzygium francisii*

Small trees/shrubs: *Anthocarapa nitidula, Cleistanthus cunninghamii, Actephila lindleyi, Mallotus philippensis, Capparis arborea, Citriobatus pauciflorus, Cryptocarya obovata, Arytera divaricata, Elattostachys nervosa, Linospadix monostachya, Daphnandra sp.A, Alectryon subcinereus, Austromyrtus bidwillii, Cordyline petiolaris, Cupaniopsis flagelliformis var. australis, Guioa semiglauca, Psychotria loniceroides*

Vines: *Arthropteris tenella, Rauwenhoffia leichhardtii, Melodinus australis, Morinda jasminoides,*

Ground cover: *Doodia aspera, Lastreopsis decomposita, Lomandra spicata, Lastreopsis microsora*

CASf 38

Plots: A00029, EWI001, EWI002, EWI004, EWI005, EWI006, RIC008, WAS005

Overstorey trees: *Syzygium corynanthum, Sloanea woollsii, Orites excelsa, Schizomeria ovata, Doryphora sassafras, Caldcluvia paniculosa, Cryptocarya erythroxylon, Polyosma cunninghamii, Dendrocnide excelsa, Diospyros pentamera, Dysoxylum fraserianum, Daphnandra sp.A*

Small trees/shrubs: *Linospadix monostachya, Tasmannia insipida, Cryptocarya obovata, Citriobatus pauciflorus, Cyathea leichhardtiana, Litsea reticulata, Pennantia cunninghamii, Guioa semiglauca,*

Vines: *Cephalaralia cephalobotrys, Melodinus australis, Microsorium scandens, Morinda jasminoides, Palmeria scandens, Cissus hypoglauca, Piper novae-hollandiae,*

*Ripogonum elseyanum, Arthropteris tenella, Embelia australiana*

Epiphytes: *Asplenium australasicum, Dictymia brownii, Asplenium polyodon, Platycerium bifurcatum ssp. bifurcatum*

Ground cover: *Lastreopsis microsora, Lomandra spicata*

E. SHRUBLAND

This very disparate group is represented by a single plot on a rock outcrop in Mount Marsh SF. No other floristically similar shrubland community is known from CMA. Other small patches of shrubland occur on sandstone outcrops in other forests, but these have floristic affinities with the Heath Forest group of communities. Small patches of open shrubland also occur on exposed, rocky ridges in Ewigar and Billilimbra SFs. These typically consist of a ground layer of *Themeda australis* and other grasses with scattered shrubs of *Leptospermum polygalifolium.*

CASf 39

Plot: MAR001

Shrubs: *Callistemon aff montanus, Leptospermum polyanthum*

Ground cover: *Aristida benthamii, Cheilanthes sieberi ssp. sieberi, Digitaria breviglumis, Entolasia stricta, Eragrostis brownii, Tripogon loliiformis*

F. SWAMP AND SEDGELAND

Areas dominated by sedges are restricted to permanently swampy depressions in several areas. Several extensive patches occur in forests of the coastal lowlands. One small patch was sampled on an elevated depression in Richmond Range SF.

CASf 40
Plot: RIC004
*Typha* sp., *Bolboschoenus fluviatalis, Hypolepis muelleri, Persicaria elatior, Persicaria strigosa, Persicaria subsessilis*

CASf 41
Plot: DOU004
*Baumea rubiginosa, Philydrum lanuginosum, Restio pallens, Baumea articulata*

## *2. FOREST OVERSTOREY COMMUNITIES*

Fifty-nine forest overstorey communities were recognized at the 0.6 level of dissimilarity, in 40 groups at the 0.8 level. Figure 3 is the dendrogram resulting from the classification, truncated at the 0.6 level of dissimilarity. Logged and unlogged plots were analyzed as a single combined data set. Where a community consisted solely or mostly of logged plots, it was amalgamated with other similar communities if the differences were considered reasonably attributable to changes due to logging.

In many cases, communities represented by single plots or few plots doubtfully represent readily recognizable separate communities. These have generally been treated separately, but more sampling would be necessary to determine whether it is useful to recognize them as such. This particularly applies to rainforest, which was sampled at low intensity relative to the floristic variation of rainforest vegetation in the area, and some dry forest assemblages, which occur in a complex intergrading mosaic and would require a higher sampling intensity to clarify spatial relationships.

The forest overstorey communities are descibed below. Their environmental characteristics based on plot data are summarized in Table 4, and relationships with mapped forest types are summarized in Table 5. Discrepancies between overstorey community composition from plot data and nominal composition of mapped Forest Type are not uncommon. These are most often due to the differing scales of definition, with stands defined from plot data representing local variations in overstorey dominants at a scale which is impractical to map at a scale of 1:25 000. Less commonly, there appear to have been some errors of photograph interpretation or mapping, or minor displacement of type boundaries.

Relationships with floristic communities summarized in Table 6. Comparisons are made with Hager & Benson's (1994) associations and Forestry Commission of New South Wales (1989) Forest Types (for eucalypt forests) and Floyd's (1990) suballiances (for rainforests). These comparisons are summarized in Table 7. For rainforests, where overstorey composition data are not available from recent surveys, previously described rainforest communities are simply listed below with brief descriptions from Floyd (1990).

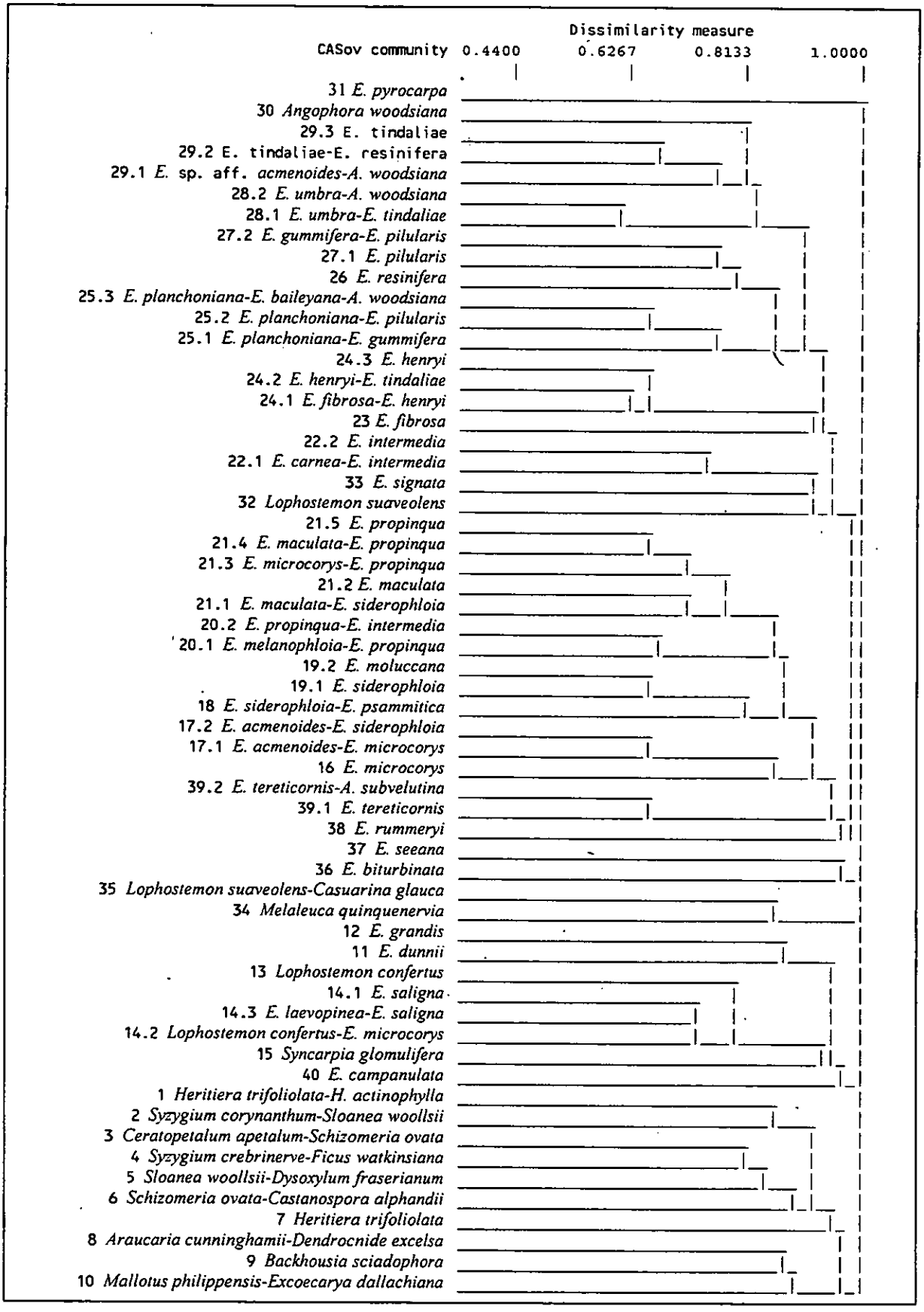


**Figure 3.** Dendrogram from floristic classification of basal area of all woody species with stem diameter > 10 cm, truncated at the 0.6 level of dissimilarity.

**Table 4.** Summary of environmental characteristics of overstorey communities.

n = number of plots; Lithology is coded as: Av = acid volcanic, Bi = Basic igneous, Gr = granitic, Qa = Quaternary alluvium, Sh = sedimentary, high quartz, Sl = sedimentary, low quartz, Sq = quartz sandstone; Fire is estimated time since last fire, coded as: 1 = 1-2 years, 2 = 3-5, 3 = 6-10, 4 = 11-15, 5 = 16-20, 6 = 21-30, 7 = 31-40, 8 = 41-50, 9 = 50+, shown as median and quartile range (q1-q3). State Forests are coded as Ban=Banyabba, Bel=Mount Belmore, Bil=Billilimbra, Bra=Braemar, Bun=Bungawalbin, Dev=Devils Pulpit, Dou=Doubleduke, Ewi=Ewingar, Gib=Gibberagee, Mar=Mount Marsh, Mor=Mororo, Myr=Myrtle, Nev=Mount Neville, Pik=Mount Pikapene, Roy=Royal Camp, Sug=Sugarloaf, Tab=Tabbimoble, Was=Washpool, Whi=Whiporie; other lands are CL=leasehold, BNP=Bundjalung NP, NNR=Mount Neville NR.

| | | Rainfall | | Temp | | Rad. Index | | Alt | Topo | | | Fire | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ov | n | mean | sd | mean | sd | mean | sd | Mean | med | q1-q3 | Geol | med | q1-q3 | State Forests |
| 1 | 1 | 1496 | . | 16.4 | . | 18.4 | . | . | 2 | . | Bi | 9 | . | Ric |
| 2 | 3 | 1348 | 19 | 16.6 | 0.5 | 17.0 | 1.6 | 487 | 4 | 3-5 | Bi,Gr,Sl | 9 | 9-9 | Ewi,Ric,Was |
| 3 | 2 | 1216 | 204 | 15.4 | 0.6 | 17.8 | 0.0 | 710 | 3 | 2-3 | Gr,Sl | 9 | 9-9 | Ewi |
| 4 | 1 | 1558 | . | 14.4 | . | 17.4 | . | 850 | 5 | . | Gr | 9 | . | Ewi |
| 5 | 1 | 1630 | . | 14.2 | . | 17.6 | . | 910 | 3 | . | Gr | 9 | . | Ewi |
| 6 | 1 | 1704 | . | 13.8 | . | 15.1 | 8.4 | 950 | 3 | . | Av | 9 | . | Ric |
| 7 | 2 | 1380 | 105 | 17.1 | 0.7 | 17.2 | 0.0 | 425 | 4 | 3-4 | Bi,Sl | 9 | 9-9 | Ric |
| 8 | 1 | 1188 | . | 17.6 | . | 17.6 | . | . | 2 | . | Sl | 6 | . | Ric |
| 9 | 1 | 1282 | . | 17.6 | . | 16.4 | . | 320 | 1 | . | Sl | 9 | . | Was |
| 10 | 1 | 1188 | . | 18.2 | . | 16.6 | . | 270 | 3 | . | Sl | 9 | . | Pik |
| 11 | 1 | 1424 | . | 16.8 | . | 18.2 | . | 490 | 2 | . | Bi | 4 | . | Ric |
| 12 | 4 | 1280 | 126 | 17.5 | 0.7 | 17.3 | 0.8 | 300 | 3 | 2-5 | Sq,Sl | 3 | 1-7 | Che,Ric |
| 13 | 7 | 1265 | 124 | 17.4 | 0.7 | 17.5 | 0.6 | 381 | 3 | 3-4 | Bi,Gr,Sq,Sl | 6 | 4-9 | Bel,Cam,Ewi,Mar,Ric,Was |
| 14.1 | 2 | 1378 | 48 | 15.6 | 0.3 | 18.0 | 0.3 | . | 2 | 2-2 | Av,Gr | 8 | 6-9 | Ewi |
| 14.2 | 2 | 1355 | 35 | 16.4 | 0.3 | 17.6 | 0.8 | 580 | 2 | 1-3 | Sl | 6 | 3-8 | Ewi |
| 14.3 | 5 | 1440 | 45 | 14.5 | 0.5 | 17.5 | 1.1 | 893 | 2 | 2-3 | Av,Gr,Sl | 4 | 4-6 | Bil,Ewi |
| 15.0 | 2 | 1216 | 31 | 18.4 | 1.1 | 18.0 | 0.0 | 135 | 4 | 3-5 | Qa,Sq | 2 | 1-2 | Dou,Nev |
| 16.0 | 3 | 1321 | 115 | 17.2 | 1.8 | 17.4 | 0.5 | 340 | 3 | 2-4 | Qa,Gr,Sq | 1 | 1-9 | Duo,Ewi,Ric, |
| 17.1 | 2 | 1366 | 62 | 16.3 | 1.0 | 17.6 | 0.6 | 580 | 3 | 2-3 | Av,Sl | 3 | 2-4 | Ewi,Was |
| 17.2 | 5 | 1250 | 110 | 17.4 | 1.5 | 17.4 | 0.8 | 383 | 2 | 2-3 | Av,Sq,Sl | 2 | 2-4 | Bil,Bun,Ric,Was |
| 18.0 | 1 | 1116 | . | 18.8 | . | 18.4 | . | 180 | 1 | . | Sl | 2 | . | Mar |
| 19.1 | 4 | 1096 | 193 | 18.8 | 1.3 | 18.0 | 0.6 | 124 | 4 | 3-4 | Qa,Sl | 2 | 1-3 | Bun,Ell,Myr,Was |
| 19.2 | 7 | 996 | 89 | 19.2 | 0.5 | 18.1 | 0.4 | 74 | 4 | 3-4 | Qa,Sq,Sl | 2 | 2-3 | Bra,Bun,Pik,Roy |
| 20.1 | 2 | 1153 | 35 | 18.1 | 0.4 | 18.3 | 0.4 | 260 | 2 | 1-3 | Gr | 1 | 1-1 | Ewi |
| 20.2 | 1 | 1176 | . | 19.2 | . | 17.8 | . | 60 | 3 | . | Sl | 2 | . | Gib |
| 21.1 | 5 | 1243 | 64 | 17.4 | 0.9 | 18.0 | 0.4 | 370 | 3 | 3-3 | Av,Sq,Sl, | 2 | 1-2 | Bel,Ewi,Mar,Ric |
| 21.2 | 3 | 1196 | 45 | 18.1 | 1.0 | 18.2 | 0.6 | 233 | 1 | 1-3 | Bi,Sl | 3 | 2-8 | Che,Ric,Tab |
| 21.3 | 3 | 1331 | 101 | 17.8 | 1.0 | 17.3 | 0.4 | 277 | 3 | 3-3 | Bi,Sq,Sl | 1 | 1-3 | Che,Mor,Ric |
| 21.4 | 7 | 1202 | 62 | 18.0 | 0.4 | 18.1 | 0.4 | 281 | 3 | 2-4 | Sl | 2 | 1-3 | Bel,Pik,Ric,Sug |
| 21.5 | 5 | 1220 | 102 | 18.2 | 1.2 | 17.6 | 0.6 | 180 | 3 | 3-3 | Qa,Bi,Sl | 3 | 2-3 | Dou,Gib,Ric |
| 22.1 | 3 | 1245 | 119 | 17.9 | 0.6 | 17.9 | 0.1 | 243 | 3 | 2-4 | Gr,Sl | 2 | 2-2 | Ewi,Gib |
| 22.2 | 3 | 1244 | 300 | 18.9 | 0.6 | 17.7 | 0.3 | 25 | 4 | 3-4 | Qa,Sq,Sh | 1 | 1-2 | Bel,Myr,Tab |
| 23.0 | 1 | 1054 | . | 18.4 | . | 18.0 | . | 180 | 3 | . | Sl | 3 | . | Sug |
| 24.1 | 2 | 1217 | 21 | 19.2 | 0.3 | 18.2 | 0.3 | 60 | 2 | 1-3 | Sq,Sl | 2 | 1-2 | Dou,Gib |
| 24.2 | 5 | 1275 | 77 | 19.0 | 0.1 | 17.7 | 0.2 | 70 | 2 | 2-3 | Sl | 1 | 1-1 | Ban,Mor |
| 24.3 | 3 | 1107 | 148 | 19.4 | 0.2 | 17.9 | 0.1 | 65 | 3 | 2-4 | Sl | 1 | 1-3 | Bun,Dev,Myr |
| 25.1 | 2 | 1098 | 8 | 18.6 | 0.0 | 17.5 | 0.4 | 140 | 5 | 4-5 | Sq | 3 | 3-3 | Roy |
| 25.2 | 3 | 1308 | 68 | 17.6 | 0.6 | 17.7 | 0.5 | 333 | 1 | 1-3 | Sq | 1 | 1-2 | Bel,Dev,Mar |
| 25.3 | 4 | 1301 | 37 | 18.6 | 0.3 | 17.7 | 0.7 | 175 | 3 | 2-3 | Sq | 2 | 1-2 | Dev,Gib |
| 26.0 | 5 | 1300 | 169 | 19.2 | 0.2 | 18.0 | 0.3 | 30 | 3 | 3-4 | Qa,Sq,Sh | 2 | 1-2 | Dev,Dou |
| 27.1 | 15 | 1224 | 95 | 17.7 | 1.3 | 17.7 | 0.8 | 335 | 3 | 2-3 | Qa,Gr,Sq,Sl | 2 | 1-2 | Bel,Bun,Dou,Ewi,Mar,Nev Roy,Tab |
| 27.2 | 6 | 1245 | 67 | 18.0 | 1.0 | 17.9 | 0.2 | 247 | 3 | 3-3 | Qa,Sq,Sl | 2 | 1-2 | Bel,Brl,Dev,Dou,Mar,Nev |
| 28.1 | 2 | 1206 | 51 | 18.0 | 0.6 | 17.7 | 0.1 | . | 2 | 2-2 | Sq,Sl | 2 | 1-2 | Mar |
| 28.2 | 2 | 1241 | 10 | 18.1 | 1.0 | 17.8 | 0.0 | 140 | 2 | 2-2 | Sq,Sl | 4 | 1-6 | Ban,Bel |
| 29.1 | 1 | 1124 | . | 18.6 | . | 18.2 | . | 150 | 2 | . | Sl | 2 | . | Roy |
| 29.2 | 2 | 1203 | 160 | 18.7 | 0.4 | 17.9 | 0.1 | 170 | 3 | 2-3 | Sq | 2 | 1-2 | Gib,Roy |
| 29.3 | 2 | 1247 | 120 | 18.4 | 0.0 | 17.8 | 0.0 | 240 | 3 | 1-5 | Sq,Sl | 4 | 1-6 | Gib,Mar |
| 30.0 | 10 | 1248 | 128 | 19.2 | 0.2 | 17.9 | 0.3 | 44 | 3 | 3-3 | Qa,Sq,Sl | 2 | 1-2 | Ban,Dou,Gib,Mor,Myr,Tab |
| 31.0 | 1 | 1316 | . | 18.8 | . | 17.6 | . | . | 2 | . | Sq | 1 | . | Dou |
| 32.0 | 1 | 990 | . | 19.4 | . | 18.2 | . | 40 | 4 | . | Sl | 1 | . | Myr |
| 33.0 | 6 | 1333 | 214 | 19.2 | 0.2 | 17.9 | 0.2 | 23 | 2 | 1-4 | Qa,Sh,Sl | 2 | 1-2 | Bun,Mor,Tab,Whi |
| 34.0 | 1 | 1484 | . | 19.2 | . | 17.8 | . | 30 | 3 | . | Sl | 2 | . | Dou |
| 35.0 | 2 | 1192 | 11 | 19.3 | 0.1 | 18.0 | 0.0 | 10 | 5 | 4-5 | Qa | 2 | 1-2 | Dou |
| 36.0 | 2 | 1136 | 116 | 17.1 | 0.7 | 17.4 | 0.3 | 420 | 3 | 3-3 | Gr | 2 | 1-2 | Ewi |
| 37.0 | 1 | 1190 | . | 19.4 | . | 18.0 | . | 20 | 3 | . | Qa | 1 | . | Dou |
| 38.0 | 3 | 1204 | 38 | 18.0 | 0.3 | 17.4 | 0.9 | 267 | 3 | 1-3 | Sl | 6 | 5-9 | Bel,Pik |
| 38.1 | 1 | 1440 | . | 15.8 | . | 16.8 | . | 710 | 2 | . | Av | 6 | . | Ewi |
| 38.2 | 2 | 1467 | 1 | 14.8 | 0.3 | 17.9 | 1.0 | 870 | 1 | . | Av | 4 | 2-6 | Bil |
| 39.1 | 6 | 1121 | 99 | 19.2 | 0.3 | 18.2 | 0.22 | 56 | 4 | 4-5 | Qa,Sq,Sl | 2 | 1-2 | Bra,Dou,Gib,Mar,Nev |
| 39.2 | 5 | 1226 | 123 | 17.8 | 1.0 | 17.6 | 0.5 | 245 | 3 | 3-4 | Bi,Sl | 2 | 2-3 | Che,Gib,Ric,Sug |

**Table 5.** Distribution of plots among mapped forest types and overstorey communities. Composite types are amalgamated. Types 32, 51, 82, 83, 128 and 207, each of limited extent and represented by a single survey plot, are not included. Rainforest communities are also excluded.

| | Mapped Forest Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CASov | 30 | 31 | 36 | 37 | 38 | 39 | 40 | 41 | 46 | 47 | 48 | 49 | 53 | 60 | 62 | 65 | 70 | 71 | 72 | 74 | 76 | 80 | 84 | 85 | 87 | 92 | 97 | 117 | 119 | 126 | 129 | 130 | 163 | | |
| 12 *E. grandis* | | | | | | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 *Lophostemon confertus* | | | | | | | | | 2 | | 1 | 1 | 2 | | 1 | | | | | | | | | | | | | | | | | | | | |
| 14.1 *E. saligna* | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14.2 *E. saligna-E. microcorys -Lophostemon confertus* | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 14.2 *E. laevopinea-E. saligna* | | | | | | | | | | | 2 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | 1 | |
| 15 *Syncarpia glomulifera* | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| 16 *E. microcorys* | | | 1 | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17.1 *E. acmenoides-E. microcorys* | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 17.2 *E. acmenoides-E. siderophloia* | | | | | | | | | | | | | | 1 | 2 | 1 | | | | | | | 1 | | | | | | | | | | | | |
| 18 *E. siderophloia-E. psammitica* | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| 19.1 *E. siderophloia-E. moluccana* | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | | | | | | | | | | | |
| 19.2 *E. moluccana* | | 1 | | | | | | | | | | | | | | | | | 1 | | | 2 | | 1 | | | | | | | | | | | |
| 20.1 *E. melanophloia-E. propinqua* | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| 21.1 *E. maculata-E. siderophloia* | 1 | | | | | | | | | | | | | | 1 | | | 2 | | 1 | | | | | | | | | | | | | | | |
| 21.2 *E. maculata* | | | | | | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | |
| 21.3 *E. propinqua-E. microcorys* | | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | | | | | | | | | | |
| 21.4 *E. maculata-E. propinqua* | | | 1 | | | | | 1 | | | | | | | | | | 2 | 2 | 1 | | | | | | | | | | | | | | | |
| 21.5 *E. propinqua* | | | | | | | | | | 1 | | | 1 | | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | |
| 22.1 *E. carnea-E. intermedia* | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | |
| 22.2 *E. intermedia* | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | |
| 23 *E. fibrosa* | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| 24.1 *E. fibrosa-E. henryi* | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| 24.2 *E. henryi-E. tindaliae* | | | | | | 2 | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | |
| 24.3 *E. henryi* | | | | | | | | | | | | | | | | | 1 | | 1 | | 1 | | | | | | | | | | | | | | |
| 25.1 *E. planchoniana-E. pyrocarpa* | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25.2 *E. planchoniana-E. pilularis* | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 25.3 *E. planchoniana-E. baileyana* | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | | | |
| 26 *E. resinifera-E. pilularis* | 1 | | 1 | | | | | 2 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| 27.1 *E. pilularis* | | | 1 | 4 | | 1 | 1 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27.2 *E. pilularis-E. gummifera* | | | | 2 | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28.1 *E. umbra-E. tindaliae* | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | |
| 28.2 *E. umbra-Angophora woodsiana* | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |

| | Mapped Forest Type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CASov | 30 | 31 | 36 | 37 | 38 | 39 | 40 | 41 | 46 | 47 | 48 | 49 | 53 | 60 | 62 | 65 | 70 | 71 | 72 | 74 | 76 | 80 | 84 | 85 | 87 | 92 | 97 | 117 | 119 | 126 | 129 | 130 | 163 |
| 29.2 *E. tindaliae-E. resinifera* | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | |
| 29.3 *E. tindaliae* | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 30 *Angophora woodsiana* | | | | | 1 | | 1 | | | | | | | | 1 | 2 | | | | | 1 | | | | | | | | | | 2 | 1 | |
| 31 *E. pyrocarpa* | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 *E. resinifera-Lophostemon suaveolens* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| 33 *E. signata* | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 | | | | |
| 34 *E. resinifera* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -*Melaleuca quinquinervia* | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 *Lophostemon suaveolens* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -*Casuarina glauca* | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 36 *E. bitutbinata* | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | |
| 37 *E. seeana* | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 38 *E. rummeryi* | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | |
| 39.1 *E. tereticornis* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -*Lophostemon suaveolens* | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | | | | | |
| 39.2 *E. tereticornis-Angophora subvelutina* | | | | | | | | | | | | | | | | 4 | | | | | | | | | | 1 | | | | | | | |
| 40 *E. campanulata* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |

**Table 6.** Distribution of survey plots among overstorey and floristic communities.

| CASov | Floristic community | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3 |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | 2 |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | 1 |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | 1 | | 1 | | | | 4 |
| 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 3 | 2 | | | 7 |
| 14.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | 2 |
| 14.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | 2 |
| 14.3 | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | 3 | | | | | 2 |
| 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | 2 |
| 16 | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | | 3 |
| 17.1 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 2 |
| 17.2 | | | | | | | | | | | 1 | 1 | | 1 | | | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | 5 |
| 18 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 19.1 | | | | | | | | | | 3 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| 19.2 | | | | | | | | 1 | | 5 | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 7 |
| 20.1 | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 20.2 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 21.1 | | | | | | | | | | | | 2 | 2 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 5 |
| 21.2 | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | 3 |
| 21.3 | | | | | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 3 |
| 21.4 | | | | | | | | | 1 | | | 4 | 1 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 7 |
| 21.5 | | | | | | | | 2 | | | | 1 | 1 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 5 |
| 22.1 | | | | | | | | 1 | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| 22.2 | | | | | 1 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| 23 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 24.1 | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 2 |
| 24.2 | | 1 | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| 24.3 | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| 25.1 | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 25.2 | | 2 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| 25.3 | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| 26 | | | | | | | | | | | | | | | | | 5 | | | | | | | | | | | | | | | | | | | | | | | 5 |
| 27.1 | | 4 | | 1 | 1 | | 1 | 4 | | | | | | | | | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | 16 |
| 27.2 | 1 | 3 | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 |
| 28.1 | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 28.2 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 29.1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 29.2 | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 29.3 | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 30 | | | 2 | | 2 | 1 | 1 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| 31 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 32 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 33 | | | | | 1 | 2 | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 |
| 34 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| 35 | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | 2 |
| 36 | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 37 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 |
| 38 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | | | | | | | | | | 3 |
| 39.1 | | | | | | | | 1 | 2 | | | | | | | | | | | | 1 | 1 | | | | 1 | | | | | | | | | | | | | | 6 |
| 39.2 | | | | | | | | | 2 | | | | 2 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 5 |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | 3 |

**Table 7.** Comparison and conservation status of forest vegetation communities on the basis of overstorey composition.

CASov floristic community is derived from numerical classification of survey data as described in the text. Map units in which a community is recorded are listed in decreasing frequency of occurrence. For simplicity, only aggregate types are listed. F.C. Forest Type is the nearest equivalent type as described in Forestry Commission of New South Wales (1989). For eucalypt forests, H&B Association is the nearest equivalent association as defined by Hager and Benson (1994). Associations are prefixed with RF, EF or OF. Reservation status is listed as: status; extent reserved in north zone (which includes all of CMA). Codes are as follows:
1 = not or very poorly conserved; 2 = inadequately conserved across whole range; 3 = inadequately conserved in part of range; 4 = adequately conserved; LT1, LT5, LT10, LT25=less than 1, 5, 10, 25% reserved respectively; GT25= >25% reserved.
For rainforest, only those communities defined from overstorey data are included and the nearest equivalent Floyd (1990) suballiance is given. Status codes are from Floyd (1990): E=excellent, G=good, A=adequate, at least in Casino area, I=inadequate in Casino area.

| CASov Floristic Community | No. plots | Map units | F.C. Forest Type | Floyd Suballiance or | Res. status |
|---|---|---|---|---|---|
| 1 *Heritiera trifoliolata-H. actinophylla* | 1 | 1 | 1 Booyong | 1 *Argyrodendron trifoliolatum* | E |
| 2 *Syzygium corynanthum-Sloanea woollsii* | 3 | 1, 2/3 23/26 | 2 Yellow Carabenn | 12 *Sloanea woollsii-Dysoxylum fraserianum -Argyrodendron actinophyllum-Caldcluvia* | E |
| 3 *Ceratopetalum apetalum-Schizomeria ovata* | 2 | 11 | 11 Coachwood-Crabapple | 35 *Ceratopetalum/Schizomeria-Caldcluvia* | E |
| 4 *Syzygium crebrinerve-Ficus watkinsiana* | 1 | 2/3 | - | 11 *Caldcluvia-Cryptocarya erythroxylon-Orites Melicope octandra-Acmena ingens* | A |
| 5 *Sloanea woollsii-Dysoxylum fraserianum* | 1 | 2/3 | 2 | 12 | E |
| 6 *Schizomeria ovata-Castanospora alphandii* | 1 | 23/26 | - | - | - |
| 7 *Heritiera trifoliolata* | 2 | 1, 21 | 1 | 1 *Argyrodendron trifoliolatum* | E |
| 8 *Araucaria cunninghamii-Dendrocnide excelsa* | 1 | 21 | 21 Hoop Pine | 21 *Araucaria cunninghamii* | A |
| 9 *Backhousia sciadophora* | 1 | 23 | 23 Myrtle | 28 *B. sciadophora-Dendrocnide-Drypetes* | A |
| 10 *Mallotus philippensis-Excoecarya dallachiana* | 1 | 21 | ?21 | 22 *Flindersia* spp.-*Araucaria* | A |

**Table 7.** (cont.)

| CASov Floristic Community | No. plots | Map units | F.C. Forest Type | H&B Association | Res. status |
|---|---|---|---|---|---|
| 11 *E. dunnii* | 1 | 51 | 51. Dunn's White Gum | EF013a *E. dunnii* | 2; LT10 |
| 12 *E. grandis* | 4 | 48 | 48. Flooded Gum | EF010a *E. grandis*<br>EF010b *E. grandis-L. confertus-E. microcorys* | 2; LT10<br>2, LT10 |
| 13 *Lophostemon confertus* | 7 | 53, 46, 48, 49, 62 | 53. Brush Box | EF001a *L. confertus* | 4, LT25 |
| 14.1 *E. saligna* | 2 | 47 | ?46. Sydney Blue Gum | EF011b *E. saligna-E. microcorys* | 4; LT25-GT25 |
| 14.2 *E. saligna-E. microcorys-Lophostemon confertus* | 2 | 47, 53 | ?47. Tallowwood-Blue Gum | EF011b *E. saligna-E. microcorys* | 4; LT25-GT25 |
| 14.3 *E. laevopinea-E. saligna* | 5 | 47, 53, 62, 163 | 168. Silvertop Stringybark-Gum | EF479c *E. laevopinea-E. saligna*<br>EF011c *E. saligna-E. laevopinea* | 1, LT1<br>1, LT1 |
| 15 *Syncarpia glomulifera* | 2 | 60 | 49. Turpentine | EF003a *Syncarpia glomulifera* | 1; LT1 |
| 16 *E. microcorys* | 3 | 36, 37, 47 | ?47 | - | - |
| 17.1 *E. acmenoides-E. microcorys* | 2 | 47, 70 | 60. Narrowleaved White Mahogany | EF095a *E. acmenoides* | 1, LT5 |
| 17.2 *E. acmenoides-E. siderophloia* | 5 | 60, 62, 65, 84 | 60 | EF095a *E. acmenoides*<br>EF600b | 1, LT5<br>4, LT25-GT25 |
| 18 *E. siderophloia-E. psammitica* | 1 | 62/74 | ?62 | - | na |
| 19.1 *E. siderophloia-E. moluccana* | 4 | 80, 83, 84, 85 | 80. Grey Ironbark-Grey Box | EF710d *E. moluccana-E. siderophloia* | 1; LT1 |
| 19.2 *E. moluccana* | 7 | 80, 82, 85 31/92, 72/74 | 82. Grey Box | EF710a *E. moluccana* | 1; LT1 |
| 20.1 *E. melanophloia-E. propinqua* | 2 | 62, 207 | 207. Silverleaved Ironbark | EF606a *E. melanophloia* | 1, LT1 |

**Table 7.** (cont.)

| CASov Floristic Community | No. plots | Map units | F.C. Forest Type | H&B Association | Res. status |
|---|---|---|---|---|---|
| 21.1 *E. maculata-E. siderophloia* | 5 | 71, 74, 62/74 30/31/92 | 74. Spotted Gum-Ironbark/ Grey Gum | EF040c *E. maculata-E. siderophloia* | 2; LT1-LT5 |
| 21.2 *E. maculata* | 3 | 71, 74 | 70. Spotted Gum<br>?74. Spotted Gum-Ironbark | EF040a *E. maculata* | 1; LT1 |
| 21.3 *E. propinqua-E. microcorys* | 3 | 71, 62/126 | 62 | ?EF075a *E. propinqua*<br>?EF040d *E. maculata-E. propinqua* | 2; LT5-LT10<br>2; LT1-LT5 |
| 21.4 *E. maculata-E. propinqua* | 7 | 71, 72, 74 36, 41/92 | 74 | EF040d *E. maculata-E. propinqua* | 2; LT1-LT5 |
| 21.5 *E. propinqua* | 5 | 47, 53, 62 71, 74 | 62 | EF075a *E. propinqua* | 2; LT5-LT10 |
| 22.1 *E. carnea-E. intermedia* | 3 | 60, 92/126, 163 | ?62 | EF097a *E. carnea* | 4 |
| 22.2 *E. intermedia* | 3 | 37, 129,130 | - | - | - |
| 23 *E. fibrosa* | 1 | 72/74 | 74. Spotted Gum-Ironbark | EF040e *E. maculata-E. fibrosa* | 2; LT1-LT5 |
| 24.1 *E. fibrosa-E. henryi* | 2 | 72/74, 128 | 74. Spotted Gum-Ironbark | EF040e *E. maculata-E. fibrosa* | 2; LT1-LT5 |
| 24.2 *E. henryi-E. tindaliae* | 5 | 74, 39 | 75. Spotted Gum-Stringybark | EF040e *E. maculata-E. fibrosa* | 2; LT1-LT5 |
| 24.3 *E. henryi* | 3 | 70, 72, 76 | 70. Spotted Gum | EF040a *E. maculata* | 1; LT1 |
| 25.1 *E. planchoniana-E. pyrocarpa* | 2 | 38 | 38. Largefruited Blackbutt | EF147a *E. pyrocarpa* | 4; GT25 |
| 25.2 *E. planchoniana-E. pilularis* | 3 | 37, 41/97, 97 | 37. Dry Blackbutt<br>97. Needlebark Stringybark | EF146j *E. pilularis-E. planchoniana-E. gummifera*<br>EF261a *E. planchoniana* | 4; LT25 |
| 25.3 *E. planchoniana-E. baileyana* | 4 | 41/97, 97, 126, 234 | 97. Needlebark Stringybark | EF262b *E. planchoniana-E. baileyana -E. gummifera* | 4; LT10-LT25 |

**Table 7.** (cont.)

| CASov Floristic Community | No. plots | Map units | F.C. Forest Type | H&B Association | Res. status |
|---|---|---|---|---|---|
| 26 *E. resinifera-E. pilularis* | 5 | 41, 30/31 36, 74 | 36. Moist Blackbutt | EF145d *E. pilularis-E. resinifera* | 2,4 |
| 27.1 *E. pilularis* | 16 | 37, 41, 36 40/41, 41/92 | 37. Dry Blackbutt | EF145a *E. pilularis* | 2,4 |
| 27.2 *E. pilularis-E. gummifera* | 6 | 37, 38, 40/41 | 41. Blackbutt-Bloodwood | ?EF145a *E. pilularis* | 2,4 |
| 28.1 *E. umbra-E. tindaliae* | 2 | 62, 74 | 126. Stringybark-Bloodwood | ?EF260b *E. tindaliae-E. intermedia* | 4, LT10-25 |
| 28.2 *E. umbra-Angophora woodsiana* | 2 | 41, 97 | 126. Stringybark-Bloodwood | EF098a *E. umbra*<br>?EF260b *E. tindaliae-E. intermedia* | 1<br>4, LT10-25 |
| 29.1 *E.* sp. aff. *acmenoides-Angophora woodsiana* | 1 | 234 | - | - | - |
| 29.2 *E. tindaliae-E. resinifera* | 2 | 84, 126 | 126 | ?EF260b *E. tindaliae-E. intermedia* | 4, LT10-25 |
| 29.3 *E. tindaliae* | 2 | 41, 84 | 126. Stringybark-Bloodwood | ?EF260b *E. tindaliae-E. intermedia* | 4, LT10-25 |
| 30 *Angophora woodsiana* | 10 | 65/126, 129 38, 76, 130 | 129. Rough-barked Apples | ?EF200a *Angophora floribunda* | 1; LT1 |
| 31 *E. pyrocarpa* | 1 | 38 | 38. Largefruited Blackbutt | EF147a *E. pyrocarpa* | 4, GT25 |
| 32 *E. resinifera-Lophostemon suaveolens* | 1 | 130 | - | EF096a *E. resinifera* | 1; LT1 |
| 33 *E. signata* | 6 | 117, 119 | 117. Scribbly Gum | EF235a *E. signata* | 4; GT25 |
| 34 *E. resinifera-Melaleuca quinquenervia* | 1 | 31 | 31. Paperbark | WT002a *Melaleuca quinquenervia* | 4, GT25 |
| 35 *Lophostemon suaveolens-Casuarina glauca* | 2 | 32, 92 | 32. Swamp Oak | ?EF002a *Lophostemon suaveolens* | nd |

**Table 7.** (cont.)

| CASov Floristic Community | No. plots | Map units | F.C. Forest Type | H&B Association | Res. status |
|---|---|---|---|---|---|
| 36 *E. biturbinata* | 2 | 62 | 62 Grey Gum-Grey Ironbark -White Mahogany | ?EF076b *E. biturbinata-E. carnea* | 2; LT5-10 |
| 37 *E. seeana* | 1 | 92 | | EF054a *E. seeana* | |
| 38 *E. rummeryi* | 3 | 87 | 87 Steel Box | EF706a *E. rummeryi* | 1; LT1 |
| 39.1 *E. tereticornis* | 4 | 31/92; 85 92 | 92 Forest Red Gum | - | - |
| 39.2 *E. tereticornis-Angophora subvelutina* | 5 | 65; 92 | 92 Forest Red Gum | EF050d *E. tereticornis-Angophora subvelutina* | 2; LT5-LT10 |
| 40 *E. campanulata* | 6 | 163 | 163 New England Blackbutt | EF505a *E. campanulata* | 4; LT25 |

CASov 1 *Heritiera trifoliolata-H. actinophylla*
Plot: A00016
Overstorey: *Heritiera trifoliolata* and *H. actinophylla* are dominant with other upper canopy species *Ficus macrophylla* and *Syzygium corynanthum*.
Subcanopy and understorey: Dense small tree/shrub stratum dominated by *Cleistanthus cunninghamii* and *Linospadix monostachya*, with sparse ground cover.
Conservation status: As for CASov 7.
Notes: This clearly has strong affinities to CASov 7 in upper canopy composition, although separated by the classification because of differences in composition of common subcanopy trees. The separation is probably a result of too few sample plots in these communities obscuring floristic relationships. This plot was mapped as FT 1.

CASov 2 *Syzygium corynanthum-Sloanea woollsii*
Plots: EWI004, RIC008, WAS005
Overstorey: Usually tall closed forest of very mixed composition with no clear dominant, but *S. corynanthum* is typically among the most common species. *S. woollsii* is sometimes locally dominant as tall, large-crowned individuals. Other frequent species are *Dendrocnide excelsa*, *Cryptocarya erythroxylon*, *Citronella moorei* and *Baloghia inophylla*.
Subcanopy and understorey: Dense small trees, shrubs, palms (*Linospadix monostachya*) and lianes (*Piper novae-hollandiae*, *Cissus antarctica*, *Ripogonum elseyanum*).
Conservation status: This community appears to be a variant of Floyd's suballiance 12 *Sloanea woollsii-Dysoxylum fraserianum-Argyrodendron actinophyllum-Caldcluvia*, although several of the characteristic species are absent from or rare in sample plots and typical lowland elements such as *S. corynanthum* and *D. excelsa* are prominent. The conservation status of suballiance 12 is assessed as excellent, and it is the major subtropical rainforest type in Washpool NP (Floyd 1990).
Notes: It occurs fairly extensively but mostly as small patches in gullies, in Washpool, Ewingar and Richmond Range SFs. The plots were in areas mapped variously as FT 1a, 2/3 and 23/26.

CASov 3 *Ceratopetalum apetalum-Schizomeria ovata*
Plots: A00029, EWI005
Overstorey: *C. apetalum* is clearly dominant, with *S. ovata* and *Caldcluvia paniculosa* as common associates. Other locally common species include *Syzygium corynanthum*, *Cryptocarya glaucescens* and *Orites excelsa*.
Subcanopy and understorey: The palm *Linospadix monostachya* is dominant in the dense shrub layer, with *Tasmannia insipida* and *Anopterus macleayanus*.
Conservation status: This community is equivalent to suballiance 35 *Ceratopetalum/Schizomeria-Caldcluvia*, which occurs fairly extensively at higher altitudes on the plateau in Ewingar, Billilimbra and Washpool SFs. Suballiance 35 is assessed as having excellent conservation status, and large areas are reserved in Washpool NP.
Notes: The related suballiances 33 *Ceratopetalum/Schizomeria-Argyrodendron/Sloanea* and 36 *Ceratopetalum-Doryphora* are also recorded for Washpool NP and are likely to occur in association with community CASov 4. Both plots were in areas mapped as FT 11, and this map unit appears to be floristically consistent in the area.

CASov 4 *Syzygium crebrinerve-Ficus watkinsiana*
Plot: EWI006
Overstorey: Tall closed forest (to 40 m) dominated by the two character species and *Cryptocarya erythroxylon* in the upper canopy, with *Orites excelsa*, *Diospyros pentamera* and *Caldcluvia paniculosa* as other common overstorey species.
Subcanopy and understorey: Dense small tree/shrub stratum of mixed composition, but with *Acradenia euodiiformis* as the most common species.

Conservation status: This is a variant of suballiance 11 *Caldcluvia-Cryptocarya erythroxylon-Orites-Melicope octandra-Acmena ingens*. Suballiance 11 is assessed as adequately reserved. A variant with composition very similar to that of community CASov 7 is described by Floyd (1990) from Weat Gully in Washpool NP.

Notes: The plot was mapped as FT 2/3.

CASov 5 *Sloanea woollsii-Dysoxylum fraserianum*

Plot: EWI001

Overstorey: Tall closed forest (to 40 m), with the two character species as the upper canopy dominants. Other common canopy species (over 20 m) are *Caldcluvia paniculosa, Orites excelsa, Schizomeria ovata, Doryphora sassafras, Syzygium crebrinerve* and *Polyosma cunninghamii*.

Subcanopy and understorey: Dense woody understorey of mixed composition. *Polyosma cunninghamii* is the most common small tree, and the palm *Linospadix monostachya* is dominant in the shrub stratum.

Conservation status: This is equivalent to Floyd's suballiance 12 *Sloanea woollsii-Dysoxylum fraserianum-Argyrodendron actinophyllum-Caldcluvia*, the conservation status of which is assessed as excellent as noted under CASov 2.

Notes: This plot was in an area mapped as Forest Type 2/3.

CASov 6 *Schizomeria ovata-Castanospora alphandii*

Plots: EWI002

Overstorey: Uneven canopy, mostly below 15 m high, of mainly *S. ovata, C. alphandii* and *Quintinia verdonii*, with scattered taller *S. ovata* and occasional large *Lophostemon confertus*.

Subcanopy and understorey: Dense small tree and shrub stratum not distinct from the canopy, of diverse composition. Common species include *Polyosma cunninghamii, Neolitsea australiensis, Abrophyllum ornans* and *Baloghia inophylla*.

Conservation status: This is an unusual community which is not readily related to any Floyd suballiance. The association of *Schizomeria*, a warm temperate element, with the distinctly subtropical *Castanospora* which mainly occurs on coastal lowlands in NSW, is of significance.

Notes: Apparently localized in the area of the survey plot, on a steep, rocky slope on the eastern escarpment of Ewingar SF. The plot was in an area mapped as FT 23/26.

CASov 7 *Heritiera trifoliolata*

Plots: RIC006, RIC007

Overstorey: *Heritiera trifoliolata* is usually clearly dominant, although several large *Ficus watkinsiana* were present in the upper canopy in plot RIC007. Associated canopy and upper subcanopy species include, variously, *Acmena ingens, Baloghia inophylla, Syzygium corynanthum, S. francisii, Gmelina leichhardtii* and *Endiandra pubens*.

Subcanopy and understorey: Dense small trees (*Cleistanthus cunninghamii, Actephila lindleyi*) and lianes (*Melodinus australis, Rauwenhoffia leichhardtii, Embelia australiana*), with sparse ground cover.

Conservation status: This community is clearly equivalent to Floyd's suballiance 1 *Argyrodendron* (=*Heritiera*) *trifoliolatum*, which he considers to have excellent conservation status. Floyd (1990) notes that stands of this suballiance along the main plateau have a higher than usual proportion of *H. actinophylla* and thus represent intermediates between suballiance 1 and suballiances dominated by *H. actinophylla*.

Notes: Confined to Richmond Range SF where it occurs extensively on basalt and basalt-enriched soils on sheltered slopes at mid altitudes. The most extensive unlogged stands are within Cambridge Plateau FR and Bungdoozle FR. Mostly mapped as FT 1 or 1a, but plot RIC006 in mapped as FT 21.

CASov 8 *Araucaria cunninghamii-Dendrocnide excelsa*
Plots: A00019
Overstorey: The two character sepcies are most common, with occasional *Lophostemon confertus*, *Mallotus philippensis* and *Diospyros pentamera*.
Subcanopy and understorey: Dense woody understorey of mixed composition, with *Mallotus philippensis* and *Cleistanthus cunninghamii* as the most common small trees.
Conservation status: This matches suballiance 21 *Araucaria cunninghamii*, which in CMA occurs mostly in Richmond Range SF and Mount Pikapene SF. Its conservation status is assessed as adequate.
Notes: The plot was in an area mapped as FT 21.

CASov 9 *Backhousia sciadophora*
Plots: WAS001
Overstorey: Closed forest with main canopy to 25 m tall, clearly dominated by *Backhousia sciadophora*, with emergents of *Eucalyptus siderophloia*. Other common trees are *Siphonodon australe*, *Austromyrtus bidwillii*, *Croton insularis*, *Drypetes australasica* and *Cupaniopsis parvifolia*.
Subcanopy and understorey: Common species in the subcanopy and shrub strata tend to be smaller individuals of species which are common in the upper strata. There is a very sparse ground cover.
Conservation status: This community is equivalent to suballiance 28 *Backhousia sciadophora-Dendrocnide-Drypetes*. Suballiance 28 is regarded as adequately reserved in the north of its range which includes CMA.
Notes: The patch of about 130 ha sampled by plot WAS001 is the only area of this suballiance in CMA. This patch was regarded by Floyd (1990) as being of exceptional botanical interest because it is disjunct from other areas of this suballiance and because a number of tree species reach their southern limit of distribution here. The patch is mostly included within Burnt Down Creek FR. The plot was in an area mapped as FT 23.

CASov 10 *Mallotus philippensis-Excoecarya dallachiana*
Plots: PIK002
Overstorey: Clearly dominated by the three character species.
Conservation status: This community is included in the broadly defined suballiance 22 *Flindersia* spp.-*Araucaria*, even though neither of these species occurs in the sample plot. Suballiance 22 is assessed as adequately reserved. Within CMA an extensive patch is reserved in Mallanganee FR.
Notes: Suballiance 22 is characterized by scattered emergent *A. cunninghamii* and *Flindersia* spp. (*F. collina*, *F. australis*, *F. xanthoxyla*) being locally common (Floyd 1990). It occurs extensively on the southern end of the Richmond Range, in Cherry Tree and Mount Pikapene SFs. At the scale of a 0.1 ha plot, the composition of this assemblage is very varied, with species other than those of *Flindersia* often locally dominant. Plot PIK002 represents one of many such variants. The sample plot was in an area mapped as FT 21. *Araucaria cunninghamii* is scattered through this general area at low density.

CASov 11 *E. dunnii*
Plot: RIC005
Overstorey: Tall (to 50 m) open forest dominated by *E. dunnii* with occasional *E. grandis*.
Subcanopy and understorey: Tall shrub / small tree stratum to 15 m of *Rhodamnia rubescens*, *Beilschmiedia elliptica* and *Synoum glandulosum*, with abundant lianes *Cissus antarctica*, *C. hypoglauca* and *Ripogonum elseyanum*.
Habitat and distribution within survey area: Conservation status: The equivalent EF013a is assessed as inadequately reserved (LT10).

Notes: Restricted to a few small patches in the Peacock Creek area of Richmond Range SF. The sampled stand had been recently selectively logged. The area around the sample plot is of interest because of the local abundance of *Tylophora benthamii*, a normally coastal lowland species. The plot was in an area mapped as FT 51. There are two other patches in CMA mapped as FT 51. One near the sampled area is dominated by *E. grandis* with only scattered *E. dunnii*. A larger patch along Peacock Creek is dominated by *E. dunnii*, but with lower density of overstorey trees and with a grassy understorey with numerous patches of blackberry and other weeds.

CASov 12 *E. grandis*

Plots: A0012A, A00015, NP2006, NP2013

Overstorey: Mostly clearly dominated by *E. grandis*. *Lophostemon confertus* is a frequent associate and is occasionally co-dominant, especially in more heavily logged plots. Other canopy species are infrequent and rare.

Subcanopy and understorey: Exclusively wet sclerophyll, with dense mesic small tree and shrub stratum.

Conservation status: Equivalent to EF010a *E. grandis* and perhaps similar to EF010b *E. grandis-Lophostemon confertus-E. microcorys*. Both are considered inadequately reserved in the north zone (LT10).

Notes: Widespread but mostly occurring in fairly small patches (10-100 ha) in sheltered sites at low to mid altitudes. This community occurs most extensively in State forests of Richmond Range, and less commonly on the coastal ranges. All plots are logged, often at high intensity. This community matches FT 48 Flooded Gum and all are in areas mapped as such.

CASov 13 *Lophostemon confertus*

Plots: A00017, A0031B, A0031D, BEL004, NP1023, NP2011, NP2041

Overstorey: *L. confertus* is usually clearly, and often solely, dominant. *E. microcorys* is common in plot NC2041, but is otherwise infrequent and rare. E. maculata is co-dominant in plot NP1023 and this may represent a separate community.

Subcanopy and understorey: Exclusively wet sclerophyll, with usually dense mesophyll small tree and shrub stratum. Common woody species include *Croton verreauxii, Cissus antarctica, Cryptocarya microneura, Rhodamnia rubescens* and *Synoum glandulosum*.

Conservation status: Clearly equivalent to EF001a *L. confertus*, assessed as adequately reserved.

Notes: Habitat and distribution within survey area: Occurs extensively throughout CMA in moderately sheltered sites, but especially in Richmond Range and escarpment forests. Equivalent to FT 53 Brush Box. Plots are mostly in areas mapped as FTs 46, 48 or 53.

CASov 14.1 *E. saligna*

Plots: A00027, A00030

Overstorey: Tall open forest dominated by *E. saligna*. Associates include *Lophostemon confertus, E. microcorys* and *E. campanulata*.

Subcanopy and understorey: Dense mesophyll shrubs, small trees and vines, including *Synoum glandulosum* and *Palmeria scandens*, with ground layer of ferns (*Lastreopsis microsora, Blechnum cartilagineum*) and sedges (*Gahnia melanocarpa*).

Conservation status: EF011a *E. saligna* is considered inadequately reserved. However, these plots occur as minor variations within a broader matrix of the adequately reserved EF011b *E. saligna-E. microcorys* and the conservation status is thus more realistically assessed as adequate.

Notes: This community is equivalent to FT 46, but both plots are in areas mapped as FT 47 and probably represent small patches of local dominance by *E. saligna* in a broader area in which *E. saligna* and *E. microcorys* are common. There is only a small area of FT 46 mapped for CMA. It was sampled by two plots, both of which were dominated by *Lophostemon confertus* and grouped under CASov 13.

CASov 14.2 *E. saligna-E. microcorys-Lophostemon confertus*

Plots: NP2042, NP2043

Overstorey: Tall open forest in which the three character species are consistently present, although *E. saligna* tends to be less abundant. Less frequent associates include *E. campanulata* and *E. laevopinea.*

Subcanopy and understorey: Dense mesophyll trees/shrubs (*Cryptocarya rigida, Caldcluvia paniculosa*) and lianes (*Cissus antarctica, Tetrastigma nitens*) with fern (*Blechnum cartilagineum*) and sedge (*Cyperus disjunctus*) ground cover.

Conservation status: Included within EF011b *E. saligna-E. microcorys* and similar to the EF001 group of associations characterized by *Lophostemon confertus.* Both groups of associations are adequately reserved in the north zone.

Notes: Equivalent to FT 47 Tallowwood-Blue Gum.

CASov 14.3 *E. laevopinea-E. saligna*

Plots: BIL002, BIL003, BIL004, BIL005, A28

Overstorey: The two character species are consistently present with *E. laevopinea* usually dominant. Frequent associates include *E. microcorys* and *L. confertus*, both of which are occasionally locally common. Plot BIL005 is clearly dominated by *E. microcorys* and could be recognized separately.

Subcanopy and understorey: Variously dense mesophyll shrub understorey (*Cryptocarya rigida, Eupomatia laurina, Synoum glandulosum*) with fern (*Blechnum cartilagineum*) ground cover, or mixed shrub and grassy understorey (e.g. *Acacia irrorata, Poa labillardieri*), depending on fire history.

Conservation status: Equivalent to EF479e *E. laevopinea-E. saligna* or EF011e *E. saligna-E. laevopinea*, both of which are assessed as poorly reserved.

Notes: Restricted to higher altitudes in Ewingar and Billilimbra SFs, as patches associated with other communities, especially CASov 14.1 and CASov 38. Most plots are unlogged. This community matches FT 168 Silvertop Stringybark-Gum, but in CMA occurs mainly as patches of local abundance of *E. laevopinea* in areas generally dominated by other species. There is no FT 168 mapped for CMA.

CASov 15 *Syncarpia glomulifera*

Plots: DOU003, NP1020

Overstorey: These two plots are clearly dominated by *S. glomulifera*, with other canopy species rare.

Subcanopy and understorey: Mixed mesophyll shrubs (e.g. *Trochocarpa laurina, Breynia oblongifolia*) with ground cover of herbs and graminoids, such as *Dianella caerulea, Glycine clandestina, Goodenia heterophylla* and *Gymnostachys anceps.*

Conservation status: Most similar to EF003a *S. glomulifera*, assessed as poorly reserved. However, both plots have been heavily logged and it is likely that the relative abundance of this species has been artificially increased by logging.

Notes: Restricted to a few sheltered slopes and gullies in areas on sandstone and alluvium in forests of the coastal ranges.

CASov 16 *E. microcorys*

Plots: A0012B, NP1015, NP2039

Overstorey: Three plots in which the character species is dominant, but associated variously with *E. grandis, E. pilularis* or *Syncarpia glomulifera.* All are logged plots and would most likely have belonged to other communities prior to logging.

CASov 17.1 *E. acmenoides-E. microcorys*
Plots: NP2038, WAS004
Overstorey: The two character species are clearly dominant.
Conservation status: Probably included within the broadly-defined group EF095 *E. acmenoides*, assessed as poorly reserved, although CASov 17.1 may not be a natural community in CMA. *E. acmenoides* is very rarely clearly dominant in any stand and almost invariably occurs in association with a range of other species.
Notes: All plots are logged.

CASov 17.2 *E. acmenoides-E. siderophloia*
Plots: A00013, A0031C, BIL006, BUN002, WAS002
Overstorey: *E. acmenoides* and *E. siderophloia* are consistently present and usually codominant. *E. intermedia* is a frequent associate species but usually comprises a minor component of a stand. Grey gums (*E. propinqua* and *E. biturbinata*) are infrequent but may be locally common.
Subcanopy and understorey: Variously grassy understorey, or mesophyll shrub understorey. There is no consistent association with any particular floristic group.
Conservation status: This community has affinities with EF600b, assessed as adequately reserved, and the EF095 *E. acmenoides* group, assessed as inadequately reserved.
Notes: Plot A00013 is logged and was separated by the analysis due to low basal area. Its composition is otherwise similar to the other plots.

CASov 18 *E. siderophloia-E. psammitica*
Plot: NP1102
Overstorey: The two character species are clearly co-dominant, with scattered *E. henryi*.
Subcanopy and understorey: Subcanopy of *Alphitonia excelsa* with dense grassy ground cover of *Imperata cylindrica*, *Panicum effusum*, *Alloteropsis semialata* and *Sorghum leiocladum*.
Conservation status: This community has no H&B equivalent and is of conservation significance due to the presence of the nationally rare species *E. psammitica*.
Notes: This community was recorded only in the vicinity of this sample plot in Mount Marsh SF. Its full extent in CMA is unknown.

CASov 19.1 *E. siderophloia-E. moluccana*
Plots: BUN001, ELL001, MYR001, WAS003
Overstorey: *E. siderophloia* is usually dominant with *E. moluccana* mostly present as a common associate. *E. intermedia* is a frequent associate, but usually only as a minor component of the stand and other species are infrequent and uncommon.
Understorey: Mostly a dense grassy ground cover (e.g. *Aristida vagans*, *Imperata cylindrica*, *Themeda australis*, *Cymbopogon refractus*) with scattered shrubs or small trees of *Lophostemon suaveolens* and *Alphitonia excelsa*.
Conservation status: This community matches EF710d *E. moluccana-E. siderophloia*, assessed as poorly reserved.
Notes: CASov 19.1 and 19.2 are mostly restricted to warm, dry sites at low altitudes in coastal forests, mainly on Quaternary alluvium.

CASov 19.2 *E. moluccana*
Plots: BRA001, BRA002, BUN004, NP2079
Overstorey: Open forest in which *E. moluccana* is clearly dominant, mostly associated with *E. siderophloia*. Other infrequent but sometimes locally common species are *E. glaucina* and *Lophostemon suaveolens*.
Understorey: Sparse to moderately dense shrub layer of *Alphitonia excelsa* with moderate to dense grassy ground cover, mainly *Imperata cylindrica*, *Cymbopogon refractus*, *Aristida vagans*, *Themeda australis* and *Sporobolus diander*.

Conservation status: This community matches EF710a *E. moluccana*, assessed as poorly reserved.

CASov 20.1 *E. melanophloia-E. propinqua*
Plots: NP2044, NP2045
Overstorey: *E. melanophloia* is usually dominant, with *E. propinqua* less common.
Subcanopy and understorey: Subcanopy *Allocasuarina torulosa* with dense grassy ground cover, of *Microlaena stipoides*, *Cymbopogon refractus*, *Aristida* spp. and *Eragrostis leptostachya*.
Conservation status: Equivalent to EF606a *E. melanophloia*, assessed as poorly reserved.
Notes: Within CMA, CASov 20.1 occurs only in a limited area near the eastern boundary of Ewingar SF, on warm, dry, exposed slopes on granite. This community was apparently previously much more widespread on adjacent private property which has since been largely cleared, judging by the scattered remnants in this area.

CASov 21.1 *E. maculata-E. siderophloia*
Plots: NP1026, NP1105, NP2014, NP2027, NP2037
Overstorey: The two character species are co-dominant, with *E. propinqua* and *E. carnea* as frequent and sometimes locally common associates.
Subcanopy and understorey: Subcanopy of *Allocasuarina torulosa* with grassy ground cover dominated by *Imperata cylindrica*, *Lomandra longifolia* and *Themeda australis*.
Conservation status: Matches EF040c, assessed as inadequately reserved.

CASov 21.2 *E. maculata*
Plots: NP1014, NP2007, NP2008
Overstorey: *E. maculata* is clearly dominant, with no other common associate.
Subcanopy and understorey: Variously grassy or mesophyll shrubs, with no consistent associations.
Conservation status: Matches EF040a, assessed as poorly reserved.

CASov 21.3 *E. propinqua-E. microcorys*
Plots: NP1125, NP2004, NP2081
Overstorey: The two character species are co-dominant, with *E. maculata* less common but present in two of the three plots.
Subcanopy and understorey: As for CASov 21.2.
Conservation status: Probably a variant of the inadequately reserved *E. propinqua* group (EF075a), or possibly EF040d *E. maculata-E. propinqua*, also inadequately reserved.

CASov 21.4 *E. maculata-E. propinqua*
Plots: A00014, AWHP33, NP1024, NP1025, NP1099, NP1103, NP2003
Overstorey: *E. maculata* and *E. propinqua* are present in every plot and are usually the most common species. *E. moluccana* is the only frequent associate.
Subcanopy and understorey: Mostly subcanopy of *Allocasuarina torulosa* with grassy ground cover dominated by *Imperata cylindrica*, *Entolasia stricta*, *Glycine clandestina* and *Themeda australis*, but occasionally with a wet sclerophyll understorey.
Conservation status: Matches EF040d *E. maculata-E. propinqua*, assessed as inadequately reserved.

CASov 21.5 *E. propinqua*
Plots: A00011, NP2010, NP2012, NP1132, NP7010
Overstorey: *E. propinqua* is clearly dominant in all plots. The most common associates, some of which may be locally abundant, are *E. siderophloia*, *E. henryi* or *E. microcorys*.
Subcanopy and understorey: Mostly grassy understorey of *Imperata cylindrica* and *Cymbopogon refractus*, with scattered to moderately dense shrubs of *Alphitonia excelsa* and *Acacia concurrens*.
Conservation status: Matches EF075a *E. propinqua*, assessed as inadequately reserved.

CASov 22.1 *E. carnea-E. intermedia*
Plots: EWI003, GIB003, NP1113
Overstorey: The two character species are co-dominant, usually with a subcanopy of *Allocasuarina torulosa*. Other canopy species are infrequent and uncommon and include *E. biturbinata, E. propinqua, E. siderophloia* and *E. resinifera*.
Subcanopy and understorey: Grassy understorey, variously dominated by *Themeda australis* or *Imperata cylindrica*.
Conservation status: Probably a variant of the adequately reserved EF097a *E. carnea*.

CASov 22.2 *E. intermedia*
Plots: MYR002, A0CL36, NP1128
Overstorey: These plots are linked by the dominance of *E. intermedia,* but associated species vary. *Lophostemon suaveolens* is co-dominant in plot MYR002, while *E. biturbinata* is co-dominant in plot NP1128.
Subcanopy and understorey: Grassy understorey of *Imperata cylindrica* with fern *Pteridium esculentum* and shrubs *Alphitonia excelsa* and *Breynia oblongifolia*.
Conservation status: As indicated by the disparate range of associated species, this is probably not a distinct community, and most likely represents small patches of local dominance by the very widespread and frequent species *E. intermedia*, within other assemblages. H&B recognized a distinct *E. intermedia* community (EF330a), but were not able to assess its reservation status.

CASov 23 *E. fibrosa*
Plot: NP2001
Overstorey: *E. fibrosa* is clearly dominant, associated with *E. maculata, E. tindaliae* and *E. carnea*.
Subcanopy and understorey: Mixed grassy/graminoid understorey, with *Lepidosperma laterale* as the most common species.
Conservation status: This is best regarded as a local patch of *E. fibrosa* within a broader *E. maculata-E. fibrosa* assemblage. As such it is included within EF040e, assessed as inadequately reserved. There appear to be no extensive areas dominated exclusively by this species in CMA.

CASov 24.1 *E. fibrosa-E. henryi*
Plots: DOU001, NP1129
Overstorey: *E. fibrosa* is clearly dominant, with *E. henryi* less common.
Subcanopy and understorey: Grassy understorey, but with no consistent relationships.
Conservation status: Group CASov 24 is included within the *E. maculata* group (EF040) of H&B, assessed as poorly to inadequately reserved. H&B apparently do not recognize *E. henryi* as a separate species.
Notes: The three communities of group CASov 24 intergrade in a mosaic and occur extensively on relatively warm, dry sites at low altitudes on ridges and upper slopes. They occur almost exclusively on low quartz sedimentary substrates in forests of the coastal ranges.

CASov 24.2 *E. henryi-E. tindaliae*
Plots: ABAN30, ABAN31, ABAN32, BAN002, NP7004
Overstorey: The two character species are usually co-dominant, but *E. tindaliae* is occasionally absent. Common and frequent associates are variously *E. fibrosa, E. pilularis* and *Angophora woodsiana*.
Subcanopy and understorey: Grassy understorey of *Entolasia stricta, Aristida vagans, Imperata cylindrica, Themeda australis* and *Alloteropsis semialata*, with scattered shrubs of *Acacia concurrens*.
Conservation status: As for CASov 24.1.

CASov 24.3 *E. henryi*
Plots: A00010, BUN003, NP1121
Overstorey: *E. henryi* is dominant, associated variously with *E. propinqua*, *E. siderophloia*, *E. eugenioides* and *E. resinifera*.
Subcanopy and understorey: Similar to that of CASov 24.2.
Conservation status: As for CASov 24.1.

CASov 25.1 *E. planchoniana-E. pyrocarpa*
Plots: ROY001
Overstorey: Mixed overstorey with the two character species and *E. gummifera* as the most common.
Subcanopy and understorey: Heath understorey dominated by *Leptospermum trinervium* and *Xanthorrhoea latifolia*.
Conservation status: Probably a variant of EF147a *E. pyrocarpa*, assessed as adequately reserved.

CASov 25.2 *E. planchoniana-E. pilularis*
Plots: NP1022, NP1104, NP1123
Overstorey: *E. planchoniana* is clearly dominant, with a lower proportion of *E. pilularis*.
Subcanopy and understorey: Low sclerophyll understorey of heath shrubs and graminoids, including *Entolasia stricta*, *Leptospermum polygalifolium*, *Lomatia silaifolia* and *Monotoca scoparia*.
Conservation status: A variant of EF261a *E. planchoniana*, assessed as adequately reserved.

CASov 25.3 *E. planchoniana-E. baileyana*
Plots: GIB001, GIB002, NP1110, NP1122
Overstorey: The two character species are co-dominant in the upper canopy with a subcanopy of *Angophora woodsiana*.
Subcanopy and understorey: Low heath shrub understorey, common species including shrubs *Acacia complanata*, *Phyllanthus thymoides*, *Bossiaea rhombifolia*, *Persoonia stradbrokensis* and graminoids *Entolasia stricta* and *Patersonia sericea*.
Conservation status: Similar to EF262b or EF261b, both assessed as adequately reserved.
Notes: Group CASov 25 occurs exclusively on sandstone substrates in the coastal ranges, mainly on warm ridges and upper slopes in areas of intermediate rainfall.

CASov 26 *E. resinifera-E. pilularis*
Plots: A00008, A00009, NP1116, NP1117, NP7008
Overstorey: *E. resinifera* and *E. pilularis* are usually the most common species, but either may be locally absent. *Syncarpia glomulifera* is also consistently present, but usually less common.
Subcanopy and understorey: Mixed shrub and herb understorey. Major species are *Pteridium esculentum*, *Entolasia stricta*, *Restio tetraphyllus*, *Imperata cylindrica* and *Leptospermum polygalifolium*.
Conservation status: Matches EF145d, assessed as adequately reserved.
Notes: Logged plot NCA9 has a relatively high proportion of *E. microcorys* and was separated at the 0.6 level of dissimilarity, but is otherwise similar to this community. This community occurs mainly on fairly exposed slopes in warm areas at low altitudes on sandstone or other high quartz substrates, in forests of the coastal ranges.

CASov 27.1 *E. pilularis*
Plots: BEL002, BUN005, EWI007, A00020, A0022A, ABAR37, ABAR38, ACL35, NP1013, NP1016, NP1019, NP1021, NP2040, NP2096, NP7017, NP7020
Overstorey: *E. pilularis* is clearly dominant with other species typically forming only a minor component of any stand. Associate species, all of which are infrequent but may be locally abundant, include *Syncarpia glomulifera*, *E. resinifera*, *E. intermedia* and *Angophora woodsiana*.

Subcanopy and understorey: Variously heath or grassy understorey. The former commonly includes *Leptospermum trinervium, Entolasia stricta, Lomatia silaifolia* and *Phyllanthus thymoides*. Common grassy understorey species are *Imperata cylindrica, Pteridium esculentum, Entolasia stricta, Glycine clandestina* and *Cymbopogon refractus*.

Conservation status: Areas in drier forest types match EF145a, assessed as adequately reserved.

Notes: This is a very widespread community occurring in a range of habitats throughout the area, but mostly on mid to upper slopes.

CASov 27.2 *E. gummifera-E. pilularis*

Plots: BEL003, A00006, A0022B, A00025, NP1018, NP7005

Overstorey: Both character species are consistently present, with *E. gummifera* usually more common but *E. pilularis* taller. *Angophora woodsiana* is frequent but usually a minor component as a subcanopy.

Subcanopy and understorey: Mostly heath group understorey, common species including *Themeda australis, Persoonia stradbrokensis, Phyllanthus thymoides, Notelaea ovata* and *Acacia complanata*.

Conservation status: As most sampled areas are mapped as FT 37, and as most plots are logged and the relative proportion of *E. pilularis* has probably been reduced, this is most likely included as a variant of EF145a *E. pilularis*, assessed as adequately reserved.

Notes: *E. gummifera* tends to occur with *E. pilularis* mainly on high quartz substrates.

CASov 28.1 *E. umbra-E. tindaliae*

Plots: A00023, A00026

Overstorey: The two character species are consistently present, with *E. crebra, E. moluccana* and *E. maculata* variously as locally abundant.

Subcanopy and understorey: *Alphitonia excelsa* with grassy ground cover (*Themeda australis, Aristida calycina*).

Conservation status: Due to the disparate associates, it is doubtful whether these two plots jointly represent a natural assemblage. They are best regarded as local variants of communities in which *E. tindaliae* is generally common, assessed as well conserved.

Notes: This group and group CASov 29 are part of a series of dry forest associations which occur in an intergrading mosaic and for which individual communities are difficult to satisfactorily and consistently define from plot data. They are also not satisfactorily treated by existing *a priori* classification schemes. Considerably more data is required to clarify relationships.

CASov 28.2 *E. umbra-Angophora woodsiana*

Plots: A00021, BAN001

Overstorey: Both plots are dominated by *E. umbra*, with a lower proportion of *A. woodsiana*. Plot BAN001 samples a transitional stand at the margin of a patch dominated by *A. woodsiana*.

Subcanopy and understorey: Heath group understorey, with *Daviesia umbellulata, Themeda australis, Entolasia stricta, Xanthorrhoea latifolia* and *Acacia complanata* as common species.

Conservation status: Possibly most similar to EF098a, *E. umbra*, assessed as poorly reserved.

CASov 29.1 *E.* sp. aff. *acmenoides-Angophora woodsiana*

Plot ROY003

Overstorey: Low woodland of the two character species with *E. tindaliae*.

Subcanopy and understorey: Heath group understorey of *Leptospermum trinervium, Themeda australis, Xanthorrhoea latifolia* and *Persoonia tenuifolia*.

Conservation status: There is no equivalent association recognized by Hager and Benson and this community is of potential significance.

Notes: This community is apparently restricted to limited areas on ridges and upper slopes on low quartz substrates in Mount Marsh SF. *E.* sp. aff. *acmenoides* appears to be morphologically distinct but its status is under investigation.

CASov 29.2 *E. tindaliae-E. resinifera*
Plots: NP1131, ROY002
Overstorey: The two character species are co-dominant. Locally common associates are *Angophora woodsiana* and *Syncarpia glomulifera*.
Subcanopy and understorey: Variously grassy or heath understorey.
Conservation status: Probably a variant of EF260b *E. tindaliae-E. intermedia*, assessed as well conserved.

CASov 29.3 *E. tindaliae*
Plots: A00024, NP1130
Overstorey: *E. tindaliae* is clearly dominant, with associates variously *E. siderophloia*, *E. umbra* or *Angophora woodsiana*.
Subcanopy and understorey: Variously grassy or heath understorey.
Conservation status: As for CASov 29.2.

CASov 30 *Angophora woodsiana*
Plots: A00005, MOR001, NP1012, NP1101, NP1106, NP1107, NP1114, NP1115, NP1119, NP1127
Overstorey: This community is clearly characterized by *A. woodsiana* which is usually dominant. There are no consistent associated species, but the more frequent include *E. carnea* and *E. intermedia*.
Subcanopy and understorey: Variously low heath shrub and graminoid (heath group) or grassy understorey, but usually with a subcanopy of *Allocasuarina torulosa*. Common species in the heath understory group include *Lobelia gracilis*, *Cymbopogon refractus*, *Digitaria parviflora* and *Ptilanthelium deustum*. Common grassy understorey species are *Imperata cylindrica*, *Entolasia stricta*, *Aristida vagans*, *Cymbopogon refractus* and *Eragrostis leptostachya*.
Conservation status: Even though some plots are localized areas of dominance by *A. woodsiana*, more extensive areas also exist and this appears to be a fairly extensive community in CMA. There appears to be no H&B equivalent.
Notes: This community occurs extensively on warm, moderately exposed slopes in coastal forests, especially on high quartz sedimentary substrates.

CASov 31 *E. pyrocarpa*
Plot A00004
Overstorey: Open forest dominated by *E. pyrocarpa* with *E. gummifera* and *E. baileyana*.
Subcanopy and understorey: Sclerophyll shrub understorey dominated by *Banksia serrata*, *Ceratopetalum gummiferum* and *Acacia complanata*.
Conservation status: The equivalent EF147a is assessed as adequately reserved.
Notes: CASov 31 is of restricted occurrence on ridges and upper slopes in sandy soils on sandstone, in Doubleduke SF.

CASov 32 *E. resinifera-Lophostemon suaveolens*
Plots: NP7014
Overstorey: Open forest of the two character species with *Angophora floribunda* and *E. microcorys*.
Subcanopy and understorey: Small tree/shrub stratum of *Alphitonia excelsa* and *Acacia concurrens*, with dense grassy ground cover dominated by *Imperata cylindrica*.
Conservation status: Poorly conserved. Equivalent to EF096a *E. resinifera*.
Notes: Limited extent and restricted to heavy textured soils on warm, dry, seasonally swampy flats at low altitude.

CASov 33 *E. signata*

Plots: NP1009, NP1010, NP1124, NP1126, WHP001, WHP002

Overstorey: *E. signata* is present in every stand and usually clearly dominant. *E. resinifera, Angophora woodsiana* and *E. intermedia* are the only associate species which occur in more than two plots.

Subcanopy and understorey: Variously heath group (e.g. *Leptospermum polygalifolium, L. trinervium, Banksia oblongifolia, Leucopogon lanceolatus*) or grassy (common species include *Imperata cylindrica, Entolasia stricta* and *Themeda australis*).

Conservation status: The equivalent EF235a is assessed as adequately reserved.

Notes: This well-defined community occurs fairly extensively in warm areas at low altitudes, usually on seasonally waterlogged flats. It occurs exclusively in areas mapped as FT 117 or 119. The latter is nominally Scribbly Gum-Bloodwood, and although sampled stands containing bloodwood (*E. intermedia*) were in this map type, bloodwood occurred as only a minor component of these stands and they were not separated by the classification. The two plots in Bundjalung NP (NP1009, NP1010) also contained bloodwood.

CASov 34 *E. resinifera-Melaleuca quinquinervia*

Plots: NP7013

Overstorey: Open forest of the two character species with *E. signata* and *E. carnea* as less common associates.

Subcanopy and understorey: Grassy ground cover of *Panicum simile, Themeda australis* and *Ptilothrix deusta*.

Conservation status: Probably a variant of the well conserved WT002a *M. quinquenervia*.

Notes: A community of restricted extent in CMA which occurs on very warm and moderately wet flats at low altitude.

CASov 35 *Lophostemon suaveolens-Casuarina glauca*

Plots: DOU002, A00007

Overstorey: The two character species are present in both plots, but *C. glauca* is rare in plot A00007.

Subcanopy and understorey: Plot A00007 has a dense subcanopy of *Melaleuca alternifolia*. There is a mixed grassy and herbaceous understorey.

Conservation status: This is closest to EF002a *Lophostemon suaveolens*, for which there was insufficient data to assess conservation status.

Notes: Restricted to small areas of Doubleduke SF, along minor drainage channels in undulating topography.

CASov 36 *E. biturbinata*

Plots: NP2035, NP2036

Overstorey: This is a mixed group of plots linked only by the presence of *E. biturbinata*.

Subcanopy and understorey: *Allocasuarina torulosa* with grassy ground cover of *Themeda australis, Imperata cylindrica* and *Sorghum leiocladum*.

Conservation status: This may not be a distinct community, but is probably included in EF076b *E. biturbinata-E. carnea*, assessed as inadequately reserved.

CASov 37 *E. seeana*

Plots: NP1118

Overstorey: Open forest in which *E. seeana* is clearly dominant, with scattered *E. intermedia* and *Angophora woodsiana*.

Subcanopy and understorey: Subcanopy of Melaleuca sieberi with grassy ground cover of *Ischmaeum australe, Themeda australis, Panicum simile* and *Gahnia sieberiana*.

Conservation status: The equivalent EF054a is regarded as inadequately reserved.

Notes: *E. seeana* occurs as scattered individuals in open forest on seasonally waterlogged sites at low altitudes, but seldom dominates.

CASov 38 *E. rummeryi*
Plots: BEL001, NP1100, PIK001
Overstorey: *E. rummeryi* is clearly dominant.
Subcanopy and understorey: Typically a dense shrub or small tree understorey of dry rainforest species such as *Casearia multinervosa, Cupaniopsis parvifolia, Alectryon subcinereus, Alyxia ruscifolia* and the lianes *Austrosteenisia blackii* and *Cissus antarctica.*
Conservation status: A generally well-defined community equivalent to EF706a, assessed as inadequately reserved.
Notes: CASov 38 is locally common but restricted to Mount Pikapene SF and nearby areas in the northern section of Mount Belmore SF.

CASov 39.1 *E. tereticornis*
Plots: NP1017, NP1096, NP7009, NP7011, NP7015, NP7016
Overstorey: Open forest or woodland in which *E. tereticornis* is consistently dominant. There is no associate species which occurs in more than two plots. Species which are occasionally locally common are *E. robusta, E. intermedia, E. siderophloia* and *E. maculata.*
Subcanopy and understorey: Mostly grassy and herbaceous ground layer with scattered shrubs. Common species include *Imperata cylindrica, Lantana camara, Desmodium varians* and *Pratia purpurascens.*
Conservation status: Included within EF050c, assessed as inadequately reserved.

CASov 39.2 *E. tereticornis-Angophora subvelutina*
Plots: A00018, NP1112, NP2002, NP2005, NP2009
Overstorey: *E. tereticornis* is clearly dominant, with a lower proportion of *A. subvelutina*, which is sometimes absent. *E. acmenoides, E. maculata* and *E. gummifera* are infrequent associates which may be locally common.
Subcanopy and understorey: Grassy ground cover of *Themeda australis, Imperata cylindrica, Cymbopogon refractus* and *Eragrostis leptostachya*, often with moderately dense shrub stratum of *Acacia concurrens.* Occasionally, in less frequently burnt sites, mesophyll shrubs may become more prominent.
Conservation status: Equivalent to EF050d, assessed as inadequately reserved.

CASov 40 *E. campanulata*
Plots: BIL001, BIL007, EWI008
Overstorey: Dominated by *E. campanulata*, with *E. microcorys* as a frequent associate.
Subcanopy and understorey: Variously grassy or mesophyll shrub understorey, depending on fire history.
Conservation status: Equivalent to the adequately reserved EF481a *E. campanulata.*
Notes: This community is restricted to ridges and upper slopes in cool, wet sites at high altitudes on acid volcanic substrates.

## 3.FLORISTIC PATTERNS IN RELATION TO ENVIRONMENT AND DISTURBANCE

### *(a) Floristic richness*

The classification tree analysis of floristic richness of native species in relation to all major environmental variables (logging age, temperature, radiation index, lithology, fire intensity, fire age, topographic position, observer), excluding rainforest plots, chose temperature as the primary split. If temperature is excluded from the model, fire age becomes the primary determinant of floristic richness. If both temperature and fire age are excluded, the tree is initially split on observer. The splits on temperature and/or fire age essentially divide the data into dry forest and wet sclerophyll groups. Within these groups defined by temperature or fire age, observer is the next most important variable in determining native species richness. Logging history parameters do not contribute in any way, relative to other variables. If the broad floristic group is included explicitly (Figure 4), there is a clearer split into the two broad groups. Observer remains the second most influential variable, clearly demonstrating the critical importance of observer bias in analyzing data from several different observers. For the dry forest groups (left side primary split), logging history has no apparent influence on native species floristic richness. For the wet sclerophyll group (right side split), of plots assessed by Austeco and NEFBS, recently logged plots (<10 years) have a higher native species richness (mean 64 species per plot over five plots) than older logged and unlogged plots (mean 50 species per plot). Otherwise, there is no apparent effect of logging age on floristic richness.

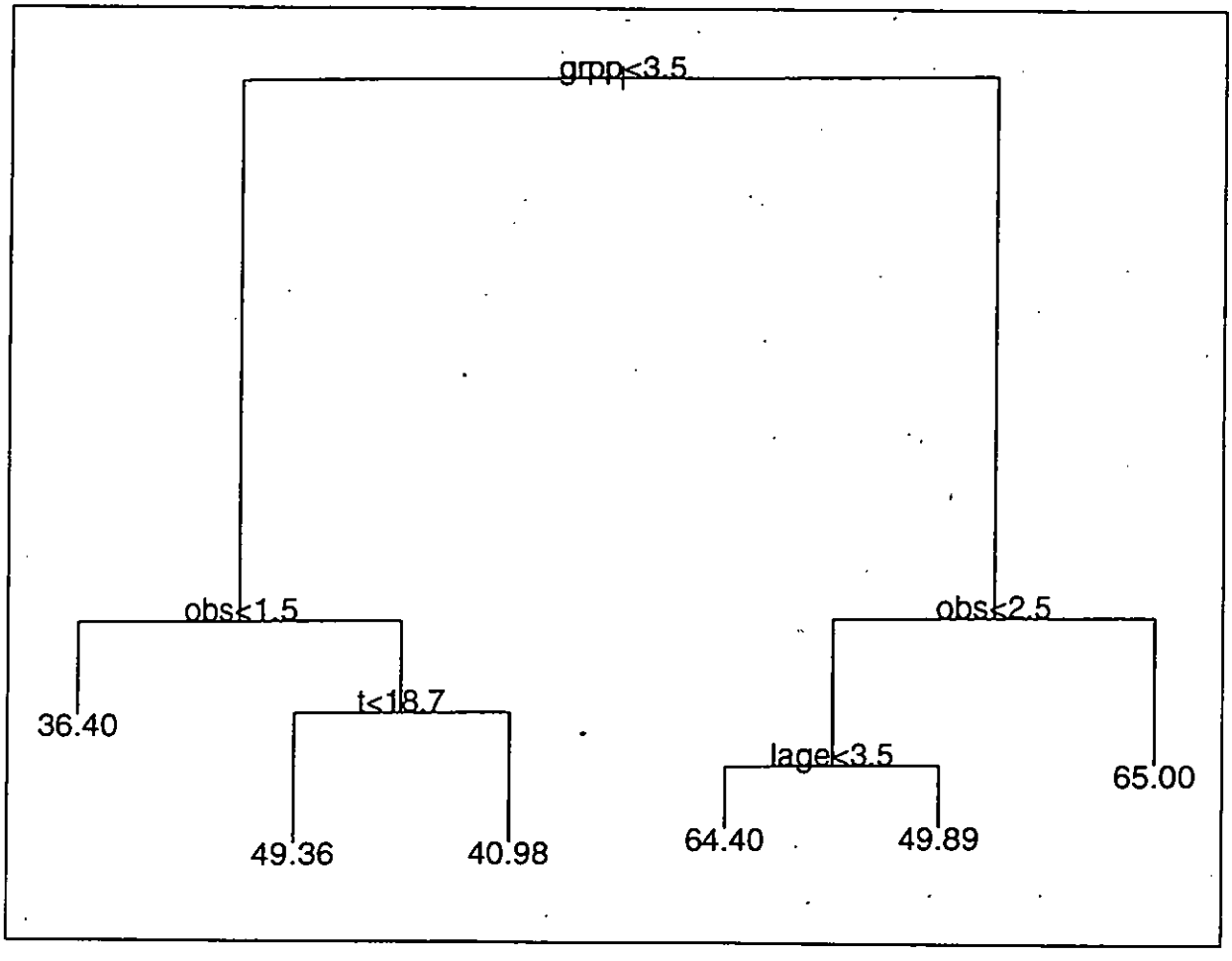


**Figure 4.** "Snipped" classification tree of floristic richness of native species in relation to environmental variables. Only the five major splits are shown. Variables are: grpp=broad floristic group, obs=observer, t=temperature, lage=logging age, all coded as described in Section 1(c). Broad groups 1-3 are dry forest, group 4 is wet sclerophyll forest.

For naturalized exotics only (tree not shown), the primary splits are on lithology and rainfall. There is a higher number of exotics (mean 3.5 species per plot over 8 plots) in plots on basic igneous lithology than any other (overall mean 1.2 species per plot over 168 plots). It may be inferred from this that exotics are most common in more fertile sites. On other substrates, the number of exotics is slightly higher (mean 1.7 over 81 plots) in lower rainfall areas, but logging history has no influence in the lower rainfall category. Logging history also contributes relatively little in the higher rainfall category. Based on relatively few sites, a larger number of exotics occurs in logged plots in more sheltered sites (ri<17.1), and, in more exposed sites, on substrates of sandstone and Quaternary alluvium.

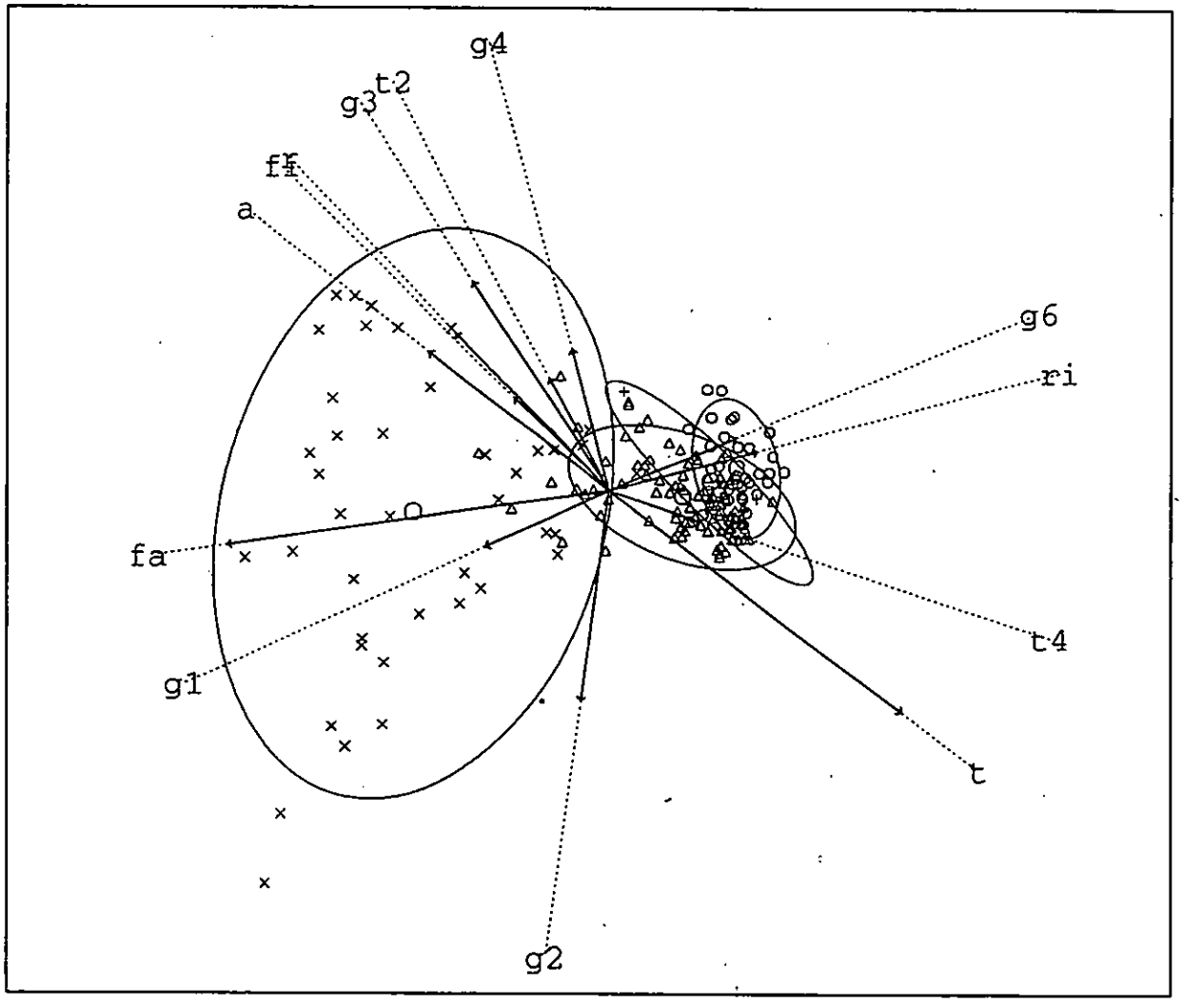


**Figure 5.** CCA ordination of all eucalypt forest plots, broad floristic group superimposed. Symbols are: O = heath forest (CASf 1-6), Δ = grassy forest (CASf 7-22), + = grassy forest (CASf 23-27), X = wet sclerophyll forest (CASf 28-37). Environmental variables are r = rainfall, t = temperature, ri = radiation index, fi = fire intensity, fa = fire age, a = altitude, g1 = basic igneous, g2 = low quartz sedimentary, g3 = acid volcanic, g4 = granitic, g6 = sandstone, t2 = upper slope, t4 = lower slope.

*(b) Patterns of floristic composition*

Figure 5 is the canonical correspondence analysis (CCA) ordination with respect to the major measured environmental variables defined in Section 1c, with three major broad floristic groups indicated. For the purpose of this analysis, several more extreme communities (CASf 23-27) in the

grassy forest group were plotted separately, and the rainforest group has been excluded to emphasize patterns in the eucalypt-dominated groups. This ordination broadly reflects the classification result in that the broad dry forest groups are well separated from the wet sclerophyll groups defined by the classification, but within the broad dry forest group, there is considerable floristic overlap between the heath forest and grassy forest groups. This is partly because the ordination uses cover code as a measure of abundance and thus gives greater relative weight to less abundant species compared to the classification. It is also partly a result of the ordination being constrained by environmental variables and suggests that the measured variables discriminate poorly between these two broad groups, a pattern which is also evident from Table 3. Of the measured variables, radiation index and geology class 6 (sandstone) are most strongly associated with discrimination between these groups. The heath forest group has a greater tendency to occur on sandstone and in areas of higher irradiation than does the grassy forest group. However, the poor discrimination suggests that some other factors, such as soil physical or chemical properties (probably clay content, water-retaining potential or nutrient status), which were not assessed, are most important in determining patterns of distribution among these groups. It is apparent from Figure 5 that of the variables assessed, fire age is very clearly the major determinant of the separation of the wet sclerophyll group from the dry forest groups. Temperature, and to a lesser extent, rainfall, geology and radiation index, also influence floristic patterns.

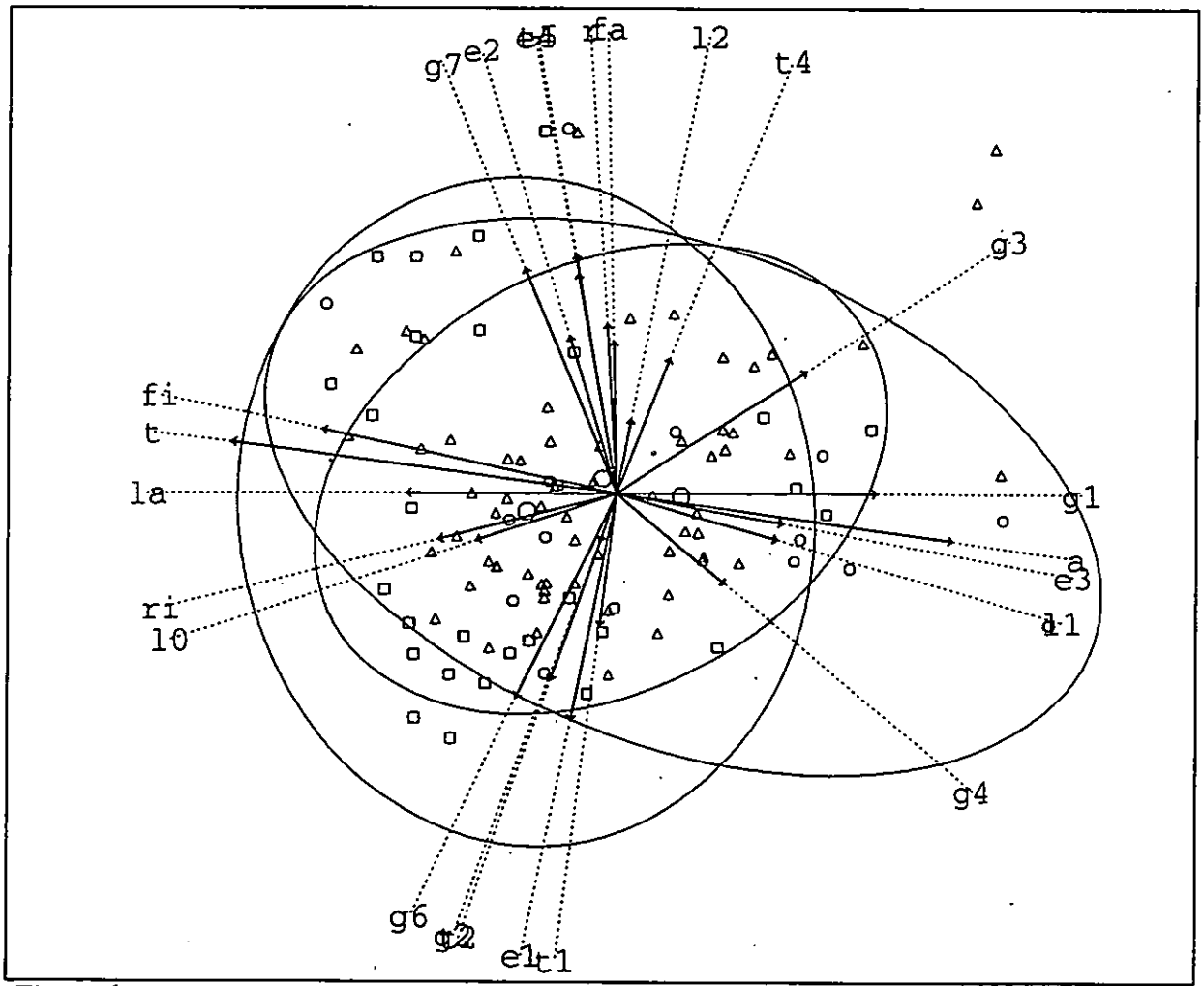


**Figure 6.** CCA ordination of habitat group defined by fire age < 5 yrs and rainfall > 1059, with logging categories superimposed.

Ellipses are 2sd around the centroid for each group. Symbols are: G = unlogged, O = logged < 10 yrs, Δ = logged > 10 yrs. Environmental variables are a = altitude, r = rainfall, t = temperature, ri = radiation index, fi = fire intensity, fa = fire age, la = logging age; l0, l1, l2 = unlogged, logged<10, logged>10; e1-e4 = exposure classes; g1-g7 = lithology classes: g1 = basic igneous, g2 = low quartz sedimentary, g3 = acid volcanic, g4 = granitic, g6 = sandstone, g7 = Quaternary alluvium; t1-t5 = topographic position: t1 = ridge, t2 = upper slope, t4 = lower slope, t5 = riparian.

To investigate patterns in more detail, separate ordination analyses were conducted on subgroups defined by a classification tree using the four floristic groups defined above as classes. The variables which best defined these floristic classes were fire age and rainfall. These were used to define two habitat subgroups. One was predominantly a dry forest group, defined by fire age less than five years and rainfall greater than 1059 mm and included 108 plots and 379 species. The other was predominantly a wet sclerophyll group, defined by fire age greater than five years and rainfall greater than 1116 mm, containing 40 plots and 327 species.

Figure 6 shows the ordination result for the dry forest group. Logging intensity and midslope position were not significant at the 0.1 level and are excluded. Temperature (inversely related to altitude) remains as a strong influence, but no other single factor stands out as predominant, and complex patterns are evident. The first two axes account for only 22% of floristic variation, suggesting that important variables have not been considered, or that floristic patterns are complex and have a large random component. Logging categories and logging age are closely correlated with other variables and there is no floristic element which can be readily attributed to a logging history effect. For example, the group of plots and species most strongly associated with the unlogged category (and thus high logging age) are those of heath forest on exposed upper slopes on sandstone. These are inferred to be the lowest fertility sites, and the apparent association with logging history is most likely due to these communities generally being avoided during logging because of low to non-existent commercial timber volume.

Fewer variables had a significant influence on patterns in the wet sclerophyll group (Figure 7) than was the case for the dry forest group. The first two ordination axes account for 42% of the floristic variation. Of the physical variables, rainfall, temperature and several lithology classes have the strongest influence on floristic patterns. Fire age also had a very strong influence. Species most strongly associated with more recently burnt plots were dry forest species such as *Ranunculus lappaceus*, *Poranthera microphylla*, *Picris angustifolia* and *Gonocarpus humilis*. Species which are inferred to be associated with less recently burnt areas are *Syzygium crebrinerve*, *Anthocarapa nitidula*, *Rhodamnia argentea*, *Anopterus macleayanus* and *Lomandra spicata*. These are predominantly rainforest species. There was no statistically significant (at p=0.01) influence of any of the logging history variables (logging age, logging intensity, logging category). However, a weak gradient was evident, and although the majority of the more frequent species (at least 80% of those recorded in more than three plots) are apparently indifferent to logging history, there is a group of species which may favour unlogged plots, and a group which may favour recently logged plots. Those which were recorded mainly in unlogged plots included *Alstonia constricta*, *Scolopia braunii*, *Rauwenhoffia leichhardtii*, *Pellaea falcata* var. *nana*, *Elattostachys xylocarpa* and *Austrosteenisia blackii*. All of these occur mainly in rainforest. Their apparent preference for unlogged areas may reflect a low tolerance of disturbance, or may simply indicate that logging tends to avoid stands where rainforest understorey is more well-developed. Species which were associated with recently logged (<10 years) areas include *Adiantum silvaticum*, *Goodenia rotundifolia*, *Schizomeria ovata*, *Acacia melanoxylon*, *Acmena smithii*, *Neolitsea australiensis*, *Rubus rosifolius*, *Cyperus disjunctus*, *Rubus hillii* and *Palmeria scandens*. These are mostly species which are expected to readily colonize disturbed sites.

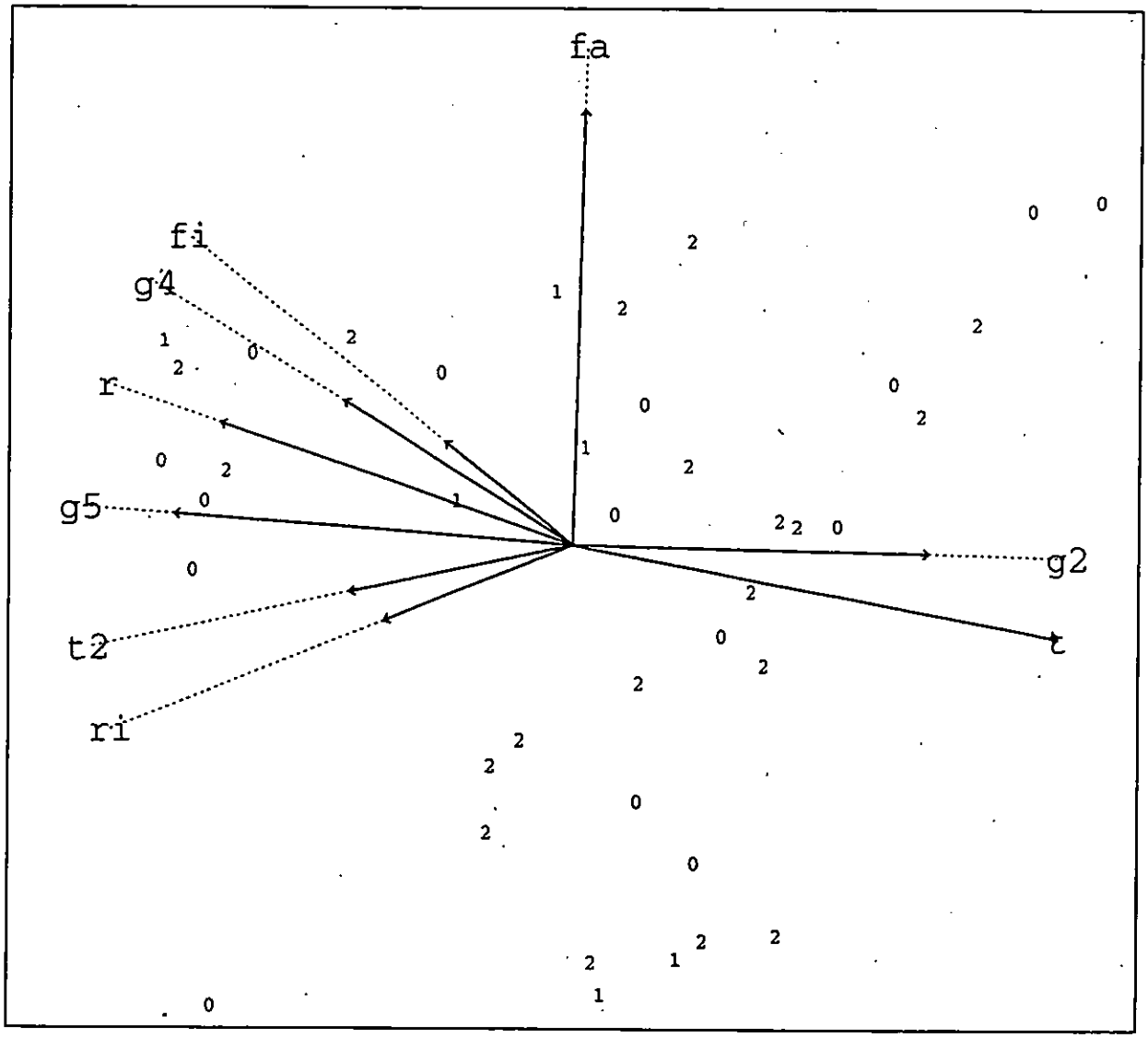


**Figure 7.** CCA ordination of habitat group defined by fire age > 5 yrs and rainfall > 1116 mm/yr, with logging categories superimposed. Ellipses are 2sd around the centroid for each group. Logging category codes are: 0 = unlogged, 1 = logged < 10 yrs, 2 = logged > 10 yrs. Only environmental variables which were significant at p=0.1 are shown, as: t = temperature, r = rainfall, fi = fire intensity, fa = fire age; g2-g5 = lithology classes: g2 = low quartz sedimentary, g4 = granitic, g5 = basic igneous; t2 = upper slope.

# *DISCUSSION*

## *1.SIGNIFICANT PLANT SPECIES*

Species listed by Briggs and Leigh (1988, updated as at June 1995) for which the known range overlaps or is close to CMA, and for which known habitats occur in State forests of CMA, are considered below, with a description of occurrence within the area where records exist, and an estimate of likelihood of occurrence based on known habitats, where there are no records.

Species which have been recorded from the area (Appendix 1) were assessed for State or regional conservation significance from Sheringham and Westaway (1995). Those in categories 1-6 are considered below. Species in categories 7-9 (disjunct, northern limit, southern limit of distribution, respectively) are not considered below. In addition, a few species which were recorded from NSW for the first time during survey are included as potentially significant. Where appropriate, risk codes are assigned according to the criteria of Briggs and Leigh (1988) or Sheringham and Westaway (1995). The latter are: 3 = rare in NSW, 4 = regionally uncommon, 5 = depleted or sparse, 6 = regionally endemic, 7 = disjunct population. General distributions for each species are taken from Harden (1991, 1992, 1993) except where another source is cited. Occurrences in reserves are taken from Briggs & Leigh (1988) or Sheringham and Westaway (1995) unless noted otherwise. Unless otherwise indicated, information on occurrence in CMA is from plot data and general observations made by Binns during recent survey.

*Dodonaea megazyga* and *Papillilabium beckleri* are not included on the list below, as they are no longer considered rare or threatened (J. Briggs, pers. comm.).

### *(a) Nationally significant species*

***Acianthus amplexicaulis*** 3RC-

Distribution: Eudlo (south-eastern Queensland) to O'Sullivans Gap (New South Wales) (Jones, 1988).

Habitat: Rainforest and thick coastal scrub, very shaded habitats (Jones, 1991). Also wet sclerophyll forest and *Araucaria bidwillii* plantation (Binns *unpubl. obs.*).

Occurrence in reserves: Border Ranges NP, Lamington NP, Broken Head NR, Bundjalung NP, Dorrigo NP, Yuraygir NP

Occurrence in survey area: No records from SF, but probably sporadically distributed in rainforest and wet sclerophyll forest.

Response to disturbance: Capable of recolonising severely disturbed sites after several decades, but otherwise unknown.

***Acomis acoma*** 3RC-

Distribution: North from Nambucca district, to Queensland.

Habitat: Forest margins and roadsides (Brown cited in Harden, 1992).

Occurrence in reserves: Border Ranges NP, Limpinwood NR, Maiala NP (Q), Mount Walsh NP (Q).

Occurrence in survey area: During recent survey this species was found to be locally abundant along roadsides in Ewingar SF, growing among weedy native and exotic herbs. The populations seldom extended beyond 20 m from the road verge, and no plants were seen remote from roads. The total population seen during recent survey is estimated as at least 2000 mature individuals.

Response to disturbance: Most records are from relatively open habitats which are subject to regular or recent soil disturbance. This suggests that *A. acoma* favours relatively sparse overhead vegetation and particular disturbance regimes involving recent and/or regular disturbance. It appears to be a short-lived species (maximum 2-3 years) which relies on continuing recruitment from seed to maintain actively growing populations. Soil-stored seed longevity is unknown. Unlike many Asteraceae, the seeds lack a pappus and thus are unlikely to be readily dispersed over long distances.

*Amorphospermum whitei* 3RCa

Distribution: From Macleay River to Queensland, also reported from Port Macquarie district.

Habitat: Littoral and warm temperate rainforest (Harden, 1990); also wet sclerophyll forest (Binns and Chapman, 1993).

Occurrence in reserves: Broken Head NR, Brunswick Heads NR, Bruxner Park FR, Bundagen FR, Dorrigo NP, Minyon Falls FR, Mount Coramba FR, Mount Cougal NP (Q), Numinbah NR, Sherwood NR, Snows Gully NR, Waihou FR.

Occurrence in survey area: Not recorded from CMA although it is fairly common to the north and south. As this is a conspicuous and easily recognised tree, the lack of records for CMA may reflect a true absence of the species.

Response to disturbance: Recorded elsewhere from wet sclerophyll forest logged 20-30 yr previously, so can probably colonise disturbed areas within several decades. Individuals are probably fire-sensitive and may be sensitive to other physical damage.

*Angophora robur* 3RC

Distribution: Endemic to north coastal NSW, in the sandstone belt between Glenreagh and Coaldale.

Habitat: Locally frequent in dry open forest on sandy soils.

Occurrence in reserves: Banyabba NR, Sherwood NR, Waihou FR.

Occurrence in survey area: Not recorded, but may occur in the south-western section of Banyabba SF.

Response to disturbance: Adult trees are expected to be resilient to damage and the species is likely to regenerate well from seed in disturbed sites.

*Arthraxon hispidus* 3VC-

Distribution: In NSW, coastal and tablelands areas north of Gibraltar Range; also in Queensland and south east Asia.

Habitat: Rainforest.

Occurrence in reserves: Cooloola NP (Q), Noosa NP (Q); not known to be reserved in NSW.

Occurrence in survey area: No records. Although apparently widespread and recorded from rainforest generally, there are very few records and the precise habitat requirements of this species remain a mystery. Its occurrence is therefore difficult to predict and there is a remote possibility that it may be recorded from any area of rainforest in CMA.

*Austrobuxus swainii* 3RCa

Distribution: Bellinger River to Springbrook (Q), but especially in the Dorrigo area.

Habitat: Rainforest on coastal ranges (James and Harden cited in Harden, 1990); also wet sclerophyll forest.

Occurrence in reserves: Big Scrub FR, Border Ranges NP, Dorrigo NP, Minyon Falls FR, Mount Cougal NP (Q), Nightcap NP, Numinbah NR, Warrie NP (Q).

Occurrence in survey area: Not recorded in CMA, although common in similar habitats to the north and south. Since it is usually locally abundant where it occurs, it is fairly unlikely that its occurrence in CMA has been overlooked, and the probability of occurrence is low despite the presence of broadly suitable habitats.

Response to disturbance: Short term response unknown, but it is unlikely to be adversely affected in the longer term, as it has been recorded from several logged areas in Dorrigo MA and has freely naturalized in Cumberland SF, a highly modified bushland remnant in suburban Sydney, where a few individuals were planted several decades previously. This species is often abundant where it occurs (e.g. Dorrigo area and Murwillumbah area) and is probably inappropriately classified as rare.

*Boronia chartacea* 3RC-

Distribution: Restricted to disjunct populations in the Wauchope area and Grafton-Copmanhurst area; endemic in NSW.

Habitat: Moist gullies in granite or sandstone areas.

Occurrence in reserves: Banyabba NR.

Occurrence in survey area: During recent survey it was recorded only as scattered individuals near creeks in Banyabba SF and in gullies in Mount Belmore SF. Minimum population size is estimated as several hundred mature individuals.

Response to disturbance: Individuals may be sensitive to fire and other physical damage and probably rely on regeneration from seed. *B. chartacea* is locally abundant along roadsides in logged forest in Wauchope area, in areas logged 10-20 years previously, so populations are probably resilient to selective logging at cycles of several decades.

***Bosistoa floydii*** 2RCi (2RCa with additional proposed reservation)
Distribution: Nambucca River to Richmond River, endemic in NSW.
Habitat: Subtropical rainforest (Richards cited in Harden, 1991), also occasionally wet sclerophyll forest.
Occurrence in reserves: Dorrigo NP; also proposed FR in Mistake SF which contains over 1000 individuals.
Occurrence in survey area: No records. The nearest is near Toonumbar, and there is a slight probability it may occur in subtropical rainforest at lower altitudes in Richmond Range SF.
Response to disturbance: Has been recorded from heavily logged areas, so can persist or recolonise after several decades.

***Bothriochloa biloba*** 3V
Distribution: Widespread in the northern half of NSW and extending to Queensland; also naturalized in the Central Coast subdivision of NSW.
Habitat: Woodland on poorer soils.
Occurrence in reserves: Not known to be reserved.
Occurrence in survey area: Recorded by NPWS NEFBS in grassy forest in leasehold land along Malara Creek. It may occur in similar habitats nearby along the western boundary of Billilimbra SF.
Notes: Since this species is recorded mainly from open habitats with sparse trees, it is unlikely to be adversely affected by logging, and may even be favoured by selective logging. Its current rarity is most likely a result of past agricultural clearing of favoured habitats, although it is also potentially sensitive to adverse fire and grazing regimes.

***Brasenia schreberi*** 3RC-
Distribution: Known from scattered localities in the North Coast, Central Coast and South West Plains subdivisions in NSW; it also occurs in Queensland and Victoria, and outside Australia, in Africa, Asia and America.
Habitat: Aquatic in shallow water.
Occurrence in reserves: Crowdy Bay NP.
Occurrence in survey area: No records, but may occur in lagoons.
Response to disturbance: Unlikely to be affected by forest management activities, except where there is a direct impact on water supply.

***Bulbophyllum globuliforme*** 3VC-
Distribution: McPherson Range, north to near Gladstone in Queensland (Walsh).
Habitat: Epiphytic on rainforest trees, especially *Araucaria cunninghamii*.
Occurrence in reserves: Border Ranges NP, Bunya Mountains NP (Q), Lamington NP (Q), Noosa NP (Q).
Occurrence in survey area: No records. Although the survey area is just beyond the known range, this is an inconspicuous and easily overlooked species. It possibly occurs in CMA in rainforest in Richmond Range SF, in areas where *A. cunninghamii* is common.
Response to disturbance: Decline or local extinction where its host is removed, and it is probably sensitive to changes in canopy microhabitat.

***Bulbophyllum weinthalii*** 3RCi
Distribution: Dorrigo district to southern Queensland, 600-1000 m altitude. It has recently been recorded as far north as Gladstone area (Walsh).
Habitat: Apparently virtually exclusively occurring as an epiphyte on upper branches of *Araucaria cunninghamii* in rainforest (Jones, 1988), although rarely on other rainforest tree hosts.
Occurrence in reserves: Bunya Mountains NP (Q), Dorrigo NP, Lamington NP (Q).
Occurrence in survey area: No definite records, but it is likely to occur in rainforest in Richmond Range SF in areas where *A. cunninghamii* is common.

Response to disturbance: Decline if its host (*A. cunninghamii*) is removed, or upper canopy microhabitat is altered by removal of other upper canopy species. Probably unaffected by disturbance in lower vegetation strata.

***Callistemon acuminatus*** 3RC-
Distribution: Port Stephens to Clarence River, endemic in NSW.
Habitat: Rocky dry slopes of the coastal ranges (Spencer and Lumley, 1991).
Occurrence in reserves: ?Banyabba NR, Blicks River FR, Sherwood NR, Six-B FR, Waihou FR, Yuraygir NP.
Occurrence in survey area: Not recorded, but may occur on rocky slopes in Banyabba SF. The only record which may be in the vicinity of CMA is an old ROTAP record from "Clarence Valley".
Response to disturbance: Callistemon species in general appear to be fairly resilient to disturbance and regenerate freely from seed in disturbed areas.

***Callitris monticola*** 3RC-
Distribution: NT and NC subdivisions of NSW, from Gibraltar Range NP to Tenterfield; also in south-east Queensland.
Habitat: Mostly exposed habitats in granite areas, sometimes on sandstone.
Occurrence in reserves: Bald Rock NP, Gibraltar Range NP, Girraween NP (Q), Lamington NP (Q), Main Range NP (Q), Mount Barney NP (Q), Waihou FR.
Occurrence in survey area: No records, but may occur on exposed, rocky slopes anywhere in CMA.
Response to disturbance: Unknown. Individuals are probably sensitive to physical damage and the species may rely on regeneration from seed following severe disturbance.

***Clematis fawcettii*** 3VC-
Distribution: NC subdivision, north from Richmond River; also in south-east Queensland.
Habitat: Drier rainforest, often near streams.
Occurrence in reserves: Border Ranges NP, Lamington NP (Q), Limpinwood NR Mount Barney NP (Q).
Occurrence in survey area: Recorded during survey as locally abundant in rainforest in Richmond Range SF. The population included at least 500 mature individuals.

***Corchorus cunninghamii*** 3E
Distribution: Restricted to the area from Brisbane in Queensland to Lismore. This species is currently known from only four extant populations in total (Halford 1993), three near Brisbane and the only New South Wales population at Toonumbar plantation, Toonumbar SF, first recorded by Hayes in 1945.
Habitat: Apparently restricted to the ecotone between closed forest and open forest, on hillcrests or upper slopes with southerly or south-easterly aspects. It occurs between 140 and 430 m altitude and displays no particular preference for geological substrates (Halford 1993). It is invariably associated with the exotic weeds *Lantana camara* and *Ageratina adenophora.*
Occurrence in reserves: Not known from any reserve.
Occurrence in survey area: Not recorded, but may occur in Richmond Range SF.
Response to disturbance: Halford (1993) suggests that it would be readily killed by fire and would rely on seedling establishment from a soil-stored reserve. An appropriate fire regime would be more critical than absence of fire. He also found that most seedlings occur in areas where ground disturbance has occurred, and suggested that disturbance associated with thinning in the Toonumbar hoop pine plantation site, by removing weed competition, may have prevented *C. cunninghamii* being eliminated from that site. The major threats to this species were considered to be habitat loss (mainly from urbanization) and competition from weeds, with a minor factor possibly damage by cattle grazing, since the species appears to be quite palatable.

***Dendrobium schneiderae*** 3RC-
Distribution: North from Kyogle district in NSW, to Mackay area in Q.
Habitat: Epiphytic on the upper branches of rainforest trees.
Occurrence in reserves: Border Ranges NP, Eungella NP (Q), Lamington NP (Q), Maiala NP (Q), Main Range NP (Q).

Occurrence in survey area: Previously recorded in Richmond Range SF (D. Binns, *unpubl. obs.*), on upper branches of rainforest trees, especially *Heritiera actinophylla*.
Response to disturbance: Decline where its hosts are removed, and it is probably sensitive to changes in canopy microhabitat. It would be easily killed by fire and is absent from fire-prone habitats.
Notes: This species is locally very abundant in Urbenville MA (Binns 1995) and is widespread in Queensland. It is probably inappropriately listed as a rare plant.

***Desmodium acanthocladum*** 2VC-
Distribution: Endemic in coastal areas from Lismore to Grafton.
Habitat: Mainly along rivers, details otherwise unknown.
Occurrence in reserves: Boat Harbour NR, Johnston Scrub NR.
Occurrence in survey area: No records.
Response to disturbance: Unknown.

***Dodonaea hirsuta*** 3RC-
Distribution: Restricted to the Stanthorpe-Torrington and Copmanhurst districts in northern New South Wales and southern Queensland.
Habitat: Dry sclerophyll forest and heathland on granite and sandstone.
Occurrence in reserves: Banyabba NR, Boonoo Boonoo NP, Girraween NP.
Occurrence in survey area: No records, but may occur in rocky sites in Banyabba SF.
Response to disturbance: Unknown, but other species of *Dodonaea*, such as *D. triquetra*, freely colonize disturbed habitats. It is very unlikely to occur in areas subject to logging. It would probably be depleted or locally eliminated by fires at too frequent intervals (less than 5-8 years).

***Eucalyptus dorrigoensis*** 2KC-
Distribution: Upper Macleay River to east of Tenterfield; endemic in New South Wales.
Habitat: Grassy or shrubby woodland or forest on moderately to highly fertile soils (Hill 1991).
Occurrence in reserves: Boonoo Boonoo NP, Dorrigo NP, Guy Fawkes River NP.
Occurrence in survey area: No records, but may occur in Ewingar, Billilimbra or Washpool SFs.
Response to disturbance: Regenerates well after logging, but regular grazing and burning may inhibit long term recruitment.
Notes: This species was considered not at risk by Johnson and Hill (1990). It was included in the ROTAP list only because of concerns over susceptibility to dieback (J. Briggs, *pers. comm.*). There is little evidence of dieback of this species in populations in State forests in other MAs.

***Eucalyptus dunnii*** 3RCa
Distribution: Coastal ranges and escarpment, from near Coffs Harbour to McPherson Range.
Habitat: Valleys and lower slopes or on fertile ridges, usually on moderately to highly fertile soils.
Occurrence in reserves: Lamington NP, Main Range NP, Border Ranges NP, Mount Clunie FR, Tooloom Scrub FR.
Occurrence in survey area: Locally dominant in a few small patches in Richmond Range SF, in the vicinity of Peacock Creek. Benson and Hager (1993) estimate a total of 7700 trees in these patches.
Response to disturbance: Regenerates well after logging, but regular grazing and burning may inhibit long term recruitment.

***Eucalyptus fusiformis*** 2RC-
Distribution: Southern Queensland to Kempsey, coastal districts.
Habitat: Locally frequent in wet forest on deeper soils of higher fertility.
Occurrence in reserves: Banyabba NR, Guy Fawkes River NP, Lamington NP (Q).
Occurrence in survey area: Recorded in Mount Marsh SF and may occur in Mount Belmore or Banyabba SFs, and perhaps in other parts of CMA. Its distribution is poorly known due to past confusion with other species of ironbark.
Response to disturbance: Likely to regenerate well after soil disturbance.

*Eucalyptus psammitica* 3KC-
Distribution: Confined to the Coffs Harbour and Grafton districts.
Habitat: Dry sclerophyll woodland in shallow infertile sandy soil on sandstone.
Occurrence in reserves: Banyabba NR.
Occurrence in survey area: Recorded by NPWS NEFBS in Mount Marsh SF. It may also occur in other SFs nearby on sandstone such as Mount Belmore SF and Banyabba SF.

*Eucalyptus scias* **subsp.** *apoda* 3K (2V-, Johnson and Hill 1990)
Distribution: Restricted to ranges east of Tenterfield.
Habitat: Open forest and woodland on granite-derived soils.
Occurrence in reserves: Not known to be reserved.
Occurrence in survey area: Recorded during recent survey as a few scattered individuals on rock outcrops in Billilimbra SF, with a total population of less than 50 mature individuals. It may also occur sporadically in Washpool or Ewingar SFs in similar habitat, but as a predominantly eastern tablelands and escarpment species, it is unlikely to occur elsewhere in CMA.
Response to disturbance: Likely to regenerate well after disturbance. It was noted as being "sporadic and uncommon" and "possibly at some risk from forestry activities" by Johnson and Hill (1990). Presumably the latter comment referred to the possibility of depletion by selective removal of this species from mixed stands.

*Eucalyptus tetrapleura* 2VCa
Distribution: Recorded as restricted to south of Grafton by Hill (1991), but there are ROTAP records from between Casino and Grafton, and from Girard SF.
Habitat: Localized, "in wet sclerophyll forest on moderately fertile soil" (Hill 1991), but most records actually appear to be from dry sclerophyll forest and woodland.
Occurrence in reserves: Glenugie Peak FR, Wells Crossing FR.
Occurrence in survey area: One record from Gibberagee SF.
Response to disturbance: Likely to regenerate well after soil disturbance.

*Eucalyptus rummeryi* 3RC-
Distribution: Casino to Dorrigo, endemic in NSW.
Habitat: Wet or grassy forest on fertile soils (Hill, 1991).
Occurrence in reserves: Madmans Creek FR, Steel Box FR, Tulipwood FR.
Occurrence in survey area: Restricted to Mount Pikapene SF and adjacent northern part of Mount Belmore SF, but there locally dominant in some areas where it is often associated with an understorey of dry rainforest. The total population would be well in excess of 5000 mature trees.
Response to disturbance: Likely to regenerate well after soil disturbance, but regular grazing and burning may inhibit long term recruitment. Where a rainforest understorey is present, repeated low intensity logging which prevents recruitment due to excessive competition from residual understorey may cause long term decline.

*Goodenia fordiana* 2RC
Distribution: Endemic in NSW; previously recorded from between Coffs Harbour and Bulahdelah, but recently recorded near Murwillumbah (D. Binns, *unpubl. obs.*).
Habitat: Sclerophyll forest on the lower escarpment ranges.
Occurrence in reserves: Rowleys Rock FR, Sugar Creek FR.
Occurrence in survey area: Not recorded, but likely to be widespread and scattered in wet sclerophyll and some dry sclerophyll forests.
Response to disturbance: *G. fordiana* has been observed to colonize road verges and is recorded from previously logged areas. It is unlikely to be adversely affected by disturbance due to selective logging. It is mostly recorded in areas which have remained unburnt for 10 years or more and may be sensitive to regular burning.

*Grevillea banyabba* 2VC-

Distribution: Endemic to the NSW North Coast, in the Fortis Creek-Coaldale area north of Grafton (Olde and Marriott 1994).

Habitat: In well-drained sandy soil in open eucalypt forest, on or near ridge crests (Olde and Marriott 1994).

Occurrence in reserves: Banyabba NR, where recorded as locally frequent by Sheringham and Westaway (1995); Rocky Creek NR.

Occurrence in survey area: No records, but may occur in Banyabba SF.

Response to disturbance: Unknown. It is not recorded as lignotuberous, so may be sensitive to physical damage and rely on recruitment from seed following fire or other disturbance. If so, repeated disturbance at intervals of less than five years may deplete populations.

*Grevillea beadleana* 3ECi

Distribution: Endemic in NSW, in scattered localities on the NT, but recently recorded from north of Grafton (Sheringham and Westaway 1995).

Habitat: Mostly in exposed areas on granite, but recent records from Grafton area are in dry open forest on sandstone.

Occurrence in reserves: Guy Fawkes River NP.

Occurrence in survey area: No records, but there is a remote possibility that it occurs in Banyabba SF.

Response to disturbance: Benson (1991).

*Grevillea masonii* 2E

Distribution: Restricted to a few localities near Grafton (Olde and Marriott 1994).

Habitat: Eucalypt woodland at low elevations on gravelly loam soils, considered to now occupy only highly modified sites on degraded road verges and pastureland (Olde and Marriott 1994).

Occurrence in reserves: Not known to be reserved.

Occurrence in survey area: No records. Most recent records are just south of CMA boundary, but there are old records with vague locality data which may be within the general CMA boundary. This species appears to have occurred primarily in areas favoured for agriculture and since cleared for grazing. There is a very low probability of occurrence in State forests.

*Grevillea quadricauda* 3VC

Distribution: Restricted to two localities, Helidon Hills-Murphys Creek in south-eastern Q and Mount Neville NR in northern NSW (Olde and Marriott 1994).

Habitat: Usually along creeks or drainage lines in eucalypt woodland, on gravelly loam or sand (Olde and Marriott 1994).

Occurrence in reserves: Mount Neville NR.

Occurrence in survey area: Locally common on rocky slopes, especially near gullies, in Mount Belmore SF.

*Hemisteptia lyrata* 3K

Distribution: Coastal NSW north from Taree; also in Queensland, eastern Asia and India.

Habitat: Apparently poorly known and simply recorded as 'disturbed sites'.

Occurrence in reserves: Not known to be reserved.

Occurrence in survey area: No records, and extent of occurrence difficult to predict due to lack of detailed habitat knowledge.

Response to disturbance: An annual which probably colonizes recently disturbed sites. It is unlikely to be adversely affected by logging. Its current rarity is presumably because favoured habitats have been drastically altered by agriculture or urbanization.

*Keraudrenia corollata* **var.** *denticulata* 3RC-

Distribution: Within NSW, previously only known from near Grafton and west of Sydney, but recently recorded from State Forests in Dorrigo and Urbenville M.A.s; also recorded from the Brisbane area in Queensland (Stanley and Ross, 1986).

Habitat: Recorded as mostly on sandstone (Harden 1990), but recent records are from rocky slopes on volcanic and metasedimentary substrates (Binns, in prep.).

Occurrence in reserves: Not known.

Occurrence in survey area: No records, but possibly occurs on rock outcrops or steep rocky sites.

Response to disturbance: Its occurrence in rocky sites, which usually offer some protection from frequent low intensity fire, suggests that it may be sensitive to frequent burning. The congeneric *K. hillii* has been observed to colonize freely from seed following a single high intensity fire in the Urbenville area (Binns 1995).

Comments: This taxon includes a range of disparate forms which are not satisfactorily accounted for by current nomenclature and which are currently under investigation.

***Leucopogon recurvisepalus*** 3KC-

Distribution: Coastal areas, north from Grafton district, to south-eastern Q.

Habitat: Dry sclerophyll forest and heath on sandy soil on sandstone, often rocky sites.

Occurrence in reserves: Banyabba NR, Mount Neville NR.

Occurrence in survey area: No records, but recorded within the general boundary of the area and may occur in Banyabba SF or Mount Belmore SF, on sandstone.

Response to disturbance: Unknown.

***Marsdenia liisae*** 3RC-

Distribution: Mainly eastern tableland and escarpment areas, from Hastings River to Nightcap Range; endemic in New South Wales.

Habitat: Wet sclerophyll forest and rainforest margins.

Occurrence in reserves: Banda Banda FR, Bruxner Park FR, Dorrigo NP, Guy Fawkes River NP, New England NP.

Occurrence in survey area: Known only from a few records from recent survey, in open forest near rainforest margins, in Billilimbra and Ewingar SFs. The total known population is fewer than 20 mature plants.

Response to disturbance: Many of the records are from roadsides. This could indicate that the species favours particular disturbance regimes, or could simply reflect the easier accessibility of roadsides.

***Marsdenia longiloba*** 3RC-

Distribution: Mainly coastal, north from Coffs Harbour, to south-eastern Queensland.

Habitat: Rainforest.

Occurrence in reserves: Lamington NP (Q).

Occurrence in survey area: A single specimen, without flowers, was collected during recent survey in Billilimbra SF (plot BIL007), in wet sclerophyll forest of *E. campanulata* and *E. microcorys* with understorey dominated by *Trochocarpa laurina* and *Cryptocarya rigida*, on a steep, rocky ridge. The specimen is an excellent match vegetatively with *M. longiloba*, but flowering material is desirable for confirmation. No other plants were seen in the vicinity.

Response to disturbance: Unknown.

***Melichrus*** **species A** 2E

Distribution: Endemic to the Glenreagh-Coaldale sandstone areas.

Habitat: Dry sclerophyll forest and heath on sandstone.

Occurrence in reserves: Banyabba NR.

Occurrence in survey area: No records, but may occur in Banyabba SF.

Response to disturbance: Unknown.

***Milletia australis*** 3RC- +

Distribution: North from Port Macquarie.

Habitat: Warmer rainforest on coast and adjacent ranges.

Occurrence in reserves: Border Ranges NP, Dorrigo NP, Lamington NP (Q), Mount Chinghee NP (Q), Mount Warning NP, Nightcap NP.

Occurrence in survey area: No records, but may occur in subtropical rainforest at low altitudes in Richmond Range SF.

Response to disturbance: Unknown.

*Muellerina myrtifolia* 3RC-

Distribution: From McPherson Range (north from Legume) to Rockhampton district in central Queensland.

Habitat: Dry rainforest, parasitic on *Croton* spp., *Parsonsia* spp. and *Pandorea* spp. (Stanley and Ross, 1983).

Occurrence in reserves: Coalstoun Lakes NP (Q), Main Range NP (Q); not known to be reserved in NSW.

Occurrence in survey area: Although CMA is south of the known range of this species, there are unconfirmed reports from the Dorrigo area and the species possibly occurs in dry rainforest in Mount Pikapene SF.

Response to disturbance: Unknown.

*Olearia stilwelliae* 3RCa

Distribution: Coastal ranges from Woolgoolga to Banyabba NR.

Habitat: Dry sclerophyll forest on sandy soil.

Occurrence in reserves: Locally frequent in Banyabba NR, Sherwood NR and Waihou FR (Sheringham and Westaway 1995).

Occurrence in survey area: During recent survey a few plants (< 20) were recorded near the summit of Mount Marsh, in dry sclerophyll forest.

Response to disturbance: Other species of *Olearia* (e.g. *O. flocktoniae*, *O. tomentosa*) colonize recently disturbed sites from seed and *O. stilwelliae* probably behaves similarly. It was noted by Sheringham and Westaway (1995) to occur in recently burnt areas where it appeared to have regenerated from soil-stored seed. Populations would be depleted by fires which occur at a frequency which is too high to allow soil seed stores to accumulate, but the threshold frequency is unknown.

*Owenia cepiodora* 2VCi

Distribution: Restricted to far north-eastern NSW and south-eastern Q, in the area from Bangalow to McPherson Range, with a record from Cherry Tree SF.

Habitat: Subtropical and dry rainforest.

Occurrence in reserves: Big Scrub FR, Boomerang Falls NR, Border Ranges NP, Hayters Hill NR, Lamington NP (Q), Mallanganee FR, Minyon FR, Mount Warning NP

Occurrence in survey area: A small population occurs in Mallanganee FR in Cherry Tree SF. A single isolated seedling was also recorded during recent survey in plot RIC006, Richmond Range SF, in rainforest.

Notes: The current rarity of this species is popularly attributed to heavy logging in the past which selectively removed this species, although the evidence appears to be lacking.

*Ozothamnus whitei* 3RC-

Distribution: Gibraltar, McPherson, Tweed and Nightcap ranges.

Habitat: Rocky hillsides.

Occurrence in reserves: Border Ranges NP, Lamington NP (Q), New England NP; also Gibraltar Range NP.

Occurrence in survey area: None known. Nearest confirmed record is Gibraltar Range NP.

Response to disturbance: Unknown, but the closely related *O. obovatus* is sometimes common along roadside banks.

*Paspalidium grandispiculatum* 3V

Distribution: Previously known only from a small area near Helidon in south eastern Queensland (Stanley and Ross 1989). Records from the current survey are the first for NSW and represent a significant extension of known range.

Habitat: In NSW recorded from grassy patches in canopy gaps in wet sclerophyll forest and from heath forest on sandstone.

Occurrence in reserves: Needlebark FR.

Occurrence in survey area: Recorded only from two survey plots of disparate habitat, in Gibberagee and Doubleduke SF, but probably more widespread throughout the coastal ranges on sandstone. At least several hundred plants were seen in total.

Response to disturbance: The stand in Doubleduke SF occurs in canopy gaps created by logging. The Gibberagee SF (Needlebark FR) stand is in unlogged heath woodland. It is probably resilient to logging disturbance, but is potentially sensitive to fire and grazing regimes. There was little evidence of recent grazing in either stand.

***Persicaria elatior*** 3V
Distribution: Occurs sporadically throughout coastal NSW and in Q.
Habitat: Recorded as growing in damp places, but details poorly known.
Occurrence in reserves: Not known to be reserved.
Occurrence in survey area: Recorded only in a swamp in the northern part of Richmond Range SF, where it is very localized but common, with at least several hundred mature plants.
Response to disturbance: Unknown.

***Plectranthus suaveolens*** 3KC-
Distribution: Coast and tablelands of northern NSW, north from Bulahdelah, to south-eastern Q.
Habitat: Exposed, rocky sites.
Occurrence in reserves: Banyabba NR, Boonoo Boonoo NP, Gibraltar Range NP, Girraween NP (Q), Queen Mary Falls NP (Q).
Occurrence in survey area: There are two records from the NEFBS, in plots 1103 and 1105, in grassy open forest of *E. maculata*.
Response to disturbance: The closely related, but much more abundant *P. parviflorus* freely colonizes disturbed areas, and often becomes weedy when cultivated (D. Binns *unpubl. obs.*).
Notes: The distinction between this species and *P. parviflorus* is not always clear. Specimens from rock outcrops are usually most distinct, while those from forest habitats are generally much more similar to *P. parviflorus*.

***Pteris comans*** 3RC-+
Distribution: Recorded from the NC and Central Tablelands subdivisions of NSW, and also from Queensland, Victoria, Tasmania, New Zealand and Pacific Islands.
Habitat: Wet places in rainforest or tall open forest.
Occurrence in reserves: Border Ranges NP, Guy Fawkes River NP, Mount Warning NP, New England NP, Numinbah NR.
Occurrence in survey area: Not recorded, but probably occurs sporadically along the escarpment forests in CMA. Likely occurrence is difficult to predict from available records, which are infrequent and widely scattered.
Response to disturbance: Unknown. Its congener, *P. tremula*, is a widespread weedy species which freely colonizes highly disturbed areas, but there is no evidence of *P. comans* occurring in such habitats.

***Pterostylis woollsii*** 3RC-
Distribution: Widespread but scattered, from Victoria to the granite belt in south Queensland, mostly along the ranges and western slopes.
Habitat: Among rocks on ridges and slopes and among grass in sclerophyll forest.
Occurrence in reserves: Girraween NP (Q), Mount Arthur Range NP.
Occurrence in survey area: No records in CMA, but previously recorded in a patch of open woodland in unimproved pasture adjacent to Richmond Range SF (D. Binns, *unpubl. obs.*). This is mainly a western slopes and tablelands species which is often associated with *Callitris* woodlands, and coastal records are rare. If it occurs in CMA it is likely to be rare and localized, and most likely in drier, open habitats.
Response to disturbance: The geophytic habit would confer a high degree of resilience to damage to above ground parts, but regular damage (e.g. by fire or grazing) may cause long term decline. It is probably sensitive to severe soil disturbance and because of specific mycorrhizal relationships is expected to be slow to recolonize where populations are depleted. It is most sensitive during the active growth phase, approximately May to December. Although high grazing intensity may be detrimental, some grazing in appropriate seasons is likely to be beneficial by removing competing vegetation.

***Rapanea* species A**
Distribution: Restricted to the area from Coraki to Mount Warning.
Habitat: Subtropical rainforest.
Occurrence in reserves: Cambridge Plateau FR.
Occurrence in survey area: Known only from Cambridge Plateau FR, in rainforest (Sheringham and Westaway 1995).

***Sarcochilus fitzgeraldii*** 3VC-
Distribution: North from Macleay River, to Maleny (Q) (Jones, 1988).
Habitat: Lithophyte in shady places (Jones, 1988).
Occurrence in reserves: Dorrigo NP, Lamington NP (Q), Limpinwood NR, Main Range NP (Q), Mount Warning NP, Numinbah NR, ?Werrikimbe NP.
Occurrence in survey area: No records. Although CMA is within the extremes of the known range, this is well known to orchid enthusiasts and the lack of reliable records between the latitudes which bound CMA most likely indicates a true disjunction in distribution, rather than occurrences being overlooked.
Response to disturbance: Probably very sensitive to changes in microhabitat, but rocky habitats unlikely to be disturbed. Populations have declined drastically due to illegal commercial collecting for horticultural purposes.

***Sarcochilus aequalis*** 3RC
Distribution: Clarence to Manning Rivers, endemic in NSW (Jones, 1991 )
Habitat: Lithophyte, usually in shady places.
Occurrence in reserves: Dorrigo NP, Werrikimbe NP.
Occurrence in survey area: No records. CMA lies between the ranges of *S. aequalis* and *S. hartmannii*, geographically separate taxa which were previously considered to belong to a single species. As for *S. fitzgeraldii*, this appears to be a real gap in distribution and the species probably does not occur in CMA.
Response to disturbance: Probably very sensitive to changes in microhabitat, but rocky habitats unlikely to be disturbed. Populations have declined drastically due to illegal commercial collecting for horticultural purposes, and this continues to be a major threat to the species.

***Sarcochilus weinthalii*** 3VC-
Distribution: Coastal ranges north from Richmond River, 400-600 m altitude, as far north as Toowoomba in Q.
Habitat: Epiphytic on rainforest trees.
Occurrence in reserves: Bunya Mountains NP (Q), Lamington NP (Q), Main Range NP (Q).
Occurrence in survey area: There are records from subtropical rainforest in Richmond Range SF , where it is probably localised and uncommon. It is unlikely to occur elsewhere in CMA.
Response to disturbance: Decline where vegetation structure is substantially modified, due to specific microhabitat and host substrate requirements.

***Schistotylus purpuratus*** 3RCi
Distribution: Mainly Lismore, Dorrigo and Walcha districts (Jones 1988) in NSW, and near Brisbane in south-eastern Q.
Habitat: Rainforest and swampy heath. Jones (1988) reports it as uncommon and occurring in cool temperate rainforest above 750m. It also occurs in wet sclerophyll forest (Binns and Chapman 1993).
Occurrence in reserves: Border Ranges NP, Deervale NR, Dorrigo NP, Werrikimbe NP.
Occurrence in survey area: No records, but it is an inconspicuous species which is easily overlooked. The most likely areas of occurrence in CMA are Richmond Range SF and Ewingar, Billilimbra and Washpool SFs. If it does occur in the area, it is probably localized and uncommon.
Response to disturbance: Decline in the short term where vegetation structure is substantially modified, due to specific microhabitat requirements, but probably capable of fairly rapid recolonisation of suitable habitat (Harrison 1981).

*Senna acclinis* 3RC-
Distribution: Coastal areas, mostly north from Bulahdelah, to Queensland.
Habitat: Subtropical rainforest.
Occurrence in reserves: Brolga Park Reserve (Q), Toonumbar NP
Occurrence in survey area: No records, but may occur in or near rainforest in SFs on Richmond Range.
Response to disturbance: Unknown. Some other species of *Senna* germinate readily following soil disturbance or fire.

*Sophora fraseri* 3VC-
Distribution: Coast north from Casino, to Queensland.
Habitat: Moist habitats, often near rainforest.
Occurrence in reserves: Lamington NP, Mount Mistake NP.
Occurrence in survey area: No records, but may occur in or near rainforest at lower altitudes.

*Tinospora tinosporoides* 3RC-
Distribution: Coastal areas north from Richmond River.
Habitat: Wetter subtropical rainforest.
Occurrence in reserves: Boat Harbour NR, Burleigh Heads NP (Q), Davis Scrub NR, Johnstons Scrub NR, Minyon Falls FR, Mount Warning NP, Victoria Park NR.
Occurrence in survey area: No records, but it may occur in or near subtropical rainforest at low to mid altitudes. The most likely area of occurrence is Richmond Range SF. The nearest record to CMA SFs is from O'Donnells Creek, Toonumbar SF.

*Trichosanthes subvelutina* 3RC-
Distribution: Coastal areas north from Richmond River to Queensland.
Habitat: Rainforest, rainforest margins and moist eucalypt forest.
Occurrence in reserves: Boat Harbour NR, Davis Scrub NR, Johnstons Scrub NR, Lamington NP (Q), Mount Warning NP, Victoria Park NR, Warrie NP (Q).
Occurrence in survey area: No records, but it may occur in or near subtropical rainforest at low to mid altitudes. The most likely area of occurrence is Richmond Range SF.

*(b) Other species and records of significance*

*Abildgaardia vaginata* (4 8S)
Recorded as very abundant in parts of Royal Camp SF, in recently logged areas in heath forest, and recorded by Austeco in Doubleduke SF.

*Acacia juliflora* (4? 8S)
Recorded only in a single NEFBS plot (NP1014) in Tabbimobile SF.

*Amyema conspicuum* (3 8S)
In NSW recorded only from coastal areas north from Ballina, as a parasite commonly on *Alphitonia*, in rainforest and sclerophyll forest. In CMA non-flowering individuals which are probably this species were recorded during recent survey from Ellangowan SF.

*Aristida acuta* (4 8S)
Recorded only at a single plot in Royal Camp SF.

*Arthrochilus prolixus* (4)
Occasional in sandy soils in Mount Belmore SF.

*Astrotricha cordata* (3 7 8S)
In NSW recorded only from the Mount Neville area, in dry sclerophyll communities, mainly on rocky slopes and near cliffs. In CMA it is locally common in sandy soil on roadsides and rocky slopes in Mount Belmore SF. During recent survey, individuals were noted to regrow vegetatively from low intensity fire, but would probably be killed by moderate intensity fire.

***Bulbophyllum bracteatum*** (2 8S)
Occurs in North Coast and Northern Tablelands subdivisions, north from Gibraltar Range, to south east Q, mainly as an epiphyte in rainforest but sometimes on rocks. It is common in several flora reserves in Urbenville MA and in Boonoo Boonoo NP, and almost certainly Border Ranges NP. It is also recorded from Dorrigo and Cathedral Rocks NP. In CMA it is locally common in the upper canopy of rainforest in Richmond Range SF.

***Chiloglottis diphylla*** (4 8N)
Regarded as extinct in the area by Sheringham and Westaway (1995), but recorded commonly during recent survey in a range of habitats on sandstone, in Mount Belmore SF, Doubleduke SF and Gibberagee SF. It was found to be especially abundant in logged wet sclerophyll forest. It no doubt has been previously overlooked or confused with *C. reflexa* s. lat.

***Corybas barbarae*** (3)
Occurs on sheltered slopes in coastal areas, north from Hornsby. Recorded during recent survey only on a steep slope in wet sclerophyll forest in Billilimbra SF, but probably more widespread.

***Curculigo ensifolia*** (4)
Fairly common on seasonally swampy flats in Braemar and Gibberagee SFs. It is also recorded from Bundjalung NP (Sheringham and Westaway 1995).

***Dichanthium setosum*** (4)
Recorded only in a single NEFBS plot in grassy forest in Ewingar SF.

***Digitaria* sp. aff. *oraria***
In CMA, only scattered individuals of this taxon were recorded on sandy soils in grassy forest in Bungawalbin SF. Its taxonomic status is uncertain. It is closest to *D. oraria*, which is recorded from Queensland and Northern Territory, but has not previously been recorded from NSW.

***Enneapogon nigricans*** (4)
Recorded at a single NEFBS plot in grassy forest in Ewingar SF, growing with other significant species *Dichanthium setosum* and *Pterocaulon redolens*. It also occurs in Bald Rock NP.

***Enteropogon unispiceus***
This species appears to be widespread in south-eastern Queensland (Stanley and Ross 1989) but has not previously been recorded from NSW. During the current survey it was recorded as locally common in Braemar and Ellangowan SF, to the extent of being the dominant ground cover in some areas. It was not listed by Sheringham and Westaway (1995).

***Eragrostis benthamii*** (4)
Although listed as regionally uncommon, this species was found to be widespread and often locally abundant during recent survey. It is also recorded from five NPWS reserves in the Upper North East. It should not be considered of regional significance.

***Eragrostis leptocarpa*** (4)
Recorded only in two logged NEFBS plots in Sugarloaf SF. It is also recorded from Mann River NP.

***Eragrostic trachycarpa*** (5?)
Recorded only at a single Austeco plot in Mount Belmore SF.

***Eriachne glabrata*** (4)
During recent survey, found to be locally common in several areas in Mororo and Whiporie SFs, in patches of impeded drainage among *Ptilothrix deusta* in *E. signata* woodland. It is reserved in Moonee Beach NP.

***Galactia* species B** (3 8N)
Recorded from sclerophyll forest, near watercourses, north from Grafton district, to Queensland. In CMA it is known only from a single Austeco plot in Mount Belmore SF.

***Hibbertia acuminata*** (6)
This species is locally common in heath forest and woodland, on rocky slopes on sandstone, in Gibberagee and Mount Belmore SFs. It also occurs in Banyabba NR.

***Hibbertia marginata*** (6)
Widespread and often locally abundant on sandstone, especially in heath forest and woodland on rocky ridge crests and slopes. It mostly occurs in areas subject to little or no logging activity. Although endemic to the subcoastal sandstone ranges of the Clarence and Richmond valleys, it is sufficiently widespread and common within the region that it need not be considered of particular conservation significance in a forest management context. It is reserved in Mount Neville NR.

***Hoya oligotricha*** (5 7)
This species is fairly common in Mount Pikapene SF and nearby areas, where it appears to be largely restricted to dry rainforest. It is recorded from Border Ranges and Bundjalung NPs and Brunswick Heads and Ukerebagh NRs.

***Hygrophila angustifolia*** (3 8S)
Widely distributed in northern and north-eastern Australia, but in NSW occurring only in coastal lowlands north from Casino, in swamps and along creek banks. During recent survey it was recorded as locally common in Braemar SF.

***Iphigenia indica*** (3 7 8S)
Although only recently recorded in NSW (Binns 1995), during recent survey this species was found to be locally abundant in grassy forest, especially among *Imperata cylindrica*, in several localities in CMA, especially Mount Marsh SF and Mount Belmore SF. It also was recently found to be very abundant in Ramornie SF in Grafton MA during a brief inspection (D. Binns, *unpubl. obs.*, March 1995). It appears that *I. indica* is actually quite common in north-eastern NSW and has simply been previously overlooked. It should not be considered of conservation significance.

***Isopogon mnoraifolius*** (6)
In CMA it is locally common in low *E. signata* woodland in Whiporie SF. It is reserved in Bundjalung and Yuragir NPs and Banyabba NR.

***Isotoma fluviatilis*** (4? 7?)
There is a single record of this species from Austeco plot A00007, in Doubleduke SF. As this species is otherwise recorded only from high altitude bogs in northern NSW, this record requires confirmation.

***Leptospermum polyanthum***
Locally dominant in shrubland on a rock outcrop in Mount Marsh SF. This species was not listed by Sheringham and Westaway (1995) because it apparently had not previously been recorded for their study area.

***Keraudrenia* sp. aff. *hillii***
Recorded only from shrubland on a rock outcrop in Mount Marsh SF.

***Macrozamia fawcettii*** (6)
Although assessed as a regional endemic, this species is very widespread and often common throughout the sandstone areas of the subcoastal ranges and was recorded from a total of 17 survey plots in CMA. It is not considered of particular conservation significance in a forest management context. It occurs in Washpool and Yuragir NPs and Mount Neville and Sherwood NRs.

***Melaleuca tamariscina* subsp. *irbyana*** (3 8S)
Occurs in open eucalypt forest on poorly drained sites, north from Casino. Recorded from a single NEFBS plot in Braemar SF, and also known from Selection Flat FR.

***Mirbelia speciosa* subsp. *ringrosei*** (4 8S)
Locally common on rocky sandstone ridges and slopes in Mount Belmore SF.

***Notothixos incanus*** (5)
Locally common as a parasite on species of Melaleuca in Tabbimoble and Braemar SFs. It is reserved in Yuragir NP.

***Prostanthera melissifolia*** (4 7 8N)
Specimens which appear to match this species were recorded as locally common on a steep, rocky slope in Billilimbra SF.

***Pseudanthus orientalis*** (4)
A single record from a swampy sedgeland in Whiporie SF. It is reserved in Broadwater, Bundjalung and Yuragir NPs.

***Pterostylis daintreana*** (4)
A small population was recorded during recent survey on a rock outcrop in Mount Marsh SF.

***Pterocaulon redolens*** (4 8S)
Recorded at a single NEFBS plot in grassy forest in Ewingar SF. It is reserved in Nymboida NP.

***Rulingia* species** (1)
This species has not previously been recorded from NSW and thus was not listed by Sheringham and Westaway (1995). It was recorded only as a small population (less than 50 individuals) in recently burnt patches of shrubland on a rock outcrop in Mount Marsh SF. It is apparently not uncommon in the Darling Downs district of south east Queensland (Stanley and Ross 1986).

***Sarcochilus spathulatus*** (5)
Recorded as locally common in wet sclerophyll forest in Billilimbra SF. This species appears to be frequently overlooked or confused with other species of Sarcochilus when not flowering, and is much more common than usually thought (D. Binns, *unpubl. obs.*). It is doubtfully of regional conservation significance. It is known from Border Ranges NP and Limpinwood NR, but almost certainly is much more widespread in reserves.

***Sauropus* species A** (3 8S)
In NSW, this species is known only from grassland and grassy forest in the Grafton and Casino areas. During recent survey it was found to be widespread and often common in most SFs in low-lying coastal areas, such as Braemar, Ellangowan and Myrtle SFs. It may be deciduous, with shoots being renewed each season from woody rootstocks, and appears to have been largely overlooked previously. It is doubtfully of regional conservation significance.

***Schoenoplectus validus*** (5)
Recorded only in a single swamp in Richmond Range SF. This swamp appears to be floristically unique in CMA and also supports the rare species *Persicaria elatior*. *S. validus* is reserved in Mann River NP.

***Senna odorata*** (4?)
Recorded at a single NEFBS plot in recently logged wet sclerophyll forest in Cherry Tree SF.

***Tephrosia brachyodon*** (4? 7)
Recorded from CMA only in grassy forests in Ewingar SF.

***Tricoryne anceps* subsp. *pterocaulon*** (3 8S)
This species occurs in coastal areas north from Coffs Harbour, in sclerophyll forest and sometimes swampy areas, in lateritic, quartzitic and sandy soils derived from sandstone. In CMA it occurs sporadically, but is sometimes locally abundant, in Doubleduke SF (Austeco) and Gibberagee SF (Binns), usually in heath forest. It is reserved in Banyabba NR.

***Tylophora benthamii*** (4?)
This is normally a species of rainforest on coastal lowlands in NSW. The only record for CMA is an apparently disjunct population recorded during recent survey in wet sclerophyll forest in Richmond Range SF. The species was noted to be common over an area of at least ten hectares, and was freely regenerating, apparently vegetatively, in a recently logged patch. *T. benthamii* is reserved in Border Ranges and Yuragir NPs and Iluka NR.

***Vetiveria filipes*** (3? 7)
Occurs in Northern Territory, Queensland and the NC and North Western Plains subdivisions of NSW, on river banks and floodplains. The only record from CMA is a small population along roadsides in Ellangowan SF, but it was also recorded in a NEFBS plot on leasehold land.

## *2. CONSERVATION STATUS OF EUCALYPT OVERSTOREY COMMUNITIES*

Hager & Benson (1994) have summarized conservation status of overstorey associations in north-eastern NSW. This provides a reasonable basis for conservation assessment, but there are considerable difficulties due to the lack of adequate site-specific data for the existing reserve system state-wide. There is also a problem with the arbitrary nature of the 10% minimum required for adequate reservation, which although widely accepted, has no scientific basis and is not necessarily appropriate in a managed forest context. There is a further problem with the very subjective nature of the community definitions which cannot be related to a consistent data base. Some associations clearly need more investigation and as currently defined appear to include a range of species assemblages, or do not adequately reflect assemblages as they occur in the field. This is particularly so for the complex of dry and 'mixed' forest communities in which species such as *E. siderophloia*, *E. carnea*, *E. tindaliae*, *E. acmenoides* or *E. intermedia* are common. Despite these problems, Hager and Benson's assessment is used here to identify communities of potential conservation significance.

Conservation status of overstorey communities has been summarized in Table 7 above. Communities 14.1, 15.1, 15.2, 25.1, 25.2, 25.3, 29, 32, 35 and 40 are clearly related or equivalent to associations assessed as adequately reserved, at least in the north zone which includes Casino MA. Most other communities are related to inadequately reserved associations as indicated in Table 7.

## *3. CONSERVATION STATUS OF MAPPED FOREST TYPES*

Since Forest Types have been consistently mapped across the whole CMA, conservation status of mapped types is assessed on the basis of overstorey composition as sampled. Site quality subclasses, and composite subtypes, where mapped, are aggregated for this purpose, except where the overstorey composition appears to be floristically distinct. Table 8 summarizes this assessment, allowing for minor discrepancies resulting from differences of scale between sample plots and mappable units, and bearing in mind that Hager and Benson's associations are broadly defined. Thus, if over 50% of sample plots match adequately reserved associations, and the nominal composition of the mapped type matches an adequately reserved association, the type is assessed as adequately reserved. Mapped types 37, 38, 41, 53, 97, 117 and 126 clearly meet these criteria. Map types 47 and 163 meet the criteria in most of CMA, but stands in the unlogged southwest portion of Billilimbra SF have a high proportion of *E. laevopinea* and more closely match inadequately reserved associations. They are assessed as inadequately reserved despite their nominal status as adequate. Both plots in map type 46 were classified with the adequately reserved CASov 15.1 but there may be patches of this type which are more clearly dominated by *E. saligna* and thus more appropriately assessed as inadequate. Even

though map type 119 nominally matches the inadequately reserved EF235c, the three sample plots in this type were clearly dominated by *E. signata* and classified with the adequately reserved CASov 29. Map unit 128, nominally *E. piperita*, is mistyped or a result of a typographical error, since *E. piperita* does not occur in CMA. The patch inspected was dominated by *E. planchoniana* and thus assessed as EF261a, although the survey plot was in an atypical area at the edge of the stand.

**Table 8.** Conservation status of mapped forest types (rainforest excluded).
Species listed in parentheses occur in less than 75% of plots but are common in some plots. H&B is the most similar association defined by Hager and Benson (1994), based on plot data, or where plot data are very variable, their assessment of FCNSW Forest Types. Where plot data are very variable and substantial discrepancies exist, the map type is assumed to be inadequately reserved. na = not assessed by Hager and Benson (1994). Map type 47 in Billilimbra SF included areas of community 14.2, assessed as inadequately reserved.

| Map type aggregate | No. plots | Main species in survey plots | Main communities | H&B Cons. status | |
|---|---|---|---|---|---|
| 30 | 2 | E. resinifera, E. robusta | 21.1, 34 | ?EF099 | 2 |
| 31 | 4 | E. resinifera, Melaleuca quinquenervia E. propinqua, E. siderophloia, E. intermedia | 19.2, 39.1 | ? | ?2 |
| 32 | 1 | Lophostemon suaveolens, Casuarina glauca | 35 | EF002a | na |
| 36 | 13 | E. pilularis, (Syncarpia glomulifera, Lophostemon confertus) | 21.4, 26, 27.1 | EF145a | 2 |
| 37 | 10 | E. pilularis | 27.1, 27.2 | EF145a | 4 |
| 38 | 4 | E. pyrocarpa, E. gummifera | 25.1, 27.2, 30, 31 | EF147a | 4 |
| 39 | 4 | E. pilularis, (E. henryi) | 24.2, 27.1 | EF040e | 2 |
| 40 | 10 | (E. pilularis, E. resinifera) | 27.1, 27.2, 30 | ? | ?2 |
| 41 | 4 | E. planchoniana, E. intermedia | 27.1, 26 | EF145a, d | 4 |
| 46 | 2 | Lophostemon confertus, E. saligna | 13 | EF001a, ?011a | 2 |
| 47 | 8 | E. microcorys, E. saligna | group 14 | EF011b, 479e | 4, 2 |
| 48 | 8 | E. grandis | 12 | EF010a | 2 |
| 49 | 2 | L. confertus, Syncarpia glomulifera | 13 | EF001a, ?003a | 4, 1 |
| 51 | 1 | E. dunnii | 11 | EF013a | 2 |
| 53 | 7 | Lophostemon confertus | 13, 14.2, 14.3, 21.5 | EF001a | 4 |
| 60 | 5 | E. intermedia, E. microcorys | 15, 17.2, 22.1 | ?EF095a | 1 |
| 62 | ? | various | various | ?group EF075 | 2 |
| 65 | 7 | E. tereticornis, Angophora woodsiana | 39.2 | EF050d | 2 |
| 70 | 2 | E. intermedia, (E. henryi) | 17.1, 24.3 | EF040a | 1 |
| 71 | 8 | E. maculata | group 21 | group EF040 | 1-2 |
| 72 | ? | E. maculata, E. henryi | groups 21, 24 | group EF040 | 1-2 |
| 74 | 9 | (E. henryi, E. tindaliae, E. maculata) | groups 21, 24 | group EF040 | 1-2 |
| 76 | 2 | various | 24.3, 30 | EF040a | 1 |
| 80 | 3 | E. siderophloia, (E. moluccana) | 19.2, 19.1 | EF710a, 710d | 1 |
| 82 | 1 | E. moluccana | 19.2 | EF710a | 1 |
| 83 | 1 | E. siderophloia, E. intermedia | 19.1 | EF710d | 1 |
| 84 | 4 | E. tindaliae, E. siderophloia | 17.2, 19.1, 29.2, 29.3 | ? | 1-4 |
| 85 | 3 | various | 19.1, 19.2, 39.1 | group EF710 | 1 |
| 87 | 3 | E. rummeryi | 38 | EF706a | 1 |
| 92 | 6 | E. tereticornis | various | ?group EF050 | 2 |
| 97 | 3 | (E. planchoniana) | 25.2, 25.3, 28.2 | EF261a, 262b | 4 |
| 117 | 2 | E. signata | 33 | EF235a | 4 |
| 119 | 4 | E. signata | 33 | EF235a | 4 |
| 126 | 2 | Angophora woodsiana | 29.2, 25.3 | EF260b | 4 |
| 128 | 1 | - | | EF261a | 4 |
| 129 | 3 | Angophora woodsiana | 30 | EF200a | 1 |
| 130 | 3 | Lophostemon suaveolens | 22.2, 30, 32 | ? | ?4 |
| 163 | 4 | E. campanulata, E. microcorys | 40 | EF505a | 4 |
| 207 | 1 | E. propinqua, E. melanophloia | 20.1 | EF606a | 1 |

## *4.IMPACT OF LOGGING*

As described under Results, logging impact was assessed by comparing plots which were unlogged but potentially able to be logged, with logged plots of different logging histories. Plots in rainforest or non-forest communities (shrubland, sedgeland) were excluded from this analysis. Since no pre-logging data were available for these plots, such a comparison actually only measures differences between sites. The extent to which these site differences may be attributed to logging impact needs to be cautiously interpreted relative to other factors likely to contribute to variation in vegetation. This is a very well-recognized problem associated with any 'retrospective' survey of this kind, but the constrained ordination method used is potentially a powerful tool for separating possible logging impacts from floristic patterns associated with other measured environmental features. An alternative would be to predict logging impact on the basis of known ecology and expected responses of individual species. Since the ecology of very few species is known sufficiently to make reasonable predictions, and because responses will vary according to environmental conditions and interactions with other species, such an approach will yield even less reliable inferences than a comparison of plots of different histories. Thus, despite the problems, a retrospective approach seems the far better alternative within the time constraints for this survey.

If logging impact on floristic composition was major relative to variation due to other factors, such that logging history had an overriding influence of floristic patterns, the ordination could be expected to show clear separation due to logging history. In fact, it is clear from the ordination results that, at a broad scale, logging history has little effect on floristic composition relative to the influence of other environmental factors, and the data do not suggest any clear successional patterns in relation to logging. The ability of the survey to detect logging impact is constrained by the lack of pre-logging data at individual sites as mentioned above and by interactions between logging history and other factors. For the purpose of detecting impacts, the sampling intensity is low relative to floristic heterogeneity throughout the area, and more subtle impacts of logging would be masked by the overall high level of floristic heterogeneity. Higher sampling intensity may allow detection of more subtle impacts, but interactions of logging with other factors will confound interpretation of apparent impacts. The historical distribution of logging in respect of environment (e.g. the tendency for most unlogged wet sclerophyll forest to occur at higher altitudes in escarpment forests) is such that it is not possible to adequately control for other environmental variables.

The data strongly suggest that there is no adverse impact of logging on floristic richness of native species at a local or broader scale, at least within a broad vegetation group. However, a large proportion of species is recorded at low frequency (e.g. 56% of all species are recorded at fewer than five plots). Some of these are not recorded from logged areas. For these, which are most likely to include the species of greatest potential conservation concern, there is insufficient information to confidently predict logging impact. A major research effort, involving detailed monitoring, will be necessary to determine response to logging for most species, and to determine whether the apparent absence of some species from logged areas is real or due to other factors unrelated to logging. Further survey of reserves and areas which will otherwise remain unlogged will be necessary to determine the broader significance of any adverse logging impact. In the absence of this information, it is important to ensure that samples of the full range of forest growth stages, including unlogged areas, representing the range of communities, is maintained.

## *5.IMPACT OF FIRE*

Even using a single very crude measure of fire history (estimated time since most recent fire), which is only loosely related to fire frequency, the results of analyses described above are very striking, with fire age being the variable of single greatest importance in relation to broad floristic patterns. To a considerable extent, it appears to override the effect of other environmental factors such as temperature and rainfall, although there are clearly interactions between these factors which probably tend to reinforce differences due to fire regime.

The role of fire management in regulating the relative distribution of heath and grassy forests compared to wet sclerophyll forests is clear in broad terms. The more subtle impact of particular fire regimes in dry forests is much less clear. It is well recognized that shrubs which are fire sensitive and which rely on regeneration from seed will be depleted by fires which recur at intervals of less than the maturation period of the species. A high fire frequency also has the potential to deplete the capacity for vegetative regeneration of those species which are resilient to a single event. It might be expected from this that a heath shrub understorey would be converted to grassy understorey with frequent fire. However, survey data from CMA suggests that the patterns are more complex and subtle than this, and that the major structural and floristic features of heath forest are maintained even at what are inferred to be high fire frequencies (3-5 year intervals), due to the high proportion of shrubs which are fire resistant. Adverse impacts of frequent fire in dry forests is most likely to be on less frequent species whose contribution to overall floristic patterns is too subtle to detect with existing data. These are also the species of greatest conservation concern, but too little detail of their individual ecology is known to confidently predict which particular species are likely to be most sensitive to adverse fire regimes.

Frequent fires in areas where *Melaleuca* species are common as mature trees are of particular potential concern, because the bark is highly flammable and even relatively low intensity fires appear to burn a large proportion of the outer bark. While the trees recover, there is some evidence that in the absence of such fires, these communities would support a distinctive epiphyte flora, possibly including significant species such as *Oberonia titania.*

## *6. IMPACT OF GRAZING*

No attempt was made to analyze grazing impacts from survey data, because of the difficulty of estimating grazing history at any one site, and the difficulty of separating browsing by domestic stock from browsing by native herbivores. Domestic grazing has the potential to change vegetation structure and floristic composition by trampling and selective browsing. Trampling and browsing is potentially a serious problem in small, heavily used areas, such as along watercourses or in favoured camp sites. In such areas, species which are sensitive to physical damage are likely to be reduced in abundance or eliminated, and weedy exotics may colonize severely disturbed sites. Due to the low stocking rate overall (estimated at 1 beast per 20 ha), these impacts would be generally very minor except in such areas. The most likely adverse impact of grazing overall is possible reduction in populations of highly palatable or otherwise selectively grazed species. Because domestic grazing has been practised in most of the grassy forests of the area for at least 150 years, and because the plant species most affected are herbaceous species with short reproductive cycles, there is a high probability that any adverse impact of grazing is likely to have already occurred, and the risk of further deleterious impact from continuing current practises is probably low. However, it is possible that domestic grazing is responsible for some less common species maintaining low population levels, with detrimental longer term consequences.

## *7. WEEDS*

Weed species (naturalised exotics) form a relatively small proportion (less than 4%) of the overall flora of the area. Most are a minor component of the vegetation generally and most are recorded at low frequency, with very few species recorded at more than five percent of survey plots. Some, such as *Bidens pilosa, Cirsium vulgare, Hypochoeris radicata, Sigesbeckia orientalis* and *Conyza* spp. are fairly widespread and occasionally locally abundant. These are short lived herbs which tend to colonize recently disturbed areas and die out in the absence of further disturbance. *Sigesbeckia orientalis* in particular is often locally abundant in grassy forest in the first 1-2 years after fire. *Lantana camara* is potentially the most serious weed in the area from a flora conservation perspective, as it often occurs in very dense thickets in which the abundance of native species may be reduced. The greatest numbers of weed species often occur in severely and chronically disturbed areas, such as roadsides, partially cleared areas which have been heavily grazed, or along the more accessible parts of larger creeks, due to a combination of grazing and regular flood scouring.

# *RECOMMENDATIONS*

## *1. INTRODUCTION*

From a forest management perspective, the major issue in relation to flora conservation is logging, because of the potential commercial impact of modification of logging to meet flora conservation objectives. Logging clearly changes vegetation structure and has some impact on floristic composition. Although there is no evidence of any species becoming locally extinct, and very few suffering substantial population declines due to logging, very little is actually known of the response to logging for the vast majority of plant species. Evidence from the subject survey and other recent surveys suggests that most of the more widespread and common species are unaffected, although a few may reduced in abundance, at least temporarily, and there is potentially a suite of less common species which may be adversely affected. The current lack of detailed knowledge of responses of individual species to disturbance prevents management for particular species or assemblages of species. It is also currently not possible to confidently determine, for the majority of species, which species are sensitive to logging or other management practices and thus need particular attention. This is especially true for those which are less common and thus likely to be of greatest conservation interest, although the small subset of such species of recognised national significance can often be simply accommodated by ensuring known populations are excluded from logging. Refined management for flora conservation will be possible only with much more information on disturbance response of individual species. This requires a long-term, well-planned monitoring system.

Although logging impact on flora is relatively benign in the sense that for most species it is unlikely to lead to drastic long term population depletion, the lack of detailed knowledge means that appropriate reservation of representative communities in as little-disturbed state as possible is the major strategy currently practical to ensure maintenance of floristic biodiversity and other flora conservation values. As a general principle this is clearly a desirable and well accepted precautionary strategy.

## *2. NATIONALLY SIGNIFICANT SPECIES*

In assessing the need for mitigation measures, the following general principles were applied in respect of nationally significant species.

1. Known occurrences of a species in SF, or at least a substantial proportion for species which are locally common and known from several areas, should generally be excluded from logging unless there are specific features of habitat or biology which suggest that other actions are more appropriate.

2. It is not necessary to conduct further surveys or to formally reserve species which are known to occur exclusively in rainforest.

3. It is not necessary to conduct further surveys for species which occur mostly on rocky slopes or other habitats not affected by harvesting, but known populations will be reserved.

4. It is not cost-effective to survey for species which have a low probability of occurrence in CMA and for which likely areas of occurrence are difficult to predict due to poorly known habitat requirements or sporadic occurrence in extensive habitats over a wide geographical range.

5. For species which are recorded generally within the boundary of CMA, but for which habitat requirements are known only in general terms, further survey is proposed only if a known record is within 5 km of a State forest boundary.

Each nationally significant species was considered in relation to these principles and its likely individual requirements and ameliorative measures proposed accordingly. These are summarized below, including specific proposals (listed below) to fully cover points 1 and 3 where appropriate.

(a) The following species are considered to have a low probability of occurrence in State forests of CMA, because they are conspicuous and would be expected to have been recorded if present. No further action is proposed for these. All are either adequately represented in existing reserves, or occur predominantly in rainforest or other habitats not directly affected by logging.

*Amorphospermum whitei* 3RCa
*Austrobuxus swainii* 3RCa
*Bosistoa floydii* 2RCi
*Sarcochilus fitzgeraldii* 3VC-
*Sarcochilus aequalis* 3RC-

(b) Species which may occur in State forests of CMA and which are generally widespread outside the area, but for which habitat requirements are poorly circumscribed, except in general terms. The most likely areas of occurrence are difficult to predict with accuracy, and general pre-logging surveys will have a low probability of success. No particular proposals or surveys are suggested for these, but they should be considered during pre-logging surveys for other species.

*Acianthus amplexicaulis* 3RC-
*Arthraxon hispidus* 3VC-
*Goodenia fordiana* 2RC
*Hemisteptia lyrata* 3K
*Pteris comans* 3RC-+
*Pterostylis woollsii* 3RC-
*Senna acclinis* 3RC-
*Sophora fraseri* 3VC-

(c) Species which may occur in CMA, but which occur elsewhere predominantly on rocky slopes, and which will not be affected by logging. They may benefit from general reductions in fire frequency in dry forest, but no specific action for further survey or management is proposed.

*Callistemon acuminatus* 3RC-
*Callitris monticola* 3RC-
*Dodonaea hirsuta* 3RC-
*Grevillea beadleana* 3ECi
*Keraudrenia corollata* 3RC-
*Ozothamnus whitei* 3RC-

Proposed action for other species:

*Acomis acoma* 3RC-
All known populations in CMA are on road verges. Roadside grading and other maintenance should be excluded from known stands, but should be continued in adjacent areas to encourage spread of the species. There should be no roadside spraying with weedicides in the vicinity of known populations.

*Angophora robur* 3RC
Pre-logging surveys in dry forest on sandy soils in Banyabba SF. Any populations found should be excluded from logging.

*Boronia chartacea* 3RC-
In CMA, this species is largely restricted to gullies in areas of rocky slopes and low commercial timber value. Logging is not expected to pose a threat, and stands occur in microhabitats which are protected from frequent fires and probably only burn during occasional high intensity wildfires. No specific action is suggested, but less frequent burning in dry forest may allow the species to expand upslope into more fire prone habitats.

*Bothriochloa biloba* 3V
Surveys should be undertaken in compartments 81, 82 and 83 in Billilimbra SF, during late summer and autumn.

*Brasenia schreberi* 3RC-
No specific proposal, but all lagoons should be managed for flora conservation.

*Bulbophyllum globuliforme* 3VC-
No specific action proposed. The only likely area of occurrence is rainforest in Richmond Range SF, and the species will not be affected by logging.

*Bulbophyllum weinthalii* 3RCi
There should be no logging of hoop pine in wet sclerophyll forest. This species occurs almost exclusively in rainforest and will not otherwise be affected by logging.

*Clematis fawcettii* 3VC-
No specific action proposed. Recorded only from rainforest.

*Corchorus cunninghamii* 3E
This species is unlikely to be adversely affected by logging, but it is preferable that any population which exists be located and managed specifically. This is a conspicuous species when in flower, and the most cost-effective way of locating new populations is to make field staff aware of its appearance, as suggested by Halford (1993).

*Dendrobium schneiderae* 3RC-
No specific action proposed. The only likely area of occurrence is rainforest in Richmond Range SF, and the species will not be affected by logging.

*Eucalyptus dorrigoensis* 2KC-
Due to lack of records and low risk, no specific survey is warranted.

*Eucalyptus dunnii* 3RCa
Most of population is included in proposal P8 and in an informal reserve along Peacock Creek. Recently logged areas in P8 should be inspected for extent of regeneration of *E. dunnii*, and, if necessary, supplementary planting of local provenance should be carried out.

*Eucalyptus fusiformis* 2RC-
Reports of occurrence in Mount Marsh SF should be checked and stands reserved if found.

*Eucalyptus psammitica* 3KC-
Known stand in Mount Marsh SF included in proposal P18.

*Eucalyptus scias* subsp. *apoda* 3K
Known stand in Billilimbra SF included within proposal P21.

*Eucalyptus tetrapleura* 2VCa
Known stands in Gibberagee SF included within proposal P19.

*Eucalyptus rummeryi* 3RC-
One of several stands in Mount Pikapene SF is reserved. Additional stands are proposed for reservation in proposal P12.

*Grevillea banyabba* 2VC-
No specific action proposed. It is well reserved in Banyabba NR. The most likely area of occurrence in Banyabba SF is in proposed reserve P7.

*Grevillea masonii* 2E
No specific measures suggested due to very low probability of occurrence in SF in CMA.

*Grevillea quadricauda* 3VC
Unlikely to be affected by logging. Modify fire management in cpts 421, 422 Mount Belmore SF to ensure some patches remain unburnt for at least 8-12 years.

*Leucopogon recurvisepalus* 3KC-
Mostly occurs in habitats which are not affected by logging. The most likely area of occurrence in CMA is included in proposal P7.

*Marsdenia liisae* 3RC-
All known populations in CMA are within excluded wilderness section of Billilimbra SF and in proposal P21.

*Marsdenia longiloba* 3RC-
The only known area of occurrence is in the withdrawn wilderness areas of Billilimbra and Washpool SFs. No further action proposed.

*Melichrus* species A 2E
Mostly occurs in habitats which are not affected by logging. The most likely area of occurrence in CMA is included in proposal P7.

*Milletia australis* 3RC-+
No specific action proposed. This species is known elsewhere only from lowland subtropical rainforest. If it occurs in CMA it will be restricted to areas excluded from logging.

*Muellerina myrtifolia* 3RC-
No specific action proposed. Any occurrence would be in dry rainforest.

*Olearia stilwelliae* 3RCa
Since the species is regarded as adequately reserved and is likely to be resilient to logging, no specific survey or additional reservation is proposed. However, occurrences of this species should be noted during any further survey in dry sclerophyll forest in Banyabba SF and Mount Marsh SF, and it should be considered high priority for monitoring with respect to fire impact.

*Owenia cepiodora* 2VCi
Recorded only from rainforest. Manage known populations in accordance with recovery plan when available.

*Paspalidium grandispiculatum* 3V
One of two known populations is within the existing Needlebark FR. The other is included within proposal P2.

*Persicaria elatior* 3V
Known stand should be reserved (proposal P20, Richmond Range SF).

*Plectranthus suaveolens* 3KC-
No specific action proposed until taxonomic uncertainties are resolved. The form recorded from open forest in CMA is doubtfully rare.

*Rapanea* species A
No specific action proposed. Recorded only from rainforest in existing Cambridge Plateau FR.

*Sarcochilus weinthalii* 3VC-
No specific action proposed. The only likely area of occurrence is rainforest in Richmond Range SF.

*Schistotylus purpuratus* 3RCi
Probably mostly occurs along creeks or in rainforest, but may occur in wet sclerophyll forest. A search of representative areas of likely habitats (wet sclerophyll forest between 600 and 1000 m altitude) should be conducted during late September-early October to clarify the habitat requirements and conservation status. This would be best carried out as part of a statewide program to clarify the distribution, habitat and status of this species.

*Tinospora tinosporoides* 3RC-
No specific action proposed. There is no record within 5 km of SF in CMA. Elsewhere it occurs mainly in rainforest at lower altitudes.

*Trichosanthes subvelutina* 3RC-
No specific action proposed. There is no record within 5 km of SF in CMA. Elsewhere it occurs mainly in rainforest at lower altitudes.

*3.SPECIES OF REGIONAL SIGNIFICANCE*

*Isotoma fluviatilis* is not included below because the record is unlikely and requires confirmation. As a general principle, species recorded only in recently (< 5 years) logged areas are proposed to be given high priority for further investigation and monitoring, but no other specific measures are considered necessary at this stage.

| Species | Proposed action |
|---|---|
| *Abildgaardia vaginata* (4 8S) | No specific measures proposed, because the species regenerates prolifically in logged areas and occurs in habitats where logging intensity is low. |
| *Acacia juliflora* (4? 8S) | Single known occurrence in proposal P21. |
| *Amyema conspicuum* (3 8S) | Confirm that a population occurs in reserve proposal P10; if not, cpt 28. |
| *Aristida acuta* (4 8S) | No specific measures proposed, because the species was recorded only in a recently logged area. |
| *Arthrochilus prolixus* (4) | Populations mostly in areas not affected by logging. |
| *Astrotricha cordata* (3 7 8S) | Mostly in disturbed areas or on rocky slopes not affected by logging. Modify fire management in cpts ?? Mount Belmore SF. |
| *Bulbophyllum bracteatum* (2 8S) | Nil. Restricted to rainforest in CMA. |
| *Chiloglottis diphylla* (4 8N) | Dense populations (well in excess of 1000 individuals) are included in proposals P2 and P17. |
| *Corybas barbarae* (3) | Known population in excluded wilderness area. |
| *Curculigo ensifolia* (4) | Confirm that a population occurs in reserve proposal P10. |
| *Dichanthium setosum* (4) | Only known population in P13. |
| *Digitaria* sp. aff. *oraria* | Small population in proposal P11a. |
| *Enneapogon nigricans* (4) | Only known population in P13. |
| *Enteropogon unispiceus* | Confirm that a population occurs in reserve proposal P10. |
| *Eragrostis benthamii* (4) | Nil. Should not be regarded as significant. |
| *Eragrostis leptocarpa* (4) | Apparently favours disturbed areas. No specific action proposed. |
| *Eragrostic trachycarpa* (5?) | Known population included in proposal P22. |
| *Eriachne glabrata* (4) | No specific measures. Known populations are restricted to low woodlands of *E. signata* which are not affected by logging. |
| *Galactia* species B (3 8N) | Known population included in proposal P22. |

| | |
|---|---|
| *Hibbertia acuminata* (6) | Nil. Occurs in the existing Needlebark FR, and major habitats are otherwise unaffected by logging, due to low commercial timber volume. |
| *Hibbertia marginata* (6) | Nil. Not considered of conservation significance. |
| *Hoya oligotricha* (5 7) | Nil. Restricted to dry rainforest, excluded from logging. |
| *Hygrophila angustifolia* (3 8S) | An extensive population occurs in the existing Selection Flat FR. |
| *Iphigenia indica* (3 7 8S) | Nil. Not considered of conservation significance. |
| *Isopogon mnoraifolius* (6) | No specific measures. Known populations are restricted to low woodlands of *E. signata* which are not affected by logging. |
| *Leptospermum polyanthum* | Total known population in CMA in proposal P4. |
| *Keraudrenia* sp. aff. *hillii* | Total known population in CMA in proposal P4. |
| *Macrozamia fawcettii* (6) | Nil. Not considered of conservation significance. |
| *Melaleuca tamariscina* subsp. *irbyana* (3 8S) | Included in existing Selection Flat FR. |
| *Mirbelia speciosa* subsp. *ringrosei* (4 8S) | Mostly on rocky slopes not affected by logging, but possibly affected by fire at too frequent intervals. It is proposed to modify fire management in cpts 421 and 422 in Mount Belmore SF, to ensure that some patches remain unburnt for at least 8-12 years. |
| *Notothixos incanus* (5) | Confirm that a population occurs in reserve proposal P10. |
| *Prostanthera melissifolia* (4 7 8N) | Nil. Restricted to "wilderness" exclusion areas. |
| *Pseudanthus orientalis* (4) | No specific measures. Known populations are restricted to low woodlands of *E. signata* which support negligible commercial timber volume and are not affected by logging. |
| *Pterostylis daintreana* (4) | Total known population in CMA in proposal P4. |
| *Pterocaulon redolens* (4? 8S) | Only known population in P13. |
| *Rulingia* species 1 | Total known population in CMA in proposal P4. |
| *Sarcochilus spathulatus* (5) | Known population in "wilderness" exclusion areas. |
| *Sauropus* species A (3 8S) | Extensive population within existing Selection Flat FR. |
| *Schoenoplectus validus* (5) | Only known population in CMA in proposal P20 |
| *Senna odorata* (4?) | No specific action. Recorded only from a recently logged area. |
| *Tephrosia brachyodon* (4? 7) | No specific action. Recorded only from a recently logged area. |
| *Tricoryne anceps* subsp. *pterocaulon* (3 8S) | Nil. Occurs in the existing Needlebark FR, and major habitats are otherwise unaffected by logging, due to low commercial timber volume. |
| *Tripogon loliiformis* | Total known population in CMA in proposal P4. |
| *Tylophora benthamii* (4?) | Known population almost wholly within proposal P8. |
| *Vetiveria filipes* (3? 7) | Nil. Known population is in disturbed area along roadside. |

## *4. RESERVATION OF COMMUNITIES*

As described above, appropriate reservation of representative communities in as little-disturbed state as possible is, as a general principle, a desirable and well accepted precautionary strategy. In practice, the extent of reservation is unavoidably a highly subjective issue. From a purely flora conservation perspective, more is generally better, but socially a compromise is obviously necessary to satisfy competing landuse requirements. Using arbitrary areal targets for reservation such as specifying a 10% minimum rule is appealing because it conveys the impression of objectivity and is simple to apply. It is currently a commonly accepted basis for assessing adequacy of reservation. However, such arbitrary targets, by themselves, lack any clear scientific basis, with no evidence that they are either sufficient or necessary. It is currently practical to make assessments only for overstorey communities, which are then used as surrogates for flora conservation generally. This strategy will succeed only to the extent that a relationship exists between overstorey and other components of the plant community. Where there is not a consistent relationship, more heterogeneous communities will be relatively under-represented in reserves while homogeneous communities will be relatively over-represented. It is also well recognised (REF) that reservation of

communities is a "coarse filter" approach, which may in any case miss species which are uncommon but not recognised as rare or threatened. Appropriate management is the best option for such species, but much more ecological information is necessary to ensure success.

Despite the limitations, current assessments of reservation status by Hager and Benson (1994) are used in developing a conservation strategy, as the best available. Following from the discussion above under Sections 2 and 3 of the Discussion, the following principles have been used in developing a vegetation community conservation strategy for CMA (percentages are of the total extent of map units or communities in the study area).

1. For map units which may be consistently related to overstorey communities and associations assessed as adequately reserved in the north zone defined by Hager and Benson (1994), no additional conservation measures are proposed.

2. For inadequately reserved communities or map units (Hager and Benson category 2), or those which appear to not readily relate to Hager and Benson associations, any known areas which have been little-disturbed by logging are proposed to be reserved, such that at least 10% of the estimated extent of such communities in CMA is reserved. If insufficient or no such areas exist, a representative example of previously logged forest, to give a combined area of approximately 10% of the estimated extent in the MA, is proposed to be managed primarily for flora conservation. In the short term, further logging would be excluded from these latter areas. In the longer term, management would be guided by results of a planned flora monitoring program. Provided the results could be demonstrated with sufficient confidence, this would not necessarily exclude timber harvest and may require only minor modification of harvesting proposals. In some cases, it may require management designed to accelerate development of old growth characteristics as far as possible, through appropriate silvicultural and fire regimes. Such regimes may exclude further logging, or may require low intensity selective thinning.

3. For poorly reserved communities (Hager and Benson category 1), or those which clearly do not match any association and which appear distinct and of potentially high significance, a higher minimum proportion should be reserved or classified as flora conservation priority.

In the present study, the locations of proposed additional reserves have been chosen subjectively on the basis of mapped forest types, survey plot data and where appropriate, more extensive observations made during the field survey, giving preference to the least disturbed examples of communities as determined from a combination of field observations and recorded disturbance histories. Although the survey area was extensively traversed, the survey does represent only a sample of the total area and in some cases a better (more "representative" or less disturbed) alternative reserve location may exist. Since only flora conservation values were considered in selecting areas, the specific area proposed in each case should be regarded as indicative and does not necessarily represent the optimum choice in the broader management context. In any case, the proposed flora conservation strategy clearly represents only one of many flora conservation options for the area. It could be regarded as a moderately precautionary option in the context of the extent of likely logging impact on floristic composition as described above, but considering that response to logging of the relatively many infrequent species, and more subtle or long-term impacts, are unknown. Ultimately, it is not possible to base reservation or other management decisions on purely biological considerations, and a socially acceptable solution will be necessary. Considering the potential deficiencies in the conservation strategy described above, a progressive, long-term monitoring system needs to be implemented to allow the success of the conservation strategy to be continually assessed and management adjusted as necessary.

Table 8 summarises the relationship between map units and overstorey composition as defined from sample plots. This provides a basis for defining proposals for additional reserves or flora conservation areas. These proposals are summarized below in Section 5. The percentage of each map unit conserved in total in CMA, included existing reserves, areas excluded from logging by management prescription and areas in new proposals, has been estimated from GIS data and is summarized in Table 9.

**Table 9** Conservation status of mapped Forest Types in CMA and proportion in existing and proposed reserves.
H&B is the most similar association defined by Hager and Benson (1994), based on plot data, or where plot data are very variable, their assessment of FCNSW Forest Types. Where plot data are very variable and substantial discrepancies exist, the map type is assumed to be inadequately reserved. na = not assessed by Hager and Benson (1994). Map unit 128, nominally *E. piperita*, is mistyped or a result of a typographical error, since *E. piperita* does not occur in CMA. The patch inspected was dominated by *E. planchoniana* and thus assessed as EF261a, although the survey plot was in an atypical area at the edge of the stand. Map type 47 in Billilimbra SF included areas of community 14.2, assessed as inadequately reserved. These are wholly within the excluded "wilderness" area. Locations of proposed flora conservation priority areas (FCPA) are described in Section 5. Percentage conserved also includes area excluded from logging for other purposes.

| Map | | | Cons. | Prop. | Area | % Cons. | |
|---|---|---|---|---|---|---|---|
| FT | CASov | H&B | status | FCPA | CMA | exist. | tot. |
| 30 | 21.1, 34 | ?EF099 | 2 | P2 | 737 | 100 | 100 |
| 31 | 19.2, 39.1 | ? | ?2 | P2, P9, P11a,b | 9 379 | 4.3 | 14.8 |
| 32 | 35 | EF002a | na | - | 40 | 100 | 100 |
| 36 | 21.4, 26, 27.1 | EF145a | 2 | P2 | 1 610 | 6.3 | 10.4 |
| 37 | 27.1, 27.2 | EF145a | 4 | - | 6 211 | - | |
| 38 | 25.1, 27.2, 30, 31 | EF147a | 4 | - | 1 129 | - | |
| 39 | 24.2, 27.1 | EF040e | 2 | P7 | 619 | 5.8 | 20.4 |
| 40 | 27.1, 27.2, 30 | ? | ?2 | P11a,b | 1 876 | 0.3 | 11.7 |
| 41 | 27.1, 26 | EF145a, EF145d | 4 | - | 10 735 | - | |
| 46 | 13 | EF001a, ?EF011a | 2 | P8, P16 | 414 | 7.5 | 18.6 |
| 47 | group 14 | EF011b, EF479e | 4, 2 | - | 6 888 | 40.7 | 41.2 |
| 48 | 12 | EF010a | 2 | P2, P8, P9, P16 | 1 643 | 10.1 | 19.3 |
| 49 | 13 | EF001a, ?EF003a | 4, 1 | P17 | 120 | 41.7 | 41.7 |
| 51 | 11 | EF013a | 2 | P8 | 92 | 44.1 | 80.3 |
| 53 | 13, 14.2, 14.3, 21.5 | EF001a | 4 | - | 5 372 | - | |
| 60 | 15, 17.2, 22.1 | ?EF095a | 1 | P2, P9, P11a, P16 | 2 615 | 4.3 | 14.9 |
| 62 | various | ?group EF075 | 2 | P3, P4 | 14 234 | 23.9 | 25.1 |
| 65 | 39.2 | EF050d | 2 | P7, P10, P16 | 3 662 | 7.4 | 16.7 |
| 70 | 17.1, 24.3 | EF040a | 1 | P2, P5, P11a,b | 4 149 | 0.1 | 9.5 |
| 71 | group 21 | group EF040 | 1-2 | P1, P8, P12 | 7 177 | 5.7 | 12.5 |
| 72 | groups 21, 24 | group EF040 | 1-2 | P9, P10, P12 | 14 156 | 1.3 | 9.3 |
| 74 | groups 21, 24 | group EF040 | 1-2 | P2, P7, P15 | 20 339 | 3.6 | 9.0 |
| 76 | 24.3, 30 | EF040a | 1 | P14 | 405 | 2.3 | 8.5 |
| 80 | 19.2, 19.1 | EF710a, 710d | 1 | P11a | 143 | 0.1 | 18.4 |
| 82 | 19.2 | EF710a | 1 | P5, P6, P10 | 126 | 0 | 24.7 |
| 83 | 19.1 | EF710d | 1 | - | 23 | 28.0 | 28.0 |
| 84 | 17.2, 19.1, 29.2, 29.3 | ? | 1-4 | P11a,b | 1 994 | 0 | 10.3 |
| 85 | 19.1, 19.2, 39.1 | group EF710 | 1 | P10 | 363 | 0.7 | 20.0 |
| 87 | 38 | EF706a | 1 | P6, P12 | 440 | 1.7 | 18.4 |
| 92 | various | ?group EF050 | 2 | P2 | 2 514 | 4.6 | 10.6 |
| 97 | 25.2, 25.3, 28.2 | EF261a, 262b | 4 | - | 1 248 | - | |
| 117 | 33 | EF235a | 4 | - | 216 | - | |
| 119 | 33 | EF235a | 4 | - | 585 | - | |
| 126 | 29.2, 25.3 | EF260b | 4 | - | 277 | - | |
| 128 | - | EF261a | 4 | - | 424 | - | |
| 129 | 30 | EF200a | 1 | P7, P15 | 767 | 4.3 | 21.7 |
| 130 | 22.2, 30, 32 | ? | ?4 | - | 189 | | |
| 163 | 40 | EF505a | 4 | - | 2 356 | - | |
| 207 | 20.1 | EF606a | 1 | P13 | 79 | 0 | 73.8 |

## 5.SUMMARY OF FLORA CONSERVATION AREA AND RESERVE PROPOSALS

| | | |
|---|---|---|
| P1 | Richmond Range SF, cpt 353 | FT 71 (329 ha) |
| P2 | Doubleduke SF, cpts 148,149 | FTs 30/31 (123 ha), 30/31/92 (93 ha), 31 (707 ha), 36 (66 ha), 48 (10 ha), 60 (93 ha), 70 (89 ha), 74 (64 ha), 92 (142 ha); rare plants *Paspalidium grandispiculatum* (3V), *Chiloglottis diphylla* (4 8N), |
| P3 | Mount Marsh SF, cpt 428 | FT 62/74 (138 ha). |
| P4 | Mount Marsh SF, cpt 434 | FT 62/74 (30 ha) and rare plant *Rulingia* species 1 (?3V). |
| P5 | Carwong SF, cpt 21 | FT 70 (55 ha), 82 (6 ha) |
| P6 | Mount Belmore SF, cpt 398 | FT 87 (28 ha), 82 (4 ha) |
| P7 | Banyabba SF, cpt 99 | FTs 39 (91 ha), 65 (254 ha), 74 (87 ha), 129 (103 ha) |
| P8 | Richmond Range SF, cpt 326 | FTs 46 (36 ha), 48 (31 ha), 51 (33 ha), 71 (151 ha), best population of rare tree *E. dunnii* (3RCa), only population of rare plant *Tylophora benthamii* (4?). |
| P9 | Royal Camp SF, cpts 14, 15 | FTs 31 (33 ha), 48 (90 ha), 60 (121 ha), 72 (785 ha) |
| P10 | Braemar SF, cpt 24 | FTs 65 (19 ha), 72 (44 ha), 72/74 (263 ha), 82 (21 ha), 85 (70 ha); probably rare plants Amyema conspicuum (3 8S) *Curculigo ensifolia* (4), *Enteropogon unispiceus*, *Hygrophila angustifolia* (3 8S), *Notothixos incanus* (5) (all need checking). |
| P11a | Bungawalbin SF, cpt 43 | FTs 31 (236 ha), 40 (195 ha), 60 (17 ha), 70 (58 ha), 80 (26 ha), 84 (190 ha) |
| P11b | Bungawalbin SF, cpt 48 | FTs 31 (11 ha), 40 (18 ha), 70 (188 ha), 84 (15 ha) |
| P12 | Mount Pikapene SF, cpt 372 | 71 (4 ha), 72 (37 ha), 87 (46 ha); rare plant *Eucalyptus rummeryi* (3RC-). |
| P13 | Ewingar SF, cpts 658, 659 | FT 207 (about 58 ha, 73% of extent); rare plants *Dichanthium setosum* (4), *Enneapogon nigricans* (4) and *Pterocaulon redolens* (4? 8S) |
| P14 | Banyabba SF, cpt 97 | FT 76 (25 ha) |
| P15 | Keybarbin SF, cpts 395, 396, 397 | FTs 74 (942 ha), 129 (31 ha) |
| P16 | Richmond Range SF, cpt 340, 347 | FTs 46 (10 ha), 48 (17 ha), 60 (45 ha), 65 (61 ha) |
| P17 | Mount Belmore SF | FT 49/53, rare plants *Boronia chartacea* (3RC-) and *Chiloglottis diphylla* (4 8N). |
| P18 | Mount Marsh SF, cpt 430 | Rare plant *Eucalyptus psammitica* (3KC-) |
| P19 | Gibberagee SF, cpt 101 | Rare tree *Eucalyptus tetrapleura* (2VCa) |
| P20 | Richmond Range SF, cpt 315 | Rare plants *Persicaria elatior* (3V), *Schoenoplectus validus* (5). |
| P21 | Tabbimoble SF, cpts 164, 166 | Rare plant *Acacia juliflora* (4? 8S) |

## *6.FIRE MANAGEMENT*

More positive fire management is desirable, which recognizes the flora conservation values and particular requirements of reserved areas. In practice, it is currently difficult to suggest specific guidelines because details of species responses to fire are lacking. Because of the potentially adverse impact of frequent fire, the main requirement is for greater variability of fire frequency in dry forests (heath forest and grassy forest), so that at least some patches remain unburnt for at least 8-12 years. This is most easily achieved by frequent burning in surrounding forests. It should still be possible to achieve fire control objectives. For example, some core areas of about 30-100 ha could be maintained at lower fire frequency with protection by frequently-burnt (3-5 yr) perimeter buffers. Specific areas of dry forest which are proposed as flora conservation priority areas (proposals detailed in Section 10.4.7) and for which this regime is proposed are: Braemar SF (proposal P10), Carwong SF (proposal P5), Banyabba SF (proposals P7 and P14), Bungawalbin SF (P11a, P11b) and Doubleduke SF (proposal P2). In particular, proposals P11a and P2 are to protect from fire core areas of low forest and woodland where *Melaleuca* species are common. In addition, modified fuel management, which

requires some patches to remain unburnt for minimum intervals of at least 8-12 years, is proposed for cpts. 421 and 422 in Mount Belmore SF to ensure populations of several regionally significant species (*Astrotricha cordata*, *Grevillea quadricauda*, *Hibbertia acuminata*, *Hibbertia marginata* and *Mirbelia speciosa* subsp. *ringrosei*) are maintained.

## *7. GRAZING*

Because of the uncertainties of past grazing impacts in grassy forests generally, there should be no increase in grazing intensity by domestic stock until more detailed information is available on the impact of grazing on native plants in forests. Due to the long history of past grazing, and generally low stocking rates, if grazing is continued at current levels, there is only a low risk of further deleterious effects on flora conservation values. There is no clear justification for large scale exclusion of grazing. However, there are some specific exceptions mentioned below, and as a precaution, domestic grazing should be preferably excluded, or at least minimized, in at least some parts of reserves and PMP flora conservation areas. The major need is to establish some areas where grazing is excluded to obtain information on grazing impact and provide a more informed basis for future decisions on grazing management. These exclusion areas would be best placed as part of flora conservation areas and reserves.

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# *APPENDIX 1*

## *OCCURRENCE OF VASCULAR PLANT SPECIES BY BROAD FLORISTIC GROUP AND LOGGING CATEGORY*

Species are listed alphabetically by family within classes, and nomenclature follows the National Herbarium of New South Wales. Frequency of occurrence is shown for each species, as a percentage of the total number of plots in each broad floristic group (indicated beneath the heading). There is an overall total of 181 plots (understorey floristic data was not available for an additional two plots described in the text). Floristic groups are derived from classification of all species as indicated below and described in the text.

| | |
|---|---|
| . | species not recorded in that group. |
| + | species recorded in that group but not in a survey plot |
| * | naturalized species |
| H | specimen from CMA retained at State Forests herbarium, Research Division, West Pennant Hills |

Broad Floristic Group: (refer to text)
Rf=Rainforest (CASov 1-10)
Gf=Grassy Forest (CASf 7-26)
Sh=Shrubland (CASf 39)
Ws=Wet Sclerophyll Forest (CASov 11-40 / CASf 27-36)
Hf=Heath forest and woodland (CASf 1-6)
Sw=Swamp and sedgeland (CASf 40-41)

Logging category:
L1=logged <=10yr
L2=logged >10 yr
UL=unlogged

Obs: A=Austeco, N=NEFBS, B=Binns

State Forests:
A=Banyabba, B=Mount Belmore, D=Doubleduke, E=Ewingar, F=Braemar, G=Gibberagee, H=Whiporie, K=Camira, I=Billilimbra, J=Cherry Tree, L=Ellangowan, M=Mount Marsh, O=Mororo, N=Mount Neville, P=Mount Pikapene, Q=Royal Camp, R=Richmond Range, S=Sugarloaf, T=Tabbimoble, U=Bungawalbin, V=Devils Pulpit, W=Washpool, Y=Myrtle

| | | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tot. | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| Class FILICOPSIDA | | | | | | | | | | | | |
| **ADIANTACEAE** | | | | | | | | | | | | |
| *Adiantum aethiopicum* | 11 | | 11 | 7 | | | | 6 | 8 | 4 | ANB | BEFGMNR |
| *Adiantum formosum* | 11 | 15 | 24 | . | | | | 9 | 5 | 6 | ANB | EIKRW |
| *Adiantum hispidulum* | 7 | 8 | 13 | 1 | | | | | 3 | 7 | NB | BEIPRW |
| *Adiantum silvaticum* | 3 | | 8 | | | | | 6 | | 2 | A | ERW |
| *Cheilanthes distans* | 1 | | | 1 | | | | | | 2 | N | E |
| *Cheilanthes sieberi* | 38 | | | 31 | 24 | 100 | | 31 | 20 | 17 | ANB | ABDEFGLMOQSUVY |
| **ASPLENIACEAE** | | | | | | | | | | | | |
| *Asplenium australasicum* | 24 | 62 | 39 | 1 | | | | 6 | 12 | 20 | ANB | BEIMRW |
| *Asplenium flabellifolium* | 2 | 8 | | 1 | | | | | 1 | 2 | NB | EM |
| *Asplenium polyodon* | 7 | 38 | 3 | 1 | | | | | 3 | 7 | AB | ERW |
| **ATHYRIACEAE** | | | | | | | | | | | | |
| *Diplazium assimile* | 1 | 8 | | | | | | | | 2 | B | E |
| *Diplazium australe* | 12 | 23 | 24 | . | | | | 9 | 7 | 6 | AB | ERW |
| **BLECHNACEAE** | | | | | | | | | | | | |
| *Blechnum cartilagineum* | 20 | 8 | 39 | 4 | | | | 17 | 8 | 13 | ANB | BDEIVW |
| *Blechnum indicum* | H 1 | | | | | | 50 | | | 2 | B | R |
| *Doodia aspera* | 26 | 31 | 39 | 7 | | | | 14 | 11 | 20 | ANB | DEIJKMPRW |
| *Doodia caudata* var. *caudata* | 2 | | | 2 | | | | | 1 | 2 | AN | BM |
| *Doodia media* ssp. *media* | 1 | | 3 | | | | | | 1 | | B | B |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq. | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **CYATHEACEAE** | | | | | | | | | | | | | |
| *Cyathea australis* | | 9 | . | 21 | 1 | . | . | . | 3 | 3 | 9 | ANB | EIN |
| *Cyathea leichhardtiana* | | 6 | 38 | 3 | . | . | . | . | . | 2 | 7 | AB | EW |
| **DAVALLIACEAE** | | | | | | | | | | | | | |
| *Arthropteris beckleri* | H | 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | B | E |
| *Arthropteris tenella* | | 13 | 69 | 11 | . | . | . | . | . | 7 | 13 | ANB | ERW |
| *Davallia pyxidata* | | 14 | 15 | 26 | 2 | . | . | . | 9 | 4 | 13 | ANB | BEIRW |
| **DENNSTAEDTIACEAE** | | | | | | | | | | | | | |
| *Dennstaedtia davallioides* | | 2 | . | 5 | . | . | . | . | 3 | 1 | . | A | BR |
| *Hypolepis glandulifera* | | 3 | . | 5 | 1 | . | . | . | 3 | 2 | . | AN | ER |
| *Hypolepis muelleri* | | 2 | . | . | 1 | . | . | 50 | . | 1 | 2 | B | DR |
| *Pteridium esculentum* BDEGIMNORTUVWY | | 55 | . | 18 | 43 | 24 | . | . | 31 | 36 | 20 | ANB | |
| **DICKSONIACEAE** | | | | | | | | | | | | | |
| *Calochlaena dubia* | | 17 | . | 24 | 9 | . | . | . | 3 | 13 | 7 | ANB | BDEIMNO |
| **DRYOPTERIDACEAE** | | | | | | | | | | | | | |
| *Arachniodes aristata* | | 4 | . | 11 | . | . | . | . | . | 3 | 2 | AN | EKRW |
| *Lastreopsis acuminata* | | 2 | 8 | 3 | . | . | . | . | . | 2 | . | AN | KR |
| *Lastreopsis decomposita* | | 16 | 38 | 29 | . | . | . | . | 11 | 5 | 13 | ANB | EIPR |
| *Lastreopsis marginans* | | 1 | 8 | . | . | . | . | . | . | 1 | . | A | R |
| *Lastreopsis microsora* | | 16 | 62 | 21 | . | . | . | . | 9 | 5 | 15 | AB | EIRW |
| *Lastreopsis munita* | | 2 | 15 | . | . | . | . | . | . | . | 4 | B | RW |
| *Lastreopsis silvestris* | H | 1 | 8 | . | . | . | . | . | . | 1 | . | B | R |
| **GLEICHENIACEAE** | | | | | | | | | | | | | |
| *Sticherus flabellatus* | | 2 | . | 5 | . | . | . | . | . | 2 | . | N | DM |
| **GRAMMITACEAE** | | | | | | | | | | | | | |
| *Grammitis billardieri* | | 3 | 15 | 3 | . | . | . | . | . | 1 | 4 | AB | EW |
| **HYMENOPHYLLACEAE** | | | | | | | | | | | | | |
| *Macroglena caudata* | H | 1 | . | 3 | . | . | . | . | . | 1 | . | B | E |
| **LINDSAEACEAE** | | | | | | | | | | | | | |
| *Lindsaea linearis* | | 1 | . | . | . | 3 | . | . | 3 | . | . | N | E |
| *Lindsaea microphylla* | | 4 | . | . | 1 | 9 | . | . | 6 | 1 | 2 | AN | BM |
| **OPHIOGLOSSACEAE** | | | | | | | | | | | | | |
| *Ophioglossum reticulatum* | H | 1 | . | . | 1 | . | . | . | . | . | 2 | B | W |
| **POLYPODIACEAE** | | | | | | | | | | | | | |
| *Dictymia brownii* | | 11 | 38 | 13 | 1 | . | . | . | . | 4 | 13 | ANB | EIRW |
| *Microsorum scandens* | | 8 | 46 | 5 | . | . | . | . | . | 2 | 11 | AB | EIW |
| *Platycerium bifurcatum* | | 28 | 38 | 39 | 9 | . | . | . | 14 | 11 | 24 | ANB | BDEGIKMRW |
| *Platycerium superbum* | | 8 | 38 | 8 | . | . | . | . | . | 3 | 9 | ANB | MRW |
| *Pyrrosia confluens* | | 7 | 31 | 5 | 1 | . | . | . | . | 1 | 11 | B | EIPRW |
| *Pyrrosia rupestris* | | 20 | 46 | 26 | 4 | . | . | . | 3 | 9 | 20 | ANB | BEGIMPRW |
| **PTERIDACEAE** | | | | | | | | | | | | | |
| *Pteris tremula* | | 7 | . | 8 | 4 | . | . | . | 6 | 4 | 2 | ANB | EGRW |
| *Pteris umbrosa* | | 2 | 15 | . | . | . | . | . | . | . | 4 | B | EW |
| **SCHIZAEACEAE** | | | | | | | | | | | | | |
| *Schizaea bifida* | | 11 | . | . | . | 33 | . | . | . | 5 | 11 | NB | ABEGOV |
| **SINOPTERIDACEAE** | | | | | | | | | | | | | |
| *Pellaea falcata* var. *falcata* | | 3 | . | 8 | . | . | . | . | . | 1 | 4 | N | EJ |
| *Pellaea falcata* var. *nana* | | 10 | 54 | 8 | . | . | . | . | . | 2 | 15 | B | BEPRW |
| *Pellaea paradoxa* | | 3 | . | 8 | . | . | . | . | . | 2 | 2 | ANB | BE |
| Class CYCADOPSIDA | | | | | | | | | | | | | |
| **ZAMIACEAE** | | | | | | | | | | | | | |
| *Macrozamia fawcettii* | H | 15 | . | 3 | 9 | 18 | . | . | 11 | 7 | 9 | ANB | ABDEMQSW |

| | | Tot: | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| Class CONIFEROPSIDA | | | | | | | | | | | | | |
| **ARAUCARIACEAE** | | | | | | | | | | | | | |
| *Araucaria cunninghamii* | | 9 | 31 | 13 | . | . | . | . | . | 4 | 9 | ANB | BJPR |
| **PINACEAE** | | | | | | | | | | | | | |
| * *Pinus elliottii* | | 1 | . | . | . | 3 | . | . | . | . | 2 | N | T |
| **PODOCARPACEAE** | | | | | | | | | | | | | |
| *Podocarpus elatus* | | 1 | 8 | . | . | . | . | . | . | 1 | . | A | R |
| Class MAGNOLIOPSIDA - MAGNOLIIDAE | | | | | | | | | | | | | |
| **ACANTHACEAE** | | | | | | | | | | | | | |
| *Brunoniella australis* | | 37 | . | 8 | 34 | 6 | . | . | 32 | 17 | 18 | ANB | |
| ABDEFGIJLMQRSUVWY | | | | | | | | | | | | | |
| *Brunoniella pumilio* | | 3 | . | . | 3 | . | . | . | . | 2 | 2 | N | DM |
| *Hygrophila angustifolia* | H | 1 | . | . | 1 | . | . | . | . | . | 2 | B | F |
| *Pseuderanthemum variabile* | H | 41 | 31 | 66 | 12 | 3 | . | . | 20 | 21 | 28 | ANB | BDEGIJNOPRVWY |
| **AKANIACEAE** | | | | | | | | | | | | | |
| *Akania bidwillii* | | 1 | . | 3 | . | . | . | . | . | 1 | . | A | R |
| **ALANGIACEAE** | | | | | | | | | | | | | |
| *Alangium villosum* | | | | | | | | | | | | | |
| ssp. *polyosmoides* | | 5 | 15 | 8 | . | . | . | . | . | 4 | 2 | AB | PR |
| **AMARANTHACEAE** | | | | | | | | | | | | | |
| *Alternanthera denticulata* | H | 2 | . | . | 1 | . | . | 50 | 3 | . | 2 | NB | R |
| *Nyssanthes diffusa* | | 1 | 8 | . | . | . | . | . | . | . | 2 | B | W |
| **ANACARDIACEAE** | | | | | | | | | | | | | |
| *Euroschinus falcata* | | 14 | 8 | 29 | 2 | . | . | . | 11 | 8 | 6 | ANB | BEJPRW |
| *Rhodosphaera rhodanthema* | | 4 | . | 11 | . | . | . | . | . | 3 | 2 | N | JR |
| **ANNONACEAE** | | | | | | | | | | | | | |
| *Rauwenhoffia leichhardtii* | | 9 | 54 | 5 | . | . | . | . | . | 2 | 13 | ANB | JPRW |
| **APIACEAE** | | | | | | | | | | | | | |
| *Daucus glochidiatus* | | 2 | . | . | 2 | . | . | . | 3 | 1 | . | N | EM |
| *Centella asiatica* | | 15 | . | 3 | 15 | . | . | . | 11 | 8 | 7 | ANB | DEGMNRUW |
| *Eryngium expansum* | | 1 | . | 3 | . | . | . | . | 3 | . | . | N | J |
| *Hydrocotyle acutiloba* | | 4 | . | . | 4 | . | . | . | 3 | 1 | 4 | NB | EGIN |
| *Hydrocotyle pedicellosa* | | 5 | 8 | 11 | . | . | . | . | 3 | 2 | 4 | ANB | EI |
| *Hydrocotyle peduncularis* | | 10 | . | 3 | 10 | . | . | . | 17 | 3 | 2 | ANB | DEIJRSW |
| *Platysace ericoides* | | 19 | . | . | 3 | 48 | . | . | 11 | 7 | 17 | ANB | ABEGMQSV |
| *Trachymene incisa* | | 20 | . | . | 9 | 36 | . | . | 17 | 10 | 9 | ANB | ABDEGMOQ |
| *Xanthosia pilosa* | | 6 | . | . | 3 | 9 | . | . | 3 | 3 | 4 | ANB | BGM |
| **APOCYNACEAE** | | | | | | | | | | | | | |
| *Alstonia constricta* | | 7 | 15 | 11 | . | 3 | . | . | 3 | 2 | 7 | ANB | BJPQRW |
| *Alyxia ruscifolia* | | 14 | 38 | 21 | 1 | . | . | . | 3 | 7 | 13 | ANB | BEIPRW |
| *Ervatamia angustisepala* | | 3 | . | 8 | . | . | . | . | 3 | 2 | . | A | BE |
| *Melodinus acutiflorus* | H | 1 | 8 | . | . | . | . | . | . | . | 2 | B | R |
| *Melodinus australis* | | 12 | 69 | 8 | . | . | . | . | . | 7 | 11 | ANB | ER |
| *Parsonsia fulva* | H | 5 | 31 | 3 | . | . | . | . | . | 2 | 6 | B | ER |
| *Parsonsia induplicata* | H | 13 | 31 | 24 | . | . | . | . | 6 | 4 | 13 | ANB | EIR |
| *Parsonsia lanceolata* | H | 2 | . | 5 | . | . | . | . | 3 | . | 2 | NB | DJ |
| *Parsonsia rotata* | | 3 | 15 | 3 | . | . | . | . | . | 1 | 4 | B | PRW |
| *Parsonsia straminea* | | 31 | 23 | 32 | 14 | 9 | . | . | 9 | 20 | 19 | ANB | BDEFGIMORTVWY |
| *Parsonsia velutina* | | 5 | 15 | 5 | 1 | . | . | . | . | 1 | 7 | NB | EJR |
| *Parsonsia ventricosa* | H | 2 | 15 | . | . | . | . | . | . | 1 | 2 | B | R |
| *Tabernaemontana pandacaqui* | | 5 | 8 | 8 | 1 | . | . | . | 3 | 3 | 2 | NB | EKRS |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq. | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **ARALIACEAE** | | | | | | | | | | | | |
| *Astrotricha cordata* | | 1 | | | 3 | | | | 1 | | N | B |
| *Cephalaralia cephalobotrys* | | 17 | 54 | 21 | 2 | | | 9 | 4 | 19 | ANB | EIRW |
| *Polyscias elegans* | | 28 | 38 | 42 | 7 | | | 20 | 13 | 17 | ANB | BEIJKPRW |
| *Polyscias murrayi* | | 1 | | 3 | | | | 3 | | | N | E |
| *Polyscias sambucifolia* | | 6 | | 8 | 3 | | | 6 | 3 | 2 | ANB | DEIM |
| **ASCLEPIADACEAE** | | | | | | | | | | | | |
| * *Asclepias curassavica* | | 2 | | | 1 | | 50 | 3 | | 2 | NB | R |
| * *Gomphocarpus fruticosus* | | 8 | | 5 | 6 | | | 11 | 3 | 2 | ANB | BJMNRW |
| * *Gomphocarpus physocarpa* | | 7 | | 3 | 5 | | 50 | 9 | 3 | 2 | NB | GMQR |
| *Hoya oligotricha* | | 1 | 8 | | | | | | | 2 | B | P |
| *Marsdenia flavescens* | | 2 | 15 | | | | | | | 4 | B | R |
| *Marsdenia fraseri* | | 3 | | | | 9 | | | 2 | 2 | A | BD |
| *Marsdenia liisae* | H | 1 | | | 1 | | | | 1 | | B | I |
| *Marsdenia lloydii* | | 4 | 8 | 5 | 1 | | | | 1 | 6 | B | BW |
| *Marsdenia longiloba* | | 1 | | 3 | | | | | | 2 | B | I |
| *Marsdenia rostrata* | | 2 | 8 | 3 | | | | 3 | 1 | | AB | R |
| *Secamone elliptica* | H | 6 | 8 | 11 | 1 | | | | 4 | 4 | NB | BDP |
| *Tylophora benthamii* | H | 1 | | 3 | | | | 3 | | | B | R |
| *Tylophora grandiflora* | | 1 | | 3 | | | | | 1 | | N | D |
| *Tylophora paniculata* | H | 12 | 8 | 24 | 2 | | | 9 | 4 | 9 | ANB | BDEIJPRW |
| **ASTERACEAE** | | | | | | | | | | | | |
| *Acomis acoma* | H | + | | + | + | | | | + | | B | E |
| *Acmella grandiflora* var. *brachyglossa* | H | 2 | | | 2 | | | 3 | | 2 | AB | DF |
| * *Ageratina adenophora* | H | 4 | | | 2 | 3 | 50 | | 3 | 2 | ANB | BMOR |
| * *Ageratina riparia* | | 2 | | 3 | 1 | | | 3 | 1 | | N | JR |
| * *Ambrosia tenuifolia* | | 1 | | | 1 | | | | 1 | | A | B |
| * *Baccharis halimifolia* | | 1 | | | 1 | | | 3 | | | A | D |
| * *Bidens pilosa* | | 10 | | | 11 | | | 14 | 4 | 2 | AN | BEGMNRS |
| *Brachycome microcarpa* | | 2 | | | 2 | | | | 2 | | AN | AM |
| *Bracteantha bracteata* | | 2 | | | 2 | | | 3 | | 2 | B | EI |
| * *Carpesium cernuum* | | 1 | | | 1 | | | | | 2 | N | E |
| *Cassinia quinquefaria* | | 1 | | | 1 | | | | 1 | | N | R |
| *Centratherum punctatum* subsp. *australianum* | H | 8 | | 3 | 7 | | | 9 | 3 | 4 | ANB | DMORSW |
| *Chrysocephalum apiculatum* | | 12 | | | 10 | 6 | | 9 | 8 | 4 | ANB | ABDEMQ |
| *Chrysocephalum semipapposum* | | 5 | | | 4 | 3 | | 6 | 3 | | N | ABGM |
| * *Cirsium vulgare* | | 10 | | 5 | 9 | | | 17 | 2 | 4 | ANB | EGIJRY |
| * *Conyza albida* | | 5 | | | 4 | 3 | | | 4 | 2 | ANB | BGIMV |
| * *Conyza bonariensis* | | 13 | | 3 | 13 | | | 11 | 5 | 7 | N | BDEGJMNQRSY |
| * *Conyza parviflora* | | 1 | | | 1 | | | 3 | | | N | S |
| *Conyza canadensis* | H | 1 | | | | 3 | | 3 | | | B | Q |
| *Craspedia variabilis* | | 1 | | | 1 | | | | | 2 | B | I |
| * *Crassocephalum crepidioides* | | 2 | | | 2 | | | | 2 | | A | B |
| *Eclipta platyglossa* | | 1 | | | 1 | | | 3 | | | A | D |
| *Enydra fluctuans* | | 1 | | | 1 | | | | 1 | | N | G |
| *Epaltes australis* | | 7 | | | 7 | | | 9 | 2 | 4 | N | DGMQSY |
| * *Erechtites valerianifolia* | | 1 | | | | | 50 | | | 2 | B | R |
| *Glossogyne tannensis* | | 2 | | | 2 | | | 6 | | | N | EQ |

| Species | | Tot Freq | Broad floristic group Rf | Ws | Gf | Hf | Sh | Sw | Logging L1 | L2 | UL | Obs | State Forests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Gnaphalium gymnocephalum* | | 3 | | | 3 | | | | | 2 | 2 | NB | BIR |
| *Gnaphalium involucratum* | | 1 | | | 1 | | | | 3 | | | B | E |
| *Gnaphalium sphaericum* | | 5 | | 3 | 4 | | | | 11 | 1 | | N | EJMQ |
| *Helichrysum elatum* | | 1 | | | 1 | | | | | 1 | | B | I |
| *Helichrysum scorpioides* | | 2 | | | 2 | | | | | 1 | 2 | AB | BI |
| * *Hypochoeris radicata* | | 10 | | | 11 | | | | 9 | 7 | 2 | ANB | BDGIMRS |
| *Lagenifera gracilis* | H | 2 | | | 2 | | | | | 1 | 2 | B | DW |
| *Lagenifera stipitata* | | 13 | | 3 | 13 | | | | 11 | 4 | 9 | NB | BDEGIMORSU |
| *Olearia nernstii* | | 2 | | 5 | | | | | 3 | | 2 | AB | DW |
| *Olearia stilwelliae* | | + | | | | + | | | | | + | B | M |
| *Ozothamnus diosmifolius* | | 2 | | 3 | 1 | | | | 3 | 1 | | AB | EI |
| *Ozothamnus ferrugineus* | | 1 | | 3 | | | | | | 1 | | N | J |
| *Picris angustifolia* | H | 5 | | 3 | 4 | | | | 6 | | 6 | ANB | DEIJ |
| *Pterocaulon redolens* | | 2 | | | 2 | | | | 3 | | 2 | N | EQ |
| *Senecio amygdalifolius* | | 2 | | 3 | 1 | | | | | | 4 | B | I |
| *Senecio bipinnatisectus* | | 2 | | 3 | | | | 50 | 3 | | 2 | NB | JR |
| *Senecio hispidulus* var. *hispidulus* | | 2 | | | 2 | | | | | 1 | 2 | AB | BI |
| *Senecio lautus* | | 9 | | | 7 | 6 | | | 14 | 2 | 4 | N | DMNQRS |
| *Senecio minimus* | | 2 | | | 1 | 3 | | | 3 | 1 | | AN | BE |
| * *Senecio madagascariensis* | | 4 | | | 4 | | | | 6 | 1 | 2 | B | EFUY |
| *Senecio species* E | | 2 | | | 2 | | | | | | 4 | B | I |
| * *Sigesbeckia orientalis* | | 16 | | 3 | 16 | | | | 17 | 8 | 6 | ANB | BDEGIJNRW |
| * *Tagetes minuta* | | 1 | | | 1 | | | | | | 2 | N | E |
| * *Taraxacum officinale* | | 1 | | | 1 | | | | | 1 | | N | M |
| *Vernonia cinerea* var. cinerea | | 81 | | 5 | 78 | 18 | | | 69 | 47 | 26 | ANB | ABDEFGILMNOQRSTUVWY |
| *Youngia japonica* | | 2 | | 3 | 1 | | | | 3 | 1 | | N | JR |
| **ATHEROSPERMATACEAE** | | | | | | | | | | | | | |
| *Doryphora sassafras* | | 6 | 38 | 3 | | | | | | 2 | 7 | AB | EW |
| **BIGNONIACEAE** | | | | | | | | | | | | | |
| *Pandorea jasminoides* | | 2 | 15 | | | | | | | | 4 | B | PR |
| *Pandorea pandorana* | | 30 | 38 | 32 | 11 | 9 | | | 9 | 22 | 13 | ANB | DEFJKMPRSV |
| **BORAGINACEAE** | | | | | | | | | | | | | |
| *Austrocynoglossum latifolium* | | 1 | | 3 | | | | | 3 | | | N | J |
| *Ehretia acuminata* | | 6 | 15 | 11 | | | | | 6 | 2 | 4 | ANB | EIJR |
| **CAMPANULACEAE** | | | | | | | | | | | | | |
| *Wahlenbergia communis* | | 4 | | | 4 | | | | 9 | 1 | | N | EMQR |
| *Wahlenbergia gracilenta* | H | 6 | | | 6 | | | | 9 | 2 | 2 | ANB | BGIQS |
| *Wahlenbergia planiflora* | | 1 | | | 1 | | | | | | 2 | N | Y |
| *Wahlenbergia stricta* | | 1 | | | 1 | | | | | | 2 | B | I |
| **CAPPARIDACEAE** | | | | | | | | | | | | | |
| *Capparis arborea* | | 12 | 54 | 13 | | | | | | 5 | 13 | ANB | JPRW |
| **CAPRIFOLIACEAE** | | | | | | | | | | | | | |
| *Sambucus australasica* | H | 1 | | 3 | | | | | | 1 | | B | E |
| **CASUARINACEAE** | | | | | | | | | | | | | |
| *Allocasuarina littoralis* | | 11 | | | 4 | 21 | | | 11 | 3 | 7 | ANB | BEIMOTVY |
| *Allocasuarina torulosa* | | 73 | | 26 | 56 | 30 | | | 57 | 43 | 24 | ANB | ABDEFGIJLMOPQRSUVWY |
| *Casuarina glauca* | | 2 | | | 2 | | | | 3 | 1 | | AB | D |
| **CELASTRACEAE** | | | | | | | | | | | | | |
| *Cassine australis* | | 12 | 23 | 24 | | | | | 3 | 5 | 11 | ANB | BJPRW |
| *Celastrus australis* | | 2 | 8 | 3 | | | | | | | 4 | AB | W |
| *Celastrus subspicatus* | | 24 | 23 | 45 | 4 | | | | 14 | 15 | 9 | ANB | BEJKPRW |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Denhamia celastroides* | | 16 | 46 | 21 | 2 | | | | | 9 | 15 | ANB | BEIJKMPRW |
| *Maytenus bilocularis* | H | 21 | 15 | 37 | 5 | | | | 9 | 10 | 17 | ANB | BDEIJPRW |
| *Maytenus silvestris* | | 13 | | 16 | 6 | 3 | | | 17 | 5 | 4 | ANB | BDEIMPRSW |
| *Siphonodon australe* | | 7 | 8 | 16 | | | | | | 4 | 6 | ANB | BJPRW |
| **CHENOPODIACEAE** | | | | | | | | | | | | | |
| *Chenopodium pumilio* | | 1 | | | 1 | | | | | 1 | | A | B |
| *Einadia hastata* | | 2 | | 5 | | | | | 3 | 1 | | N | J |
| **CHLOANTHACEAE** | | | | | | | | | | | | | |
| *Chloanthes parviflora* | | 4 | | | | 12 | | | | 3 | 2 | NB | DGV |
| *Spartothamnella juncea* | | 3 | | 8 | | | | | | 2 | 2 | NB | BPW |
| **CONVOLVULACEAE** | | | | | | | | | | | | | |
| *Dichondra repens* | | 30 | | 13 | 26 | 3 | | | 11 | 16 | 20 | ANB | DEFGIJMORTUW |
| *Calystegia marginata* | | 5 | | | 4 | 3 | | | | 4 | 2 | AN | BDT |
| *Convolvulus erubescens* | | 1 | | | 1 | | | | 3 | | | N | R |
| *Polymeria calycina* | H | 9 | | | 9 | | 100 | | 3 | 5 | 6 | NB | DFGMOVY |
| **CUCURBITACEAE** | | | | | | | | | | | | | |
| *Diplocyclos palmatus* | H | 1 | | | 1 | | | | | | 2 | B | G |
| *Zehneria cunninghamii* | | 9 | 8 | 16 | 2 | | | | 9 | 5 | 2 | ANB | EJR |
| **CUNONIACEAE** | | | | | | | | | | | | | |
| *Aphanopetalum resinosum* | | 6 | | 5 | 3 | 3 | | | | 7 | | N | DMPV |
| *Caldcluvia paniculosa* | | 16 | 31 | 29 | 1 | | | | 9 | 4 | 17 | ANB | EIW |
| *Callicoma serratifolia* | | 2 | | 5 | | | | | 3 | | 2 | AB | E |
| *Ceratopetalum apetalum* | | 3 | 15 | 3 | | | | | 3 | 1 | 2 | AB | E |
| *Ceratopetalum gummiferum* | | 6 | | 3 | 1 | 12 | | | | 5 | 2 | AN | BDMV |
| *Schizomeria ovata* | | 15 | 38 | 24 | 1 | | | | 9 | 7 | 11 | ANB | DEIMW |
| **DILLENIACEAE** | | | | | | | | | | | | | |
| *Hibbertia acuminata* | H | 1 | | | | 3 | | | | | 2 | B | G |
| *Hibbertia aspera* | | 13 | | | 10 | 12 | | | 11 | 8 | 4 | ANB | DEGOSTUV |
| *Hibbertia dentata* | | 11 | | 21 | 3 | | | | 9 | 7 | 4 | ANB | BDEIM |
| *Hibbertia diffusa* | H | 12 | | 3 | 10 | 6 | | | 6 | 9 | 4 | NB | ADMQTUY |
| *Hibbertia empetrifolia* | | 6 | | 3 | 5 | | | | 3 | 2 | 6 | AB | DIU |
| *Hibbertia* aff. *linearis* | H | 1 | | 3 | | | | | 3 | | | B | D |
| *Hibbertia marginata* | | 7 | | 3 | 3 | 9 | | | | 7 | 2 | NB | DGMV |
| *Hibbertia monogyna* | | 1 | | | 1 | | | | | 1 | | N | G |
| *Hibbertia obtusifolia* | | 23 | | | 17 | 21 | | | 17 | 11 | 13 | ANB | ABDEGMQSVY |
| *Hibbertia riparia* | H | 6 | | | 1 | 15 | | | 3 | 1 | 7 | AB | BMQ |
| *Hibbertia scandens* | | 27 | | 21 | 19 | 3 | | | 20 | 11 | 19 | ANB | DEGIORUVW |
| *Hibbertia sericea* | | 2 | | | | 6 | | | | | 4 | B | GH |
| *Hibbertia vestita* | H | 14 | | | 15 | | | | 6 | 10 | 6 | ANB | ADGMOTUY |
| **EBENACEAE** | | | | | | | | | | | | | |
| *Diospyros australis* | | 14 | 23 | 26 | 1 | | | | | 7 | 15 | ANB | BEIJPRW |
| *Diospyros pentamera* | | 17 | 77 | 13 | 2 | | | | 3 | 8 | 17 | ANB | EPRW |
| **ELAEOCARPACEAE** | | | | | | | | | | | | | |
| *Elaeocarpus kirtonii* | H | 4 | 8 | 8 | | | | | | 2 | 4 | NB | E |
| *Elaeocarpus obovatus* | | 1 | 8 | | | | | | | | 2 | B | R |
| *Elaeocarpus reticulatus* | | 13 | 8 | 18 | 5 | | | | 6 | 9 | 6 | ANB | BDEIV |
| *Sloanea australis* | | 2 | 8 | 3 | | | | | 3 | 1 | | AB | R |
| *Sloanea woollsii* | | 12 | 54 | 13 | | | | | 3 | 7 | 9 | ANB | EKRW |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **EPACRIDACEAE** | | | | | | | | | | | | |
| *Brachyloma daphnoides* | | 1 | | | 3 | | | | | 2 | B | Q |
| *Epacris pulchella* | | 4 | | | 12 | | | 3 | | 6 | NB | ABG |
| *Leucopogon biflorus* | | 1 | | | 3 | | | | | 2 | N | Q |
| *Leucopogon ericoides* | | 4 | | | 12 | | | | | 7 | B | BGQ |
| *Leucopogon juniperinus* | | 3 | | 2 | 3 | | | | 1 | 4 | AB | IM |
| *Leucopogon lanceolatus* var. *gracilis* | H | 6 | 3 | 2 | 9 | | | 6 | 2 | 4 | NB | DHY |
| *Leucopogon lanceolatus* var. *lanceolatus* | H | 39 | 5 | 27 | 36 | | | 17 | 23 | 22 | ANB | BDEGIMOTVWY |
| *Leucopogon leptospermoides* | | 6 | 3 | 3 | 6 | | | | 5 | 2 | NB | DHPT |
| *Leucopogon margarodes* | H | 2 | 3 | 1 | | | | 3 | 1 | | NB | D |
| *Leucopogon neo-anglicus* | H | 1 | | | 100 | | | | 2 | B | M | |
| *Lissanthe* species A | H | 2 | | | 6 | | | | | 4 | B | H |
| *Lissanthe* species B | H | 2 | | 1 | 3 | | | | | 4 | B | DH |
| *Melichrus procumbens* | H | 6 | | 2 | 12 | | | | 2 | 7 | ANB | AGM |
| *Melichrus urceolatus* | | 16 | | 6 | 30 | | | 14 | 8 | 7 | ANB | ABEMQS |
| *Monotoca scoparia* | | 25 | | 6 | 58 | | | 17 | 11 | 17 | ANB | BDEGMQTV |
| *Styphelia viridis* var. *breviflora* | 3 | | 1 | 6 | | | | 2 | 2 | ANB | AB | |
| *Trochocarpa laurina* | | 45 | 8 | 47 | 23 | 12 | | 31 | 25 | 20 | ANB | BDEGIMQRVWY |
| **ESCALLONIACEAE** | | | | | | | | | | | | |
| *Abrophyllum ornans* | H | 2 | 8 | 3 | | | | | 1 | 2 | B | BE |
| *Anopterus macleayanus* | | 5 | 23 | 5 | | | | 3 | 1 | 6 | ANB | E |
| *Cuttsia viburnea* | H | 2 | 8 | 3 | | | | | | 4 | B | IW |
| *Polyosma cunninghamii* | | 6 | 31 | 5 | | | | | 3 | 6 | AB | E |
| *Quintinia sieberi* | | 1 | | 3 | | | | | 1 | | B | E |
| *Quintinia verdonii* | H | 2 | 8 | 3 | | | | | | 4 | B | EI |
| **EUPHORBIACEAE** | | | | | | | | | | | | |
| *Acalypha nemorum* | | 1 | | 3 | | | | | 1 | | N | R |
| *Actephila lindleyi* | | 7 | 46 | 3 | | | | | 4 | 6 | AB | PR |
| *Alchornea ilicifolia* | | 7 | 23 | 11 | | | | | 3 | 7 | ANB | BJPRW |
| *Baloghia inophylla* | | 8 | 62 | | | | | | 3 | 9 | AB | ERW |
| *Breynia oblongifolia* | | 67 | | 45 | 49 | 12 | | 49 | 39 | 26 | ANB | ABDEFGIJKMNOPQRSUVWY |
| *Bridelia exaltata* | | 7 | 8 | 16 | | | | 3 | 4 | 4 | ANB | BDPRW |
| *Claoxylon australe* | | 4 | 8 | 5 | 1 | | | 3 | 1 | 4 | ANB | EJW |
| *Cleistanthus cunninghamii* | | 9 | 62 | 3 | | | | | 4 | 9 | AB | BPRW |
| *Croton insularis* | | 3 | 15 | 3 | | | | | | 6 | NB | JPW |
| *Croton stigmatosus* | | 3 | 15 | 3 | | | | | 1 | 4 | NB | PR |
| *Croton verreauxii* | | 13 | 15 | 26 | 1 | | | 6 | 5 | 11 | ANB | BGKPRW |
| *Drypetes australasica* | | 13 | 31 | 24 | | | | | 10 | 7 | ANB | BKPRW |
| *Excoecaria dallachiana* | | 3 | 8 | 5 | | | | | 1 | 4 | B | BP |
| *Glochidion ferdinandi* | | 32 | | 16 | 27 | 3 | | 17 | 23 | 9 | ANB | ABDEFGMNOPRSUVWY |
| *Glochidion sumatranum* | | 5 | | | 5 | | | 3 | 4 | | N | FTY |
| *Mallotus discolor* | | 1 | | 3 | | | | | 1 | | A | R |
| *Mallotus philippensis* | | 19 | 54 | 29 | 1 | | | 9 | 10 | 13 | ANB | BKPRSW |
| *Micrantheum hexandrum* | | 3 | | | 3 | | | 6 | 1 | | N | R |
| *Omalanthus populifolius* | | 5 | | 13 | | | | 9 | 2 | | AN | EJP |
| *Petalostigma pubescens* | H | 1 | 8 | | | | | | | 2 | B | P |
| *Petalostigma triloculare* | | 1 | | | 1 | | | | | 2 | B | G |
| *Phyllanthus gasstroemii* | | 3 | | | 2 | 3 | | | 2 | 2 | AN | BMQ |
| *Phyllanthus gunnii* | | 2 | | 3 | 1 | | | 3 | | 2 | N | ER |
| *Phyllanthus similis* | | 3 | | | 3 | | | 3 | 2 | | N | G |
| *Phyllanthus thymoides* | | 32 | | | 9 | 73 | | 14 | 16 | 22 | ANB | ABDEGHMOQTUV |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Phyllanthus virgatus* | H | 24 | | 3 | 22 | 6 | | | 11 | 16 | 9 | ANB | ABDFJLMQSUWY |
| *Poranthera ericifolia* | | 1 | | | | 3 | | | | | 2 | B | G |
| *Poranthera microphylla* | | 19 | | 3 | 14 | 15 | | | 14 | 8 | 13 | ANB | ABDEIMQVY |
| *Pseudanthus orientalis* | H | 1 | | | | 3 | | | | | 2 | B | H |
| *Ricinocarpus pinifolius* | | 2 | | | | 6 | | | | 2 | | N | GV |
| *Sauropus* species A | H | 5 | | | 5 | | | | | 4 | 2 | AB | FLMY |
| *Tragia novae-hollandiae* | H | 2 | | 5 | | | | | | 1 | 2 | NB | RW |
| **EUPOMATIACEAE** | | | | | | | | | | | | | |
| *Eupomatia bennettii* | | 3 | 15 | 3 | | | | | | 1 | 4 | NB | KR |
| *Eupomatia laurina* | | 20 | 15 | 45 | 1 | | | | 14 | 9 | 13 | ANB | BDEGIKRW |
| **FABACEAE-CAESALPINIOIDE** | | | | | | | | | | | | | |
| **Chamaecrista mimosoides* | | 1 | | | 1 | | | | | 1 | | A | B |
| *Senna barclayana* | | 2 | | 5 | | | | | | 1 | 2 | N | JP |
| *Senna odorata* | | 1 | | 3 | | | | | 3 | | | N | J |
| **FABACEAE-FABOIDEAE** | | | | | | | | | | | | | |
| *Austrosteenisia blackii* | | 10 | 23 | 16 | 1 | | | | | 5 | 9 | ANB | BKPRW |
| *Bossiaea heterophylla* | | 3 | | | 1 | 6 | | | | 2 | 2 | NB | HTV |
| *Bossiaea prostrata* | | 1 | | | 1 | | | | 3 | | | N | E |
| *Bossiaea rhombifolia* subsp. *rhombifolia* | | 5 | | | | 15 | | | | 2 | 6 | NB | AGV |
| *Chorizema parviflorum* | | 5 | | | 3 | 6 | | | 6 | 2 | 2 | AN | ADQV |
| *Crotalaria montana* | H | 11 | | | 11 | 3 | | | 11 | 5 | 4 | ANB | BEGMQUY |
| *Daviesia acicularis* | | 2 | | | 1 | 3 | | | | 1 | 2 | NB | EO |
| *Daviesia genistifolia* | | 11 | | | 10 | 6 | | | 9 | 8 | 2 | ANB | ABEFGMORVY |
| *Daviesia ulicifolia* | | 6 | | | 6 | | | | 3 | 4 | 2 | ANB | ADTU |
| *Daviesia umbellulata* | | 14 | | | 5 | 27 | | | 6 | 8 | 9 | ANB | ABEGMOQT |
| *Daviesia villifera* | H | 6 | | | 1 | 15 | | | 3 | 3 | 4 | NB | BQT |
| *Daviesia wyattiana* | | 3 | | | 1 | 6 | | | | 1 | 4 | AB | AB |
| *Derris involuta* | | 5 | 8 | 11 | | | | | | 3 | 4 | NB | EJR |
| *Desmodium brachypodum* | H | 16 | | 3 | 15 | 3 | | | 14 | 5 | 11 | ANB | BEIMQRWY |
| *Desmodium nemorosum* | H | 3 | | 5 | 1 | | | | | 2 | 2 | NB | BEW |
| *Desmodium rhytidophyllum* | | 59 | | 11 | 53 | 15 | | | 46 | 32 | 26 | ANB | ABDEFGILMPQRSTUVWY |
| *Desmodium varians* | | 43 | | 18 | 36 | 6 | | | 40 | 18 | 22 | ANB | ABDEFGIMNQRSUWY |
| *Dillwynia retorta* | | 2 | | | 1 | 3 | | | | 2 | | N | TV |
| *Erythrina vespertilio* | | 2 | 8 | | 1 | | | | 3 | | 2 | NB | RW |
| *Galactia* species B | H | 2 | | | 2 | | | | | 2 | | AB | B |
| *Glycine clandestina* | H | 68 | | 21 | 54 | 27 | | | 49 | 45 | 19 | ANB | ABDEFGILMOPQRSTUVWY |
| *Glycine microphylla* | H | 1 | | | 1 | | | | | 1 | | B | U |
| *Glycine tabacina* | H | 26 | | | 28 | | | | 9 | 15 | 17 | ANB | BDFGILMNORUY |
| *Glycine tomentella* | H | 4 | | | 3 | 3 | | | 3 | 2 | 2 | ANB | BQUY |
| *Glycine 'strigosa'* | H | 2 | | 3 | 1 | | | | | 1 | 2 | B | UW |
| *Gompholobium huegelii* | H | 1 | | | | 3 | | | | | 2 | B | E |
| *Gompholobium latifolium* | | 9 | | | 2 | 21 | | | 3 | 5 | 6 | ANB | BDEGMQV |
| *Gompholobium pinnatum* | | 19 | | | 6 | 39 | | | 9 | 9 | 15 | ANB | ABDGHMOQTV |
| *Gompholobium virgatum* var. *aspalathoides* | H | 1 | | | | 3 | | | | | 2 | B | H |
| *Goodia lotifolia* | | 1 | | | 1 | | | | | 1 | | B | I |
| *Hardenbergia violacea* | | 56 | | 5 | 44 | 39 | | | 37 | 36 | 19 | ANB | ABDEGIMOPQRSTUVWY |
| *Hovea linearis* | | 5 | | | 3 | 6 | | | 6 | 2 | 2 | AN | AEQT |
| *Indigofera australis* | | 6 | | 3 | 5 | | | | | 4 | 4 | ANB | BIP |
| *Jacksonia scoparia* | | 20 | | | 15 | 18 | | | 11 | 10 | 13 | ANB | ABDEGMQRSTU |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Kennedia prostrata* | | 1 | | | 1 | | | | | | 2 | N | D |
| *Kennedia rubicunda* | | 18 | | 8 | 16 | | | | 6 | 14 | 6 | ANB | BDEGIMORVW |
| *Lespedeza juncea* | | | | | | | | | | | | | |
| subsp. *sericea* | | 4 | | | 4 | | | | 3 | 2 | 2 | AB | MRUW |
| *Millettia megasperma* | | 3 | 15 | 3 | | | | | 3 | | 4 | AB | R |
| *Mirbelia rubiifolia* | | 3 | | | | 9 | | | 3 | 2 | | NB | OT |
| *Mirbelia speciosa* | | | | | | | | | | | | | |
| subsp. *ringrosei* | H | + | | | | + | | | | | + | B | B |
| *Oxylobium ilicifolium* | | 5 | | | 2 | 9 | | | 9 | 1 | 2 | NB | BE |
| *Oxylobium robustum* | | 2 | | | 1 | 3 | | | | 2 | | N | D |
| *Oxylobium scandens* | | 3 | | | 1 | 6 | | | | 3 | | AN | V |
| *Phyllota phylicoides* | H | 3 | | | | 9 | | | | 1 | 4 | NB | HV |
| *Platylobium formosum* | | 4 | | 3 | 2 | 3 | | | | 3 | 2 | AN | DM |
| *Pultenaea euchila* | | 3 | | 3 | 1 | 3 | | | 3 | 2 | | N | PSY |
| *Pultenaea flexilis* | | 1 | | 3 | | | | | | 1 | | N | P |
| *Pultenaea linophylla* | | 1 | | | | 3 | | | 3 | | | N | E |
| *Pultenaea myrtoides* | H | 9 | | | 6 | 9 | | | 3 | 5 | 6 | NB | DHOTUY |
| *Pultenaea petiolaris* | H | 9 | 8 | | | 24 | | | 3 | 4 | 7 | ANB | BEGOQ |
| *Pultenaea retusa* | | 9 | | | 5 | 12 | | | 3 | 7 | 4 | ANB | AMOTV |
| *Pultenaea* species A | H | 1 | | | | 3 | | | | | 2 | B | G |
| *Pultenaea spinosa* | H | 3 | | | 3 | | | | 3 | 2 | | NB | GTU |
| *Pultenaea villosa* | | 16 | | | 5 | 33 | | | 6 | 11 | 7 | ANB | ABDGOQV |
| *Swainsonia galegifolia* | | 6 | | 5 | 4 | | | | 6 | 2 | 4 | AN | DJR |
| *Tephrosia brachyodon* | H | 1 | | | 1 | | | | 3 | | | B | E |
| *Zornia dyctiocarpa* | | 9 | | | 9 | 3 | | | 9 | 3 | 6 | AN | DEMQRS |
| **FABACEAE-MIMOSOIDEAE** | | | | | | | | | | | | | |
| *Acacia aulacocarpa* | | 16 | | 3 | 14 | 6 | | | 9 | 9 | 8 | NB | DFGLOUVY |
| *Acacia blakei* | | 1 | | | 1 | | | | | 1 | | N | F |
| *Acacia baeuerlenii* | | 1 | | | | 3 | | | | | 2 | B | Q |
| *Acacia binervia* | | 1 | | | 1 | | | | | 1 | | N | O |
| *Acacia complanata* | | 16 | | 3 | 2 | 39 | | | 3 | 9 | 13 | ANB | ABDGMQUV |
| *Acacia concurrens* | | 52 | | | 41 | 39 | | | 31 | 33 | 20 | ANB | ABDEFGLMOQSTUVY |
| *Acacia diphylla* | | 1 | | | 1 | | | | | | 2 | N | D |
| *Acacia falcata* | | 6 | | | 6 | | | | 6 | 3 | 2 | ANB | AEMU |
| *Acacia falciformis* | H | 1 | | | 1 | | | | | 1 | | B | I |
| *Acacia fimbriata* | | 5 | | 3 | 4 | | | | 3 | 4 | | AN | BMNS |
| *Acacia floribunda* | | 1 | | 3 | | | | | | 1 | | B | B |
| *Acacia hispidula* | | 3 | | | | 9 | | | | 2 | 2 | AB | BQ |
| *Acacia implexa* | | 7 | | | 5 | 6 | | | 9 | 2 | 4 | ANB | BEMY |
| *Acacia irrorata* | | 16 | | 18 | 10 | | | | 6 | 5 | 17 | ANB | BEFGIRW |
| *Acacia juliflora* | | 1 | | | 1 | | | | | 1 | | N | T |
| *Acacia longifolia* | | 2 | | | 2 | | | | | 2 | | N | MO |
| *Acacia maidenii* | | 26 | | 34 | 13 | 3 | | | 14 | 15 | 13 | ANB | BDEGIJOPRW |
| *Acacia melanoxylon* | | 14 | | 11 | 10 | 3 | | | 20 | 4 | 6 | ANB | BDEIQRS |
| *Acacia myrtifolia* | | 3 | | | | 9 | | | 3 | 2 | | NB | EO |
| *Acacia obtusifolia* | | 1 | | | | 3 | | | 3 | | | N | E |
| *Acacia stricta* | | 1 | | | | 3 | | | | | 2 | B | E |
| *Acacia suaveolens* | | 1 | | | | 3 | | | | 1 | | N | V |
| *Acacia ulicifolia* | | 7 | | | 2 | 15 | | | 3 | 5 | 2 | NB | BDEHO |
| *Acacia viscidula* | | 1 | | | | 100 | | | | | 2 | B | M |
| *Pararchidendron pruinosum* | | 1 | 8 | | | | | | | | 2 | B | R |

| | | Tot | Broad floristic group Rf | Ws | Gf | Hf | Sh | Sw | Logging L1 | L2 | UL | Obs | State Forests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | | |
| **FLACOURTIACEAE** | | | | | | | | | | | | | |
| *Casearia multinervosa* | H | 3 | 8 | 5 | . | . | . | . | 1 | 4 | B | BP |
| *Scolopia braunii* | | 7 | 15 | 13 | . | . | . | . | 2 | 9 | ANB | BJPRW |
| **GENTIANACEAE** | | | | | | | | | | | | | |
| * *Centaurium tenuiflorum* | | 2 | . | . | 2 | . | . | . | 1 | 2 | N | ER |
| **GERANIACEAE** | | | | | | | | | | | | | |
| *Geranium homeanum* | | 1 | . | . | 1 | . | . | 3 | . | . | B | E |
| *Geranium potentilloides* | H | 3 | . | . | 3 | . | . | . | 1 | 4 | B | IW |
| *Geranium solanderi* | | 12 | . | 5 | 11 | . | . | 14 | 8 | . | AN | BEGJMR |
| **GESNERIACEAE** | | | | | | | | | | | | | |
| *Fieldia australis* | | 1 | . | 3 | . | . | . | . | 1 | . | B | E |
| **GOODENIACEAE** | | | | | | | | | | | | | |
| *Dampiera stricta* | | 7 | . | . | 2 | 15 | . | 3 | 4 | 4 | NB | BDOTV |
| *Goodenia bellidifolia* | | 1 | . | . | . | 3 | . | . | 1 | . | N | O |
| *Goodenia heterophylla* | | 21 | . | 3 | 17 | 12 | . | 11 | 16 | 4 | AN | ABDEFMVY |
| *Goodenia heterophylla* | | | | | | | | | | | | |
| subsp *eglandulosa* | H | 1 | . | 3 | . | . | . | 3 | . | . | B | D |
| *Goodenia paniculata* | | 5 | . | . | 4 | 3 | . | 3 | 4 | . | AN | AD |
| *Goodenia rotundifolia* | H | 17 | . | . | 12 | 18 | . | 14 | 5 | 13 | NB | ABDEFMOSUY |
| *Scaevola ramosissima* | | 1 | . | . | 1 | . | . | . | 1 | . | A | B |
| *Velleia paradoxa* | | 2 | . | . | 1 | 3 | . | 3 | 1 | . | N | AE |
| *Velleia spathulata* | | 1 | . | . | 1 | . | . | . | 1 | . | N | A |
| **HALORAGACEAE** | | | | | | | | | | | | | |
| *Gonocarpus humilis* | | 4 | . | . | 4 | . | . | . | 1 | 6 | NB | DI |
| *Gonocarpus micranthus* | | 1 | . | . | 1 | . | . | . | 1 | . | N | A |
| *Gonocarpus tetragynus* | | 10 | . | 3 | 5 | 12 | . | 17 | 2 | 4 | ANB | DEOT |
| *Gonocarpus teucrioides* | | 4 | . | . | 3 | 3 | . | 3 | 3 | . | N | BM |
| **HYPERICACEAE** | | | | | | | | | | | | | |
| *Hypericum gramineum* | | 19 | . | . | 19 | 3 | . | 20 | 7 | 11 | ANB | BDEGMRSTVWY |
| *Hypericum japonicum* | | 2 | . | . | 1 | 3 | . | . | 2 | . | N | A |
| **ICACINACEAE** | | | | | | | | | | | | | |
| *Citronella moorei* | | 3 | 23 | . | . | . | . | . | . | 6 | B | ER |
| *Pennantia cunninghamii* | | 7 | 31 | 5 | 1 | . | . | . | 2 | 9 | B | EIW |
| **LAMIACEAE** | | | | | | | | | | | | | |
| *Ajuga australis* | | 17 | . | 8 | 15 | . | . | 14 | 8 | 9 | ANB | BDEIJMPRUWY |
| *Mentha diemenica* | H | 3 | . | . | 3 | . | . | 3 | 1 | 2 | NB | IR |
| *Plectranthus apreptus* | | 1 | . | . | 1 | . | . | . | 1 | . | N | M |
| *Plectranthus graveolens* | | 3 | . | . | 2 | 100 | . | . | 1 | 4 | NB | EM |
| *Plectranthus parviflorus* | | 19 | . | 8 | 16 | 3 | . | 26 | 7 | 7 | ANB | EGIJMRSWY |
| *Plectranthus suaveolens* | | 2 | . | . | 2 | . | . | . | 2 | . | N | B |
| *Prostanthera lanceolata* | H | 1 | . | 3 | . | . | . | . | 1 | . | B | B |
| *Prostanthera melissifolia* | H | 1 | . | 3 | . | . | . | . | . | 2 | B | I |
| *Teucrium corymbosum* | | 1 | . | 3 | . | . | . | 3 | . | . | N | E |
| **LAURACEAE** | | | | | | | | | | | | | |
| *Beilschmiedia elliptica* | H | 1 | . | 3 | . | . | . | 3 | . | . | B | R |
| *Beilschmiedia obtusifolia* | | 2 | 15 | . | . | . | . | . | 1 | 2 | AB | R |
| *Cassytha filiformis* | | 2 | . | . | 1 | 3 | . | 3 | 1 | . | N | O |
| *Cassytha glabella* | H | 10 | . | . | 1 | 24 | 100 | 3 | 4 | 9 | NB | DGHMOQV |
| *Cassytha pubescens* | | 1 | . | . | 1 | . | . | 3 | . | . | N | V |
| *Cassytha racemosa* | | 1 | . | . | . | 3 | . | 3 | . | . | N | E |
| *Cinnamomum oliveri* | | 5 | 8 | 11 | . | . | . | 3 | 3 | 2 | ANB | KRW |
| *Cinnamomum virens* | | 5 | 38 | . | . | . | . | . | 1 | 7 | B | ER |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Cryptocarya bidwillii* | | 1 | . | 3 | . | . | . | . | . | 1 | . | A | R |
| *Cryptocarya erythroxylon* | | 10 | 38 | 13 | . | . | . | . | 3 | 4 | 9 | ANB | EKRW |
| *Cryptocarya foveolata* | | 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | B | E |
| *Cryptocarya glaucescens* | | 10 | 15 | 21 | . | . | . | . | 9 | 4 | 6 | ANB | EIK |
| *Cryptocarya meissneriana* | | 3 | 15 | 3 | . | . | . | . | . | 1 | 4 | B | E |
| *Cryptocarya microneura* | | 14 | . | 32 | 2 | . | . | . | 11 | 5 | 9 | ANB | BEGIKRW |
| *Cryptocarya obovata* | | 17 | 77 | 13 | 2 | . | . | . | . | 8 | 19 | ANB | EIKRW |
| *Cryptocarya rigida* | | 12 | . | 26 | 2 | . | . | . | 6 | 4 | 11 | ANB | EI |
| *Cryptocarya triplinervis* var. *pubens* | | 2 | 16 | . | . | . | . | . | . | 1 | 2 | AB | R |
| *Cryptocarya* aff. *glaucescens* | | 1 | . | 3 | . | . | . | . | 3 | . | . | B | R |
| *Endiandra muelleri* subsp. *muelleri* | | 7 | 23 | 8 | 1 | . | . | . | . | 5 | 4 | AB | ERW |
| *Endiandra pubens* | H | 1 | 8 | . | . | . | . | . | . | . | 2 | B | R |
| *Endiandra sieberi* | | 7 | 8 | 16 | . | . | . | . | 3 | 2 | 7 | ANB | EI |
| *Endiandra virens* | | 4 | . | 11 | . | . | . | . | . | 4 | . | AN | KR |
| *Litsea reticulata* | | 11 | 38 | 13 | 1 | . | . | . | 3 | 3 | 13 | ANB | EIR |
| *Neolitsea australiensis* | | 8 | 39 | 8 | . | . | . | . | 6 | 3 | 6 | AB | ER |
| *Neolitsea dealbata* | | 15 | 38 | 21 | 2 | . | . | . | 6 | 8 | 11 | ANB | BEIJKRW |
| **LOBELIACEAE** | | | | | | | | | | | | | |
| *Lobelia dentata* | | 1 | . | . | . | 3 | . | . | 3 | . | . | N | |
| *Lobelia gracilis* | | 14 | . | 3 | 4 | 24 | 100 | . | 3 | 11 | 6 | NB | ABDGMQV |
| *Lobelia trigonocaulis* | | 5 | 8 | 11 | . | . | . | . | 3 | 2 | 4 | ANB | BEKR |
| *Pratia pedunculata* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | R |
| *Pratia purpurascens* | | 67 | . | 18 | 59 | 15 | . | . | 60 | 37 | 22 | ANB | ABDEFGIJMNOQRSUVWY |
| **LOGANIACEAE** | | | | | | | | | | | | | |
| *Logania pusilla* | H | 4 | . | . | 1 | 9 | . | . | 6 | 1 | 2 | ANB | BDE |
| *Mitrasacme alsinoides* | H | 1 | . | . | . | 100 | . | . | . | . | 2 | B | M |
| *Mitrasacme polymorpha* | | 3 | . | . | 2 | 3 | . | . | . | 3 | . | N | AD |
| **LORANTHACEAE** | | | | | | | | | | | | | |
| *Amyema conspicuum* ssp. *conspicuum* | H | 1 | . | . | 1 | . | . | . | . | 1 | . | B | L |
| *Amyema congener* | | 4 | . | 3 | 2 | 3 | . | . | 3 | 1 | 4 | AN | RTW |
| *Amyema congener* subsp. *rotundifolium* | | 1 | . | 3 | . | . | . | . | . | 1 | . | N | J |
| *Amyema pendulum* | | 1 | . | 3 | . | . | . | . | 3 | . | . | N | E |
| *Amylotheca dictyophleba* | | 1 | . | 3 | . | . | . | . | . | 1 | . | B | E |
| *Dendrophthoe vitellina* | H | 1 | . | . | . | 100 | . | . | . | . | 2 | B | M |
| *Muellerina celastroides* | | 6 | . | . | 5 | 3 | . | . | 11 | 1 | 2 | NB | EMR |
| *Muellerina eucalyptoides* | H | 3 | . | . | 2 | 3 | . | . | . | . | 6 | B | EI |
| **LYTHRACEAE** | | | | | | | | | | | | | |
| *Lythrum salicaria* | | 1 | . | . | 1 | . | . | . | 3 | . | . | A | D |
| **MALVACEAE** | | | | | | | | | | | | | |
| *Abutilon oxycarpum* | | 2 | . | 5 | . | . | . | . | 3 | 1 | . | N | JR |
| *Hibiscus heterophyllus* | | 6 | 8 | 11 | 1 | . | . | . | 6 | 2 | 4 | ANB | BJRW |
| *Hibiscus splendens* | | 1 | . | 3 | . | . | . | . | . | 1 | . | N | M |
| *Malvastrum coromandelianum* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | E |
| • *Sida rhombifolia* | | 4 | . | . | 4 | . | . | . | . | 4 | . | ANB | BFGU |
| **MELASTOMATACEAE** | | | | | | | | | | | | | |
| *Melastoma affine* | | 1 | . | . | 1 | . | . | . | . | 1 | . | A | V |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **MELIACEAE** | | | | | | | | | | | | | |
| *Anthocarapa nitidula* | | 6 | 38 | 3 | . | . | . | . | . | 4 | 4 | AB | R |
| *Dysoxylum fraserianum* | | 17 | 54 | 26 | . | . | . | . | 6 | 5 | 19 | ANB | EIPRW |
| *Dysoxylum muelleri* | | 1 | . | 3 | . | . | . | . | . | 1 | . | A | R |
| *Dysoxylum rufum* | | 6 | 23 | 8 | . | . | . | . | . | 3 | 6 | ANB | EJPRW |
| *Melia azedarach* | | | | | | | | | | | | | |
| var. *australasica* | | 5 | . | 11 | 1 | . | . | . | 6 | . | 6 | AN | JRW |
| *Owenia cepiodora* | H | 1 | 8 | . | . | . | . | . | . | . | 2 | B | R |
| *Synoum glandulosum* | | 25 | 8 | 55 | 3 | . | . | . | 17 | 12 | 15 | ANB | BDEIKMRW |
| *Toona ciliata* | | 5 | 15 | 8 | . | . | . | . | 3 | 2 | 4 | NB | ER |
| **MENISPERMACEAE** | | | | | | | | | | | | | |
| *Sarcopetalum harveyanum* | | 4 | 8 | 3 | 2 | . | . | . | . | 1 | 6 | NB | EIN |
| *Stephania aculeata* | | 8 | . | 5 | 5 | 3 | . | . | 3 | 5 | 4 | ANB | DGNUV |
| *Stephania japonica* | | | | | | | | | | | | | |
| var. *discolor* | | 16 | . | 21 | 9 | . | . | . | 9 | 12 | 4 | ANB | BDEGJMPR |
| **MENYANTHACEAE** | | | | | | | | | | | | | |
| *Villarsia exaltata* | H | 2 | . | . | 1 | . | . | 50 | 3 | . | 2 | AB | D |
| **MONIMIACEAE** | | | | | | | | | | | | | |
| *Hedycarya angustifolia* | | 3 | . | 8 | . | . | . | . | 6 | . | 2 | ANB | EI |
| *Palmeria scandens* | | 17 | 46 | 29 | . | . | . | . | 9 | 8 | 13 | ANB | EIR |
| *Wilkiea huegeliana* | | 10 | 38 | 13 | . | . | . | . | 3 | 5 | 7 | ANB | EKRW |
| **MONIMIACEAE** | | | | | | | | | | | | | |
| *Daphnandra* species A | | 15 | 54 | 21 | . | . | . | . | 6 | 8 | 9 | ANB | EKR |
| **MORACEAE** | | | | | | | | | | | | | |
| *Ficus coronata* | | 6 | 23 | 8 | . | . | . | . | . | 3 | 6 | ANB | BERW |
| *Ficus fraseri* | | 1 | 8 | . | . | . | . | . | . | 1 | . | A | R |
| *Ficus macrophylla* | | 2 | 8 | 3 | . | . | . | . | . | 2 | . | A | R |
| *Ficus rubiginosa* | | 2 | . | 3 | 1 | . | . | . | . | 1 | 2 | NB | BE |
| *Ficus watkinsiana* | | 6 | 38 | 3 | . | . | . | . | . | 1 | 9 | NB | EKRW |
| *Maclura cochinchinensis* | | 11 | 23 | 18 | 1 | . | . | . | 3 | 7 | 7 | ANB | BJPR |
| *Malaisia scandens* | | 4 | 23 | 3 | . | . | . | . | . | 1 | 6 | NB | EPR |
| *Streblus brunonianus* | | 4 | 23 | 3 | . | . | . | . | . | 1 | 6 | AB | PR |
| **MYOPORACEAE** | | | | | | | | | | | | | |
| *Eremophila debilis* | | 7 | . | . | 7 | . | . | . | 3 | 5 | 2 | ANB | BFLMSU |
| *Myoporum montanum* | | 4 | . | 8 | 1 | . | . | . | . | 3 | 2 | AN | JR |
| **MYRSINACEAE** | | | | | | | | | | | | | |
| *Embelia australiana* | | 18 | 62 | 26 | . | . | . | . | 3 | 8 | 19 | ANB | EJKPRW |
| *Rapanea howittiana* | | 2 | . | 3 | 1 | . | . | . | . | 1 | 2 | AB | PR |
| *Rapanea subsessilis* | | 3 | 15 | 3 | . | . | . | . | . | 3 | . | AB | R |
| *Rapanea variabilis* | | 24 | . | 45 | 7 | . | . | . | 9 | 15 | 13 | ANB | BDEGIKMPRVW |
| **MYRTACEAE** | | | | | | | | | | | | | |
| *Acmena ingens* | | 5 | 23 | 5 | . | . | . | . | 3 | 2 | 4 | AB | ER |
| *Acmena smithii* | | 16 | 23 | 24 | 4 | . | . | . | 9 | 11 | 6 | ANB | BDEIMNRV |
| *Angophora costata* | | 2 | . | . | 2 | . | . | . | . | 2 | . | A | BR |
| *Angophora floribunda* | | 2 | . | . | 2 | . | . | . | . | 1 | 2 | N | DY |
| *Angophora paludosa* | H | 4 | . | . | 4 | . | . | . | 3 | 2 | 2 | NB | DTU |
| *Angophora subvelutina* | | 24 | . | 26 | 15 | . | . | . | 29 | 13 | 4 | AN | BEFGJMNPRS |
| *Angophora woodsiana* | | 39 | . | . | 17 | 70 | . | . | 17 | 21 | 26 | ANB | ABDGHMOQTUVY |
| *Archirhodomyrtus beckleri* | H | 9 | . | 24 | . | . | . | . | 3 | 5 | 6 | ANB | BDEI |
| *Austromyrtus acmenioides* | | 1 | 8 | . | . | . | . | . | . | . | 2 | B | R |
| *Austromyrtus bidwillii* | | 6 | 38 | 3 | . | . | . | . | . | 2 | 7 | AB | BPRW |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq. | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs. | State Forests |
| *Austromyrtus dulcis* | | 5 | . | 3 | 3 | 3 | . | . | 3 | 3 | 2 | NB | D |
| *Austromyrtus hillii* | | 2 | 8 | 3 | . | . | . | . | . | 2 | . | A | R |
| *Backhousia myrtifolia* | | 1 | . | 3 | . | . | . | . | . | 1 | . | N | D |
| *Backhousia sciadophora* | | 1 | 8 | . | . | . | . | . | . | . | 2 | B | W |
| *Baeckea densifolia* | H | 1 | . | . | . | 3 | . | . | . | . | 2 | B | H |
| *Baeckea diosmifolia* | H | 1 | . | . | . | 3 | . | . | . | . | 2 | B | H |
| *Baeckea stenophylla* | | 1 | . | . | . | 3 | . | . | . | 1 | . | N | D |
| *Baeckea virgata* | H | 3 | . | . | 2 | 3 | . | . | . | . | 6 | NB | FGT |
| *Callistemon aff.* montanus | H | 1 | . | . | . | . | 100 | . | . | . | 2 | B | M |
| *Callistemon pachyphyllus* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | D |
| *Callistemon saligmus* | | 15 | 8 | 16 | 9 | . | . | . | 3 | 11 | 7 | ANB | BDFGJNRW |
| *Eucalyptus acmenioides* | | 14 | . | 13 | 10 | . | . | . | 17 | 3 | 9 | ANB | DEIRW |
| *Eucalyptus* aff. *acmenoides* | H | 1 | . | . | . | 3 | . | . | . | . | 2 | B | Q |
| *Eucalyptus baileyana* | | 9 | . | . | 1 | 24 | . | . | . | 4 | 9 | ANB | ADGV |
| *Eucalyptus bancroftii* | | 1 | . | . | . | 3 | . | . | . | 1 | . | N | A |
| *Eucalyptus biturbinata* | | 4 | . | . | 4 | . | . | . | 3 | 1 | 4 | NB | EI |
| *Eucalyptus brunnea* | | 1 | . | . | 1 | . | . | . | . | . | 2 | B | I |
| *Eucalyptus campanulata* | | 8 | . | 8 | 5 | . | . | . | 6 | 1 | 9 | ANB | EIM |
| *Eucalyptus carnea* | H | 21 | . | 5 | 15 | 15 | . | . | 26 | 8 | 9 | NB | ABDEGIMOQRSTVW |
| *Eucalyptus crebra* | H | 4 | . | . | 4 | . | . | . | 6 | 1 | 2 | ANB | GLMQ |
| *Eucalyptus dunnii* | | 1 | . | 3 | . | . | . | . | 3 | . | . | B | R |
| *Eucalyptus eugenioides* | H | 3 | . | . | 3 | . | . | . | 3 | 2 | . | AB | UV |
| *Eucalyptus fibrosa* | | 10 | . | . | 9 | 6 | . | . | 6 | 7 | 4 | ANB | ABDGOST |
| *Eucalyptus glaucina* | H | 2 | . | . | 2 | . | . | . | . | 2 | . | B | FY |
| *Eucalyptus globoidea* | | 1 | . | . | 1 | . | . | . | 3 | . | . | N | V |
| *Eucalyptus grandis* | | 8 | . | 18 | 1 | . | . | . | 9 | 4 | 2 | ANB | GJR |
| *Eucalyptus gummifera* | | 19 | . | . | 7 | 36 | . | . | 20 | 9 | 7 | ANB | BDEGMOQRSTV |
| *Eucalyptus henryi* | | 21 | . | . | 19 | 9 | . | . | 9 | 15 | 7 | ANB | ABDFGMOQUVY |
| *Eucalyptus intermedia* | | 51 | . | 16 | 38 | 27 | . | . | 31 | 34 | 17 | ANB | ABDEFGJLMOQRSTUVWY |
| *Eucalyptus laevopinea* | | 8 | . | 13 | 3 | . | . | . | 6 | 1 | 9 | ANB | EI |
| *Eucalyptus maculata* | | 35 | . | 26 | 24 | 6 | . | . | 29 | 22 | 9 | ANB | BDEJMPRSTVW |
| *Eucalyptus melanophloia* | | 2 | . | . | 2 | . | . | . | 3 | . | 2 | N | E |
| *Eucalyptus melliodora* | | 2 | . | . | 2 | . | . | . | 3 | . | 2 | NB | EI |
| *Eucalyptus microcorys* | | 39 | . | 45 | 22 | 3 | . | . | 29 | 16 | 26 | ANB | BDEGIJMOPRUVWY |
| *Eucalyptus moluccana* | | 23 | . | 11 | 20 | . | . | . | 9 | 17 | 7 | ANB | AFJLMPQRSUWY |
| *Eucalyptus pilularis* | | 34 | . | 5 | 20 | 39 | . | . | 17 | 22 | 15 | ANB | ABDEGMOQTUV |
| *Eucalyptus planchoniana* | | 11 | . | . | 1 | 30 | . | . | . | 9 | 6 | ANB | BDGMOQV |
| *Eucalyptus propinqua* | | 34 | . | 18 | 27 | 6 | . | . | 20 | 26 | 6 | ANB | BDEFGIJMOPRSVY |
| *Eucalyptus psammitica* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | M |
| *Eucalyptus pyrocarpa* | | 4 | . | . | 1 | 9 | . | . | . | 2 | 4 | AB | DQ |
| *Eucalyptus resinifera* | | 25 | . | 3 | 20 | 15 | . | . | 20 | 14 | 9 | ANB | ADEGHMOQRTVY |
| *Eucalyptus robusta* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | D |
| *Eucalyptus rummeryi* | | 5 | . | 13 | . | . | . | . | . | 4 | 2 | NB | BP |
| *Eucalyptus saligna* | | 15 | . | 26 | 4 | 3 | . | . | 6 | 7 | 13 | ANB | DEIKRW |
| *Eucalyptus scias* subsp. *apoda* | H | 1 | . | . | 1 | . | . | . | . | 1 | . | B | I |
| *Eucalyptus seeana* | H | 4 | . | . | 4 | . | . | . | . | 4 | . | NB | DU |
| *Eucalyptus siderophloia* | H | 48 | 8 | 18 | 41 | 3 | . | . | 23 | 30 | 22 | ANB | ABDFGILMOPRSUVWY |
| *Eucalyptus signata* | | 8 | . | . | 4 | 12 | . | . | . | 4 | 7 | NB | DHOTU |
| *Eucalyptus tereticornis* | H | 22 | . | 5 | 21 | . | . | . | 20 | 12 | 7 | ANB | DEFGJLMNQRS |
| *Eucalyptus tindaliae* | | 17 | . | . | 11 | 21 | . | . | 20 | 5 | 9 | ANB | ABEGMQS |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq. | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Eucalyptus umbra* | | 13 | . | . | 7 | 18 | . | . | 6 | 5 | 11 | ANB | ABDEMQR |
| *Leptospermum brachyandrum* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | G |
| *Leptospermum petersonii* | | 1 | . | 3 | . | . | . | . | . | 1 | . | N | D |
| *Leptospermum polyanthum* | H | 1 | . | . | . | . | 100 | . | . | . | 2 | B | M |
| *Leptospermum polygalifolium* | H | 22 | . | 3 | 9 | 39 | . | . | 3 | 17 | 9 | ANB | ABDGHMOTV |
| *Leptospermum trinervium* | | 19 | . | . | 1 | 55 | . | . | 9 | 8 | 17 | ANB | ABDEGHMQV |
| *Leptospermum variabile* | H | + | . | . | . | . | + | . | . | . | + | B | W |
| *Lophostemon confertus* | | 37 | 15 | 58 | 10 | 12 | . | . | 23 | 21 | 19 | ANB | BDEIJKMPQRSW |
| *Lophostemon suavolens* | | 32 | . | . | 31 | 9 | . | . | 14 | 24 | 9 | ANB | ADEFGLOSTUVY |
| *Melaleuca alternifolia* | H | 7 | . | . | 6 | 3 | . | . | 3 | 5 | 2 | ANB | ADFG |
| *Melaleuca decora* | H | 1 | . | . | 1 | . | . | . | . | . | 2 | B | F |
| *Melaleuca quinquenervia* | | 4 | . | . | 3 | 3 | . | . | 3 | 2 | 2 | N | DNT |
| *Melaleuca nodosa* | | 9 | . | . | 7 | 6 | . | . | . | 4 | 9 | NB | DFHLTU |
| *Melaleuca sieberi* | | 11 | . | . | 5 | 18 | . | . | 3 | 7 | 7 | ANB | DHOTU |
| *Melaleuca styphelioides* | | 3 | . | . | 2 | 3 | . | . | . | 2 | 2 | N | DT |
| *Melaleuca tamariscina* subsp. *irbyana* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | FY |
| *Melaleuca thymifolia* | | 2 | . | . | . | 6 | . | . | 3 | . | 2 | N | T |
| *Rhodamnia argentea* | | 5 | 31 | 3 | . | . | . | . | . | 3 | 4 | AB | ER |
| *Rhodamnia rubescens* | | 25 | 23 | 50 | 3 | . | . | . | 17 | 12 | 15 | ANB | BDEIKPRW |
| *Rhodomyrtus psidioides* | | 2 | . | 5 | . | . | . | . | 3 | 1 | . | AB | DR |
| *Syncarpia glomulifera* | | 27 | . | 13 | 13 | 30 | . | . | 17 | 18 | 7 | ANB | BDGMOQRTV |
| *Syzygium australe* | | 2 | 8 | 3 | . | . | . | . | 3 | . | 2 | AB | R |
| *Syzygium corynanthum* | H | 7 | 54 | . | . | . | . | . | . | 3 | 7 | AB | ERW |
| *Syzygium crebrinerve* | H | 5 | 23 | 5 | . | . | . | . | 3 | 3 | 2 | AB | ER |
| *Syzygium francisii* | | 5 | 38 | . | . | . | . | . | . | 3 | 4 | AB | RW |
| *Syzygium oleosum* | | 5 | . | 8 | 2 | . | . | . | . | 4 | 2 | AN | BDEVW |
| *Tristaniopsis collina* | | 2 | . | 3 | 1 | . | . | . | . | 1 | 2 | B | EW |
| *Tristaniopsis laurina* | | 2 | . | 3 | 1 | . | . | . | . | 1 | 2 | NB | BG |
| **OLEACEAE** | | | | | | | | | | | | | |
| *Jasminum suliflorum* | | 2 | 15 | . | . | . | . | . | . | 1 | 2 | B | R |
| *Jasminum suavissimum* | H | 4 | . | . | 4 | . | . | . | . | 3 | 2 | B | FLU |
| *Jasminum volubile* | | 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | B | BP |
| *Notelaea longifolia* | | 18 | . | 16 | 13 | . | . | . | 9 | 13 | 6 | ANB | BDFGIPRV |
| *Notelaea ovata* | | 8 | . | . | 3 | 15 | . | . | 6 | 3 | 6 | ANB | BDST |
| *Notelaea species A* | | 1 | . | 3 | . | . | . | . | . | . | 2 | B | I |
| *Olea paniculata* | | 4 | 15 | . | 2 | . | . | . | 3 | 2 | 2 | NB | RW |
| **ONAGRACEAE** | | | | | | | | | | | | | |
| *Epilobium billardierianum* subsp. *cinereum* | | 1 | . | . | 1 | . | . | . | . | 1 | . | A | B |
| *Epilobium billardierianum* subsp. *hydrophilum* | | 1 | . | . | 1 | . | . | . | 3 | . | . | N | E |
| *Ludwigia peploides* subsp. *montevidensis* | H | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| **OXALIDACEAE** | | | | | | | | | | | | | |
| *Oxalis chnoodes* | | 6 | . | 5 | 4 | . | . | . | 6 | 1 | 6 | NB | DIJRW |
| *Oxalis corniculata* spp. agg. | | 12 | . | 13 | 7 | . | . | . | 11 | 7 | 4 | AN | BEJMNRVW |
| *Oxalis exilis* | H | 6 | . | . | 6 | . | . | . | 6 | 3 | 2 | NB | DGM |
| *Oxalis radicosa* | H | 3 | . | . | 2 | 3 | . | . | . | 2 | 2 | NB | AGW |
| **PASSIFLORACEAE** | | | | | | | | | | | | | |
| * *Passiflora aurantia* | | 2 | . | 3 | 1 | . | . | . | 3 | 1 | . | NB | JW |
| * *Passiflora edulis* | | 5 | 8 | 8 | 1 | . | . | . | 3 | 4 | . | NB | DEKNR |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq. | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **PEPEROMIACEAE** | | | | | | | | | | | | | |
| *Peperomia leptostachya* | | 1 | . | 3 | . | . | . | . | . | 1 | . | B | B |
| *Peperomia tetraphylla* | | 3 | 15 | 3 | . | . | . | . | . | 1 | 4 | B | E |
| **PIPERACEAE** | | | | | | | | | | | | | |
| *Piper novae-hollandiae* | | 6 | 31 | 5 | . | . | . | . | 3 | 2 | 6 | NB | ERW |
| **PITTOSPORACEAE** | | | | | | | | | | | | | |
| *Billardiera scandens* | | 27 | . | 8 | 19 | 18 | . | . | 11 | 17 | 13 | ANB | ABDEGIOTV |
| *Bursaria longisepala* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | T |
| *Bursaria spinosa* | | 2 | . | 3 | 1 | . | . | . | 6 | . | . | NB | DR |
| *Bursaria spinosa* | | | | | | | | | | | | | |
| var. *macrophylla* | H | 1 | . | 3 | . | . | . | . | . | . | 2 | B | I |
| *Citriobatus lancifolius* | | 3 | . | 8 | . | . | . | . | . | 2 | 2 | N | JR |
| *Citriobatus pauciflorus* | | 33 | 85 | 50 | 3 | . | . | . | 9 | 14 | 31 | ANB | BDEIJPRW |
| *Hymenosporum flavum* | | 5 | 8 | 11 | . | . | . | . | . | 1 | 7 | NB | EIJR |
| *Pittosporum revolutum* | | 6 | 8 | 8 | 2 | . | . | . | 3 | . | 9 | ANB | DEGIR |
| *Pittosporum rhombifolium* | | 2 | 15 | . | . | . | . | . | . | 1 | 2 | B | R |
| *Pittosporum undulatum* | | 3 | . | 3 | 2 | . | . | . | 3 | 1 | 2 | NB | IMR |
| **PLANTAGINACEAE** | | | | | | | | | | | | | |
| *Plantago debilis* | | 10 | . | . | 11 | . | . | . | 11 | 3 | 6 | ANB | BEFIMR |
| **POLYGALACEAE** | | | | | | | | | | | | | |
| *Comesperma defoliatum* | | 1 | . | . | . | 3 | . | . | . | 1 | . | A | D |
| *Comesperma ericinum* | H | 6 | . | . | 2 | 9 | 100 | . | 6 | . | 7 | ANB | ADEMT |
| *Comesperma sphaerocarpum* | H | 2 | . | . | 1 | 3 | . | . | . | 1 | 2 | AB | B |
| *Polygala japonica* | | 6 | . | . | 6 | . | . | . | 9 | 2 | 2 | ANB | EFRUY |
| **POLYGONACEAE** | | | | | | | | | | | | | |
| *Muehlenbeckia gracillima* | | 2 | . | 3 | 1 | . | . | . | 3 | 1 | . | N | JN |
| *Persicaria decipiens* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | G |
| *Persicaria elatior* | H | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| *Persicaria lapathifolia* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | G |
| *Persicaria orientalis* | H | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| *Persicaria strigosa* | | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| *Persicaria subsessilis* | H | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| **PROTEACEAE** | | | | | | | | | | | | | |
| *Banksia aemula* | | 1 | . | . | . | 3 | . | . | . | . | 2 | B | H |
| *Banksia cunninghamii* | | | | | | | | | | | | | |
| subsp. A | H | 1 | . | . | . | 3 | . | . | . | . | 2 | B | E |
| *Banksia integrifolia* | | | | | | | | | | | | | |
| subsp. *compar* | | 1 | . | . | . | 3 | . | . | . | . | 2 | B | E |
| *Banksia integrifolia* | | | | | | | | | | | | | |
| subsp. *integrifolia* | | 5 | . | . | 5 | . | . | . | 3 | 4 | . | ANB | BDMVY |
| *Banksia marginata* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | Y |
| *Banksia oblongifolia* | | 18 | . | . | 5 | 39 | . | . | 3 | 11 | 13 | ANB | ADGHOTV |
| *Banksia serrata* | | 4 | . | . | 1 | 9 | . | . | . | 2 | 4 | ANB | BD |
| *Banksia spinulosa* var. *collina* | | 12 | . | . | 5 | 21 | . | . | 6 | 8 | 6 | ANB | DEGHOT |
| *Grevillea linearifloia* | | 1 | . | . | . | 3 | . | . | 3 | . | . | N | T |
| *Grevillea robusta* | | 2 | . | . | 2 | . | . | . | 3 | 1 | . | NB | FR |
| *Hakea dactyloides* | | 2 | . | . | 2 | . | . | . | . | 2 | . | N | MO |
| *Hakea eriantha* | | 1 | . | . | . | 3 | . | . | 3 | . | . | N | E |
| *Hakea florulenta* | | 2 | . | . | . | 6 | . | . | . | . | 4 | B | GH |
| *Hakea salicifolia* | | 25 | . | . | 17 | 27 | . | . | 11 | 17 | 9 | AN | ABDGMORSTV |
| *Isopogon mnoraifolius* | H | 2 | . | . | . | 6 | . | . | 3 | . | 2 | NB | HT |
| *Lambertia formosa* | | 2 | . | . | . | 6 | . | . | . | 1 | 2 | NB | GV |
| *Lomatia silaifolia* | | 28 | . | 5 | 12 | 45 | . | . | 9 | 18 | 15 | ANB | ABDEGHIMOQTUV |

| | | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tot. | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq. | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Orites excelsa* | 7 | 38 | 5 | | | | | | 2 | 9 | AB | EI |
| *Persoonia adenantha* | H 3 | | | 2 | 3 | | | 3 | 1 | 2 | B | EI |
| *Persoonia media* | 1 | | | 1 | | | | 3 | | | N | E |
| *Persoonia oleoides* | H 2 | | | 1 | 3 | | | | | 4 | B | EI |
| *Persoonia stradbrokensis* | H 66 | | 5 | 40 | 79 | | | 37 | 37 | 35 | ANB | ABDEGMOQSTUVY |
| *Persoonia tenuifolia* | H 21 | | | 2 | 58 | | | 9 | 9 | 19 | ANB | ABDGHMOQT |
| *Petrophile canescens* | H 6 | | | | 18 | | | 3 | 1 | 7 | NB | BEGHQ |
| *Stenocarpos sinuatus* | 1 | 8 | | | | | | | | 2 | B | R |
| *Stenocarpus salignus* | 3 | 15 | 3 | | | | | | 2 | 2 | ANB | EK |
| *Xylomelum pyriforme* | 1 | | | | 3 | | | | 1 | | N | V |
| **RANUNCULACEAE** | | | | | | | | | | | | |
| *Clematis aristata* | 6 | | 11 | 2 | | | | 3 | 2 | 6 | ANB | EGIP |
| *Clematis fawcettii* | H 1 | 8 | | | | | | | | 2 | B | R |
| *Clematis glycinoides* | 14 | 15 | 21 | 4 | | | | 11 | 8 | 6 | ANB | EGIKMPR |
| *Ranunculus lappaceus* | 4 | | | 4 | | | | | 2 | 4 | ANB | IM |
| *Ranunculus plebeius* | 4 | | | 4 | | | | 9 | 1 | | N | ER |
| *Ranunculus sessiliflorus* | 2 | | 3 | 1 | | | | 3 | 1 | | N | JR |
| **RHAMNACEAE** | | | | | | | | | | | | |
| *Alphitonia excelsa* | 75 | | 24 | 61 | 27 | | | 43 | 50 | 26 | ANB | ABDEFGIJKLMNPORSTUVWY |
| *Cryptandra propinqua* | H 1 | | | | | 100 | | | | 2 | B | M |
| **ROSACEAE** | | | | | | | | | | | | |
| *Rubus hillii* | 11 | | 24 | 2 | | | | 9 | 7 | 4 | ANB | BDEGRVW |
| *Rubus moorei* | 6 | | 16 | | | | | 6 | 3 | 2 | AN | ER |
| *Rubus parvifolius* | 11 | | 5 | 10 | | | | 6 | 7 | 6 | ANB | BEIMNR |
| *Rubus rosifolius* | 17 | 8 | 26 | 6 | | | | 20 | 10 | 2 | ANB | EJMNRW |
| *Rubus sp. A (aff. moorei)* | 5 | 8 | 11 | | | | | | 1 | 7 | B | EI |
| **RUBIACEAE** | | | | | | | | | | | | |
| *Asperula conferta* | 1 | | | 1 | | | | 3 | | | N | R |
| *Canthium buxifolium* | 6 | 8 | 13 | | | | | | 4 | 4 | NB | BJPR |
| *Canthium coprosmoides* | H 2 | 8 | 3 | | | | | | | 4 | AB | EW |
| *Canthium odoratum* | 3 | | 8 | | | | | | 3 | | N | PR |
| *Canthium vaccinifolium* | H 2 | 15 | | | | | | | | 4 | B | PW |
| *Galium binifolium* | 1 | | 3 | | | | | 3 | | | B | D |
| *Galium ciliare* | 1 | | | 1 | | | | | | 2 | B | I |
| *Galium gaudichaudii* | 2 | | 5 | | | | | 3 | | 2 | N | EJ |
| *Galium liratum* | 1 | | | 1 | | | | | 1 | | B | D |
| *Galium migrans* | 2 | | | 2 | | | | 3 | 1 | | N | R |
| *Hodgkinsonia ovatiflora* | H 3 | 8 | 5 | | | | | | 2 | 2 | NB | BR |
| *Ixora beckleri* | H 4 | 15 | 5 | | | | | | 2 | 4 | NB | JRW |
| *Morinda acutifolia* | 1 | 8 | | | | | | | | 2 | B | P |
| *Morinda jasminoides* | 27 | 69 | 32 | 6 | | | | 6 | 13 | 24 | ANB | BDEGIKMNR |
| *Opercularia aspera* | 8 | | | 7 | 3 | | | 9 | 4 | 2 | ANB | BEUY |
| *Opercularia diphylla* | 5 | | | 4 | 3 | | | 3 | 2 | 4 | AN | ADMQ |
| *Opercularia hispida* | 3 | | | 2 | 3 | | | | 1 | 4 | AB | DEI |
| *Pomax umbellata* | 29 | | 5 | 14 | 42 | | | 17 | 14 | 19 | ANB | ABDEGHMQRSUVY |
| *Psychotria daphnoides* | 9 | | 13 | 4 | | | | 6 | 7 | 2 | ANB | BPR |
| *Psychotria loniceroides* | 36 | 31 | 68 | 6 | | | | 14 | 16 | 30 | ANB | BDEGIJMPRW |
| * *Richardia brasiliensis* | H 6 | | | 6 | | | | 11 | 1 | 2 | ANB | BEQY |
| * *Richardia stellaris* | 4 | | | 4 | | | | 3 | 2 | 2 | N | EMN |
| *Spermacoce brachystema* | 4 | | | 3 | 3 | | | 6 | | 4 | N | EQ |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **RUTACEAE** | | | | | | | | | | | | | |
| *Acradenia euodiiformis* | | 3 | 23 | . | . | . | . | . | . | . | 6 | B | E |
| *Acronychia oblongifolia* | | 10 | 8 | 24 | . | . | . | . | 6 | 3 | 9 | ANB | EIJKPRW |
| *Acronychia octandra* | H | 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | B | E |
| *Acronychia pubescens* | | 5 | 15 | 8 | . | . | . | . | 3 | 3 | 2 | ANB | EPR |
| *Boronia chartacea* | H | 1 | . | 3 | . | . | . | . | . | 1 | . | B | B |
| *Boronia polygalifolia* | H | 3 | . | . | 3 | . | . | . | 6 | 1 | . | NB | EGU |
| *Correa reflexa* var. reflexa | | 1 | . | . | 1 | . | . | . | . | 1 | . | B | I |
| *Flindersia australis* | | 5 | 15 | 5 | 1 | . | . | . | 3 | 2 | 4 | ANB | BRW |
| *Flindersia bennettiana* | | 2 | . | 5 | . | . | . | . | . | 1 | 2 | NB | PR |
| *Flindersia schottiana* | | 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | AN | JR |
| *Flindersia xanthoxyla* | | 1 | . | 3 | . | . | . | . | . | 1 | . | A | R |
| *Geijera latifolia* | | 5 | 15 | 8 | . | . | . | . | . | 2 | 6 | NB | JKRW |
| *Melicope micrococca* | | 6 | . | 16 | . | . | . | . | 6 | 3 | 2 | ANB | JKR |
| *Pentaceras australe* | | 1 | 8 | . | . | . | . | . | . | 1 | . | A | R |
| *Phebalium squamulosum* subsp. *squamulosum* | | 1 | . | . | . | 100 | . | . | . | . | 2 | B | M |
| *Sarcomelicope simplicifolia* | | 5 | 31 | 3 | . | . | . | . | . | 3 | 4 | AB | EPRW |
| *Zanthoxylum brachyacanthum* | | 5 | 23 | 5 | . | . | . | . | . | 3 | 4 | ANB | PRW |
| *Zieria minutiflora* | H | 2 | . | 3 | 1 | . | . | . | 3 | . | 2 | B | D |
| *Zieria smithii* | | 3 | . | 8 | . | . | . | . | . | 2 | 2 | ANB | EIK |
| *Zieria* species K | H | 1 | . | 3 | . | . | . | . | . | . | 2 | B | E |
| **SANTALACEAE** | | | | | | | | | | | | | |
| *Exocarpos cupressiformis* | | 3 | . | . | . | 9 | . | . | . | 3 | . | AB | BQ |
| *Santalum obtusifolium* | | 1 | . | . | 1 | . | . | . | . | 1 | . | B | I |
| **SAPINDACEAE** | | | | | | | | | | | | | |
| *Alectryon subcinereus* | | 13 | 23 | 21 | 2 | . | . | . | 6 | 8 | 7 | ANB | BPRW |
| *Alectryon subdentatus* | | 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | B | BP |
| *Arytera divaricata* | | 10 | 38 | 13 | . | . | . | . | 6 | 5 | 6 | ANB | PR |
| *Castanospora alphandii* | H | 1 | 8 | . | . | . | . | . | . | . | 2 | B | E |
| *Cupaniopsis flagelliformis* var. *australis* | | 8 | 31 | 11 | . | . | . | . | 3 | 5 | 4 | NNB | R |
| *Cupaniopsis parvifolia* | | 9 | 15 | 18 | . | . | . | . | . | 4 | 9 | ANB | BJPRW |
| *Diploglottis australis* | | 14 | 46 | 21 | . | . | . | . | 3 | 7 | 13 | NB | EJKRW |
| *Dodonaea megazyga* | | 1 | . | 3 | . | . | . | . | . | 1 | . | N | E |
| *Dodonaea triangularis* | | 1 | . | . | . | 3 | . | . | . | 1 | . | N | A |
| *Dodonaea triquetra* | | 7 | . | 3 | 2 | 12 | . | . | 6 | 4 | 2 | NB | ABDGQ |
| *Dodonaea viscosa* | | 2 | . | . | 2 | . | . | . | 3 | . | 2 | AN | DQ |
| *Elattostachys nervosa* | | 9 | 31 | 13 | . | . | . | . | 3 | 7 | 4 | ANB | R |
| *Elattostachys xylocarpa* | | 5 | 15 | 8 | . | . | . | . | . | 2 | 6 | NB | BPR |
| *Guioa semiglauca* | | 31 | 62 | 55 | 2 | . | . | . | 14 | 15 | 22 | ANB | BEIJPRW |
| *Harpullia hillii* | H | 2 | 8 | 3 | . | . | . | . | 3 | . | 2 | B | R |
| *Jagera pseudorhus* | | 9 | 31 | 13 | . | . | . | . | 3 | 4 | 7 | ANB | JKPRW |
| *Mischocarpus australis* | | 3 | 23 | . | . | . | . | . | . | 1 | 4 | B | R |
| *Rhysotoechia bifoliolata* | H | 2 | 15 | . | . | . | . | . | . | . | 4 | B | PR |
| **SAPOTACEAE** | | | | | | | | | | | | | |
| *Planchonella australis* | | 2 | 15 | . | . | . | . | . | . | 1 | 2 | AB | R |
| *Planchonella myrsinoides* | | 1 | 8 | . | . | . | . | . | . | 1 | . | A | R |
| **SCROPHULARIACEAE** | | | | | | | | | | | | | |
| *Veronica plebeia* | | 10 | . | 3 | 10 | . | . | . | 11 | 1 | 9 | NB | EGINRUWY |
| * *Veronica persica* | | 3 | . | 5 | 1 | . | . | . | 6 | 1 | . | N | JS |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **SIMAROUBACEAE** | | | | | | | | | | | | | |
| *Ailanthus triphysa* | | 1 | 8 | | | | | | | | 2 | B | W |
| *Guilfoylia monostylis* | H | 4 | 31 | | | | | | | 1 | 6 | B | ER |
| **SOLANACEAE** | | | | | | | | | | | | | |
| *Duboisia myoporoides* | | 9 | | 13 | 4 | | | | 6 | 7 | 2 | ANB | BDEMN |
| *Nicotiana debneyi* | | 3 | | 8 | | | | | 9 | | | ANB | JR |
| * *Physalis peruviana* | | 2 | | | 1 | | | 50 | | 1 | 2 | AB | BR |
| *Solanum aviculare* | | 2 | | 5 | | | | | 3 | 1 | | AB | ER |
| *Solanum callium* | | 1 | 8 | | | | | | | | 2 | B | R |
| *Solanum densevestitum* | | 15 | | 16 | 10 | | | | 14 | 5 | 9 | ANB | BDEIJRW |
| *Solanum esuriale* | | 1 | | | 1 | | | | | 1 | | N | M |
| *Solanum furfuraceum* | H | 2 | | 3 | 1 | | | | 3 | 1 | | NB | EW |
| *Solanum opacum* | | 1 | | | | | | 50 | | | 2 | B | R |
| *Solanum prinophyllum* | | 7 | | 13 | 2 | | | | 11 | 3 | | AN | EJKR |
| * *Solanum pseudocapsicum* | | 2 | | 5 | | | | | 3 | 1 | | AN | JR |
| *Solanum pungetium* | | 1 | | 3 | | | | | 3 | | | B | R |
| * *Solanum seaforthianum* | H | 5 | 8 | 11 | | | | | 3 | 2 | 4 | NB | JPR |
| *Solanum semiarmatum* | | 1 | | 3 | | | | | | 1 | | A | R |
| *Solanum stelligerum* | | 11 | | 13 | 6 | | | | 11 | 4 | 6 | ANB | JKRW |
| *Solanum* sp. aff. *cinereum* | | 1 | | | 1 | | | | | 1 | | B | W |
| **STACKHOUSIACEAE** | | | | | | | | | | | | | |
| *Stackhousia viminea* | | 7 | | | 6 | 3 | | | 6 | 5 | | AN | AGV |
| **STERCULIACEAE** | | | | | | | | | | | | | |
| *Brachychiton acerifolius* | | 3 | 15 | 3 | | | | | | 1 | 4 | NB | EP |
| *Brachychiton discolor* | | 5 | 8 | 3 | 3 | | | | 9 | 1 | 2 | NB | GRW |
| *Brachychiton populneus* | | 2 | | | 2 | | | | 6 | | | N | R |
| *Heritiera actinophylla* | | 8 | 38 | 8 | | | | | | 7 | 4 | ANB | KR |
| *Heritiera trifoliolata* | | 4 | 31 | | | | | | | 2 | 4 | AB | R |
| *Keraudrenia* aff. *hillii* | H | 1 | | | | | 100 | | | | 2 | B | M |
| **STYLIDIACEAE** | | | | | | | | | | | | | |
| *Stylidium debile* | | 1 | | | 1 | | | | 3 | | | A | D |
| *Stylidium graminifolium* | | 10 | | | 2 | 24 | | | 9 | 3 | 7 | ANB | BEQ |
| **SYMPLOCACEAE** | | | | | | | | | | | | | |
| *Symplocos thwaitesii* | H | 3 | 15 | 3 | | | | | | 2 | 2 | AB | ER |
| **THYMELACEAE** | | | | | | | | | | | | | |
| *Phaleria chermsideana* | | 3 | 8 | 5 | | | | | | 2 | 2 | ANB | KR |
| **THYMELAEACEAE** | | | | | | | | | | | | | |
| *Pimelea glauca* | | 1 | | | | 3 | | | | 1 | | N | A |
| *Pimelia latifolia* | | 6 | | 13 | 1 | | | | 9 | 2 | 2 | AN | ER |
| *Pimelea neo-anglica* | | 6 | | 13 | | | | | 6 | 2 | 4 | AN | EJRW |
| *Pimelea ligustrina* subsp. ligustrina | | 4 | | 11 | | | | | 6 | 2 | | ANB | BKR |
| *Pimelea linifolia* subsp. *linifolia* | H | 37 | | 3 | 28 | 30 | | | 20 | 25 | 13 | ANB | ADEFGLMOQTUVY |
| *Pimelea neo-anglica* | | 2 | | 3 | 1 | | | | 3 | | 2 | B | IR |
| *Wikstroemia indica* | | 12 | 15 | 21 | 2 | | | | 6 | 5 | 9 | ANB | BGJKNPRW |
| **TREMANDRACEAE** | | | | | | | | | | | | | |
| *Tetratheca thymifolia* | | 2 | | | 1 | 3 | | | | 2 | | N | BM |
| **TRIMENIACEAE** | | | | | | | | | | | | | |
| *Trimenia moorei* | | 1 | | 3 | | | | | 3 | | | A | E |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **ULMACEAE** | | | | | | | | | | | | | |
| *Aphananthe phillippinensis* | | 3 | 15 | 3 | . | . | . | . | . | 1 | 4 | AB | PR |
| *Trema aspera* | | 9 | . | 11 | 5 | . | . | . | 6 | 4 | 6 | ANB | DEJNPRUW |
| **URTICACEAE** | | | | | | | | | | | | | |
| *Boehmeria platyphylla* | | | | | | | | | | | | | |
| var. *austroqueenslandica* | | 1 | . | 3 | . | . | . | . | 3 | . | . | A | R |
| *Dendrocnide excelsa* | | 13 | 62 | 13 | . | . | . | . | 3 | 5 | 13 | ANB | ERW |
| *Dendrocnide photinophylla* | | 6 | 15 | 11 | . | . | . | . | 3 | 3 | 4 | AB | RW |
| *Elatostemma reticulatum* | | 2 | 15 | . | . | . | . | . | . | . | 4 | B | EW |
| *Elatostemma stipitatum* | | 2 | 15 | . | . | . | . | . | . | . | 4 | B | E |
| *Urtica incisa* | | 2 | . | 3 | 1 | . | . | . | 3 | 1 | . | AB | RW |
| * *Urtica urens* | | 2 | . | 5 | . | . | . | . | 3 | 1 | . | N | EJ |
| **VERBENACEAE** | | | | | | | | | | | | | |
| *Clerodendrum tomentosum* | | 13 | . | 24 | 4 | . | . | . | 6 | 4 | 13 | ANB | BEGIJR |
| *Gmelina leichhardtii* | | 3 | 23 | . | . | . | . | . | . | 1 | 4 | B | R |
| * *Lantana camara* | | 52 | 8 | 53 | 32 | 3 | . | . | 31 | 33 | 20 | ANB | BDEFGJKLMNPQRSUVW |
| * *Verbena bonariensis* | | 4 | . | . | 4 | . | . | . | 6 | 2 | . | AN | GMR |
| * *Verbena rigida* | H | 2 | . | . | 2 | . | . | . | 3 | 1 | . | NB | QU |
| **VIOLACEAE** | | | | | | | | | | | | | |
| *Hybanthus monopetalus* | | 9 | . | 5 | 5 | 6 | . | . | 3 | 9 | . | NB | ADMOTV |
| *Hybanthus stellarioides* | | 55 | . | 16 | 49 | 9 | . | . | 43 | 34 | 16 | ANB | ABDEGIJLMNQRSUVWY |
| *Hybanthus vernonii* | | | | | | | | | | | | | |
| subsp. *vernonii* | | 2 | . | . | 1 | 3 | . | . | . | . | 4 | A | DM |
| *Hybanthus vernonii* | | | | | | | | | | | | | |
| subsp. *scaber* | H | 4 | . | . | 1 | 9 | . | . | . | 3 | 2 | ANB | B |
| *Viola betonicifolia* | | 18 | . | . | 19 | . | . | . | 17 | 9 | 7 | ANB | BEIMRTW |
| *Viola hederacea* | H | 22 | . | 32 | 11 | . | . | . | 14 | 11 | 13 | ANB | BDEGIJMNW |
| **VISACEAE** | | | | | | | | | | | | | |
| *Notothixos incanus* | H | 2 | . | . | 1 | 3 | . | . | . | . | 4 | NB | FT |
| **VITACEAE** | | | | | | | | | | | | | |
| *Cayratia clematidea* | | 23 | . | 39 | 9 | . | . | . | 14 | 13 | 11 | ANB | DEFGIJKMNPRW |
| *Cayratia eurynema* | | 3 | 8 | 5 | . | . | . | . | . | 3 | . | AB | ER |
| *Cissus antarctica* | | 40 | 38 | 74 | 7 | . | . | . | 20 | 20 | 28 | ANB | BEGIJKPRW |
| *Cissus hypoglauca* | | 33 | 46 | 55 | 6 | . | . | . | 20 | 13 | 26 | ANB | BDEGIMRW |
| *Cissus opaca* | | 8 | . | 8 | 5 | . | . | . | 9 | 3 | 4 | ANB | BDGJNPRS |
| *Cissus sterculiifolia* | | 5 | 23 | 3 | 1 | . | . | . | . | 3 | 4 | NB | EKR |
| *Tetrastigma nitens* | | 13 | 31 | 18 | 2 | . | . | . | 6 | 5 | 11 | ANB | ERW |
| **WINTERACEAE** | | | | | | | | | | | | | |
| *Tasmannia insipida* | | 10 | 46 | 11 | . | . | . | . | . | 4 | 11 | AB | EIRW |
| Class MAGNOLIOPSIDA - LILIIDAE | | | | | | | | | | | | | |
| **AMARYLLIDACEAE** | | | | | | | | | | | | | |
| *Proiphys cunninghamii* | | 2 | . | 3 | 1 | . | . | . | . | . | 4 | B | W |
| **ANTHERICACEAE** | | | | | | | | | | | | | |
| *Arthropodium milleflorum* | | 5 | . | . | 5 | . | . | . | 6 | 2 | 2 | NB | BEIMR |
| *Caesia parviflora* | | 3 | . | . | 1 | 6 | . | . | . | 3 | . | AB | DO |
| *Laxmannia gracilis* | H | 39 | . | 3 | 31 | 27 | . | . | 34 | 23 | 11 | ANB | ADEFGLMOPQSUVY |
| *Thysanotus tuberosus* | | 18 | . | . | 13 | 18 | . | . | 17 | 12 | 2 | ANB | ABEGMORVY |
| *Tricoryne anceps* | | | | | | | | | | | | | |
| subsp. *pterocaulon* | H | 2 | . | . | . | 6 | . | . | . | 1 | 2 | AB | DG |
| *Tricoryne elatior* | H | 27 | . | . | 19 | 24 | 100 | . | 11 | 17 | 13 | ANB | ABDEFGMQTUY |

| | | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tot | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **ARACEAE** | | | | | | | | | | | | |
| *Alocasia brisbanensis* | 9 | 38 | 8 | . | . | . | 50 | 3 | 4 | 7 | ANB | ERW |
| *Gymnostachys anceps* | 27 | 31 | 47 | 5 | . | . | . | 11 | 12 | 22 | ANB | BDEGIJKMPRW |
| *Pothos longipes* | 3 | 23 | . | . | . | . | . | . | 2 | 2 | AB | R |
| **ARECACEAE** | | | | | | | | | | | | |
| *Archontophoenix cunninghamiana* | 15 | 23 | 32 | . | . | . | . | 9 | 4 | 15 | ANB | BEIRW |
| *Linospadix monostachya* | 17 | 77 | 16 | 1 | . | . | . | 3 | 8 | 17 | ANB | EIKRW |
| *Livistona australis* | 16 | 23 | 29 | 2 | . | . | . | 11 | 7 | 11 | ANB | EORW |
| **ASTELIACEAE** | | | | | | | | | | | | |
| *Cordyline petiolaris* | 20 | 31 | 39 | 1 | . | . | . | 9 | 9 | 17 | ANB | BEIJKPRW |
| *Cordyline rubra* | 4 | 8 | 8 | . | . | . | . | . | 4 | . | AN | KR |
| *Cordyline stricta* | 20 | 8 | 37 | 5 | . | . | . | 11 | 9 | 15 | ANB | BDEGIRVW |
| **COLCHICACEAE** | | | | | | | | | | | | |
| *Burchardia umbellata* | 1 | . | . | . | 3 | . | . | . | 1 | . | B | O |
| *Iphigenia indica* | H + | . | . | + | . | . | . | + | + | + | B | BM |
| **COMMELINACEAE** | | | | | | | | | | | | |
| *Aneilema acuminatum* | 3 | . | 5 | 1 | . | . | . | 3 | 1 | 2 | NB | EI |
| *Aneilema biflorum* | 3 | . | 8 | . | . | . | . | 3 | . | 4 | NB | ERW |
| *Commelina cyanea* | 32 | 8 | 16 | 22 | 9 | . | 50 | 34 | 15 | 11 | ANB | BDEFGJKLMPQRSUWY |
| *Murdannia graminea* | 23 | . | . | 24 | . | . | . | 11 | 17 | 6 | ANB | ADFGLMUVY |
| *Pollia crispata* | 6 | 15 | 11 | . | . | . | . | 3 | 2 | 6 | ANB | ERW |
| **CYPERACEAE** | | | | | | | | | | | | |
| *Abildgaardia ovata* | 1 | . | . | 1 | . | . | . | 3 | . | . | N | Q |
| *Abildgaardia vaginata* | H 2 | . | . | 1 | 3 | . | . | 3 | . | 2 | AB | DQ |
| *Baumea arthrophylla* | H 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| *Baumea articulata* | 1 | . | . | 1 | . | . | . | 3 | . | . | A | D |
| *Baumea juncea* | 1 | . | . | 1 | . | . | . | . | . | 2 | N | D |
| *Baumea rubiginosa* | H 2 | . | . | 1 | . | . | 50 | 3 | . | 2 | AB | D |
| *Bolboschoenus fluviatalis* | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| *Carex breviculmis* | 8 | . | . | 7 | 3 | . | . | 11 | . | 7 | NB | EGIQR |
| *Carex brunnea* | 2 | 8 | 3 | . | . | . | . | . | . | 4 | B | PR |
| *Carex declinata* | 2 | . | 3 | . | . | . | 50 | 3 | . | 2 | NB | JR |
| *Carex fascicularis* | 1 | . | . | . | . | . | 50 | . | . | 2 | B | R |
| *Carex hubbardii* | H 2 | 8 | 3 | . | . | . | . | . | 1 | 2 | NB | PR |
| *Carex inversa* | 4 | . | . | 4 | . | . | . | 6 | 2 | . | ANB | EMR |
| *Chorizandra sphaerocephala* | 1 | . | . | . | . | . | 50 | . | . | 2 | B | D |
| *Cyperus cyperoides* | 6 | . | . | 6 | . | . | . | 6 | 3 | 2 | AN | BEQ |
| *Cyperus disjunctus* | H 8 | 23 | 13 | . | . | . | . | 9 | 2 | 6 | ANB | EW |
| *Cyperus enervis* | H 8 | . | 13 | 3 | . | . | . | 9 | 1 | 7 | ANB | EJPRW |
| *Cyperus exaltatus* | 1 | . | . | 1 | . | . | . | . | . | 2 | N | G |
| *Cyperus fulvus* | 2 | . | . | 2 | . | . | . | 3 | 1 | . | AN | MQ |
| *Cyperus gracilis* | H 10 | . | 13 | 5 | . | . | . | 11 | 4 | 4 | ANB | JMQRU |
| *Cyperus laevis* | 8 | . | 3 | 7 | . | . | . | 6 | 5 | 2 | AB | BEUWY |
| *Cyperus leiocaulon* | 2 | . | . | 2 | . | . | . | . | 2 | . | A | B |
| *Cyperus mirus* | H 2 | . | 3 | 1 | . | . | . | 3 | . | 2 | B | RW |
| *Cyperus polystachyus* | 1 | . | . | 1 | . | . | . | . | 1 | . | N | M |
| *Cyperus sanguinolentus* | 1 | . | . | 1 | . | . | . | . | 1 | . | N | D |
| * *Cyperus sesquiflorus* | 2 | . | . | 2 | . | . | . | . | 2 | . | N | MN |
| *Cyperus tetraphyllus* | 9 | 31 | 11 | 1 | . | . | . | 3 | 3 | 9 | ANB | KPRW |
| *Cyperus trinervis* | 1 | . | . | 1 | . | . | . | . | 1 | . | N | O |
| *Fimbristylis cinnamometorum* | 4 | . | . | 2 | 6 | . | . | 3 | 3 | . | AN | AE |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Fimbristylis dichotoma* | H | 18 | . | . | 16 | 6 | 100 | . | 17 | 9 | 7 | ANB | ABDEGMQSU |
| *Fimbristylis ferruginea* | | 6 | . | . | 6 | . | . | . | . | 7 | . | A | ABM |
| *Fimbristylis velata* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | D |
| *Gahnia aspera* | | 33 | 15 | 39 | 13 | 12 | . | . | 20 | 16 | 20 | ANB | ABDEGIJMPQRSVY |
| *Gahnia clarkei* | | 5 | . | . | 5 | . | . | . | . | 5 | . | AN | DOTV |
| *Gahnia melanocarpa* | | 9 | . | 21 | 1 | . | . | . | 6 | 2 | 9 | ANB | EIW |
| *Gahnia sieberiana* | | 14 | . | . | 7 | 21 | . | . | 9 | 9 | 6 | NB | ABDGOV |
| *Lepidosperma elatius* | H | 1 | . | . | . | 100 | . | . | . | 2 | B | M | |
| *Lepidosperma filiforme* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | M |
| *Lepidosperma gunnii* | H | 2 | . | . | . | 6 | . | . | 3 | . | 2 | NB | HT |
| *Lepidosperma laterale* | H | 70 | . | 34 | 36 | 70 | . | . | 51 | 30 | 44 | ANB | ABDEGHIJMOPQRSTVW |
| *Lepidosperma urophorum* | | 1 | . | . | . | 3 | . | . | 3 | . | . | N | T |
| *Lepironia articulata* | H | 1 | . | . | . | . | 50 | . | . | . | 2 | B | R |
| *Ptilothrix deusta* | | 8 | . | . | 2 | 18 | . | . | 6 | 3 | 6 | NB | DEHOT |
| *Schoenoplectus validus* | H | 1 | . | . | . | . | 50 | . | . | . | 2 | B | R |
| *Schoenus ericetorum* | H | 1 | . | . | . | 3 | . | . | . | . | 2 | B | A |
| *Schoenus paludosus* | | 1 | . | . | . | 3 | . | . | 3 | . | . | N | T |
| *Scleria mackaviensis* | | 5 | . | . | 5 | . | . | . | 3 | 2 | 4 | NB | EMQUW |
| **DIOSCOREACEAE** | | | | | | | | | | | | | |
| *Dioscorea transversa* | | 17 | 15 | 39 | . | . | . | . | 11 | 7 | 13 | ANB | BEJMPRW |
| **FLAGELLARIACEAE** | | | | | | | | | | | | | |
| *Flagellaria indica* | | 3 | 15 | 3 | . | . | . | . | . | 2 | 2 | AB | R |
| **HAEMODORACEAE** | | | | | | | | | | | | | |
| *Haemodorum planifolium* | | 33 | . | . | 18 | 48 | . | . | 20 | 16 | 20 | ANB | ABDEGHQTUVY |
| **HYPOXIDACEAE** | | | | | | | | | | | | | |
| *Curculigo ensifolia* | | 2 | . | . | 2 | . | . | . | 3 | 1 | . | NB | FG |
| *Hypoxis hygrometrica* | | 6 | . | . | 6 | . | . | . | 6 | 4 | . | AN | ABEMST |
| *Hypoxis hygrometrica* var. *villosisepala* | H | 3 | . | . | 3 | . | . | . | 3 | 1 | 2 | B | FU |
| **IRIDACEAE** | | | | | | | | | | | | | |
| *Patersonia fragilis* | | 1 | . | . | . | 3 | . | . | . | . | 2 | N | T |
| *Patersonia glabrata* | | 17 | . | 3 | 9 | 24 | . | . | 14 | 7 | 11 | ANB | ABDEMOTV |
| *Patersonia longifolia* | | 1 | . | . | . | 3 | . | . | . | . | 2 | A | M |
| *Patersonia sericea* | H | 23 | . | . | 4 | 58 | . | . | 6 | 12 | 19 | ANB | ABDGHOQTV |
| **JUNCACEAE** | | | | | | | | | | | | | |
| *Juncus continuus* | | 2 | . | . | 2 | . | . | . | . | 1 | 2 | AN | DV |
| *Juncus prismatocarpus* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | G |
| *Juncus subsecundus* | | 2 | . | . | 2 | . | . | . | 6 | . | . | AN | RS |
| *Juncus usitatus* | | 2 | . | . | 2 | . | . | . | 3 | 1 | . | N | GR |
| **LOMANDRACEAE** | | | | | | | | | | | | | |
| *Lomandra confertifolia* subsp. *pallida* | H | 4 | . | . | 2 | 6 | . | . | . | 2 | 4 | AB | ADQR |
| *Lomandra filiformis* | H | 65 | . | 24 | 41 | 52 | . | . | 31 | 41 | 30 | ANB | ABDEFGHIJLMOPQRSTUVWY |
| *Lomandra gracilis* | | 1 | . | . | 1 | . | . | . | . | . | 2 | N | D |
| *Lomandra laxa* | H | 4 | . | . | 2 | 6 | . | . | 9 | . | 2 | NB | QUY |
| *Lomandra longifolia* | | 69 | . | 34 | 55 | 12 | . | . | 43 | 40 | 31 | ANB | BDEFGIJLMOQRSTUVWY |
| *Lomandra multiflora* | | 43 | . | 3 | 32 | 36 | . | . | 34 | 18 | 26 | ANB | ABDEFGIJMQRSTUVY |
| *Lomandra obliqua* | | 8 | . | . | . | 24 | . | . | 3 | 4 | 6 | NB | ABGQV |
| *Lomandra spicata* | | 15 | 69 | 16 | . | . | . | . | 6 | 7 | 13 | ANB | EIRW |
| **LUZURIAGACEAE** | | | | | | | | | | | | | |
| *Eustrephus latifolius* | | 88 | . | 47 | 66 | 24 | . | . | 66 | 51 | 33 | ANB | ABDEFGIJLMOPQRSTUVWY |
| *Geitonoplesium cymosum* | | 53 | 31 | 63 | 26 | 3 | . | . | 31 | 25 | 35 | ANB | BDEFGIJKMNPRSVY |

| | | Tot. | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| **ORCHIDACEAE** | | | | | | | | | | | | | |
| *Acianthus exsertus* | H | 2 | | | 2 | | | | | | 4 | B | I |
| *Arthrochilus prolixus* | | 1 | | | 1 | | | | | 1 | | A | B |
| *Bulbophyllum bracteatum* | | + | + | | | | | | | | + | B | R |
| *Bulbophyllum exiguum* | | 8 | 23 | 11 | 1 | | | | | 2 | 11 | AB | EIW |
| *Calanthe triplicata* | | 3 | 8 | 5 | | | | | | 1 | 4 | NB | ERW |
| *Caleana major* | | 1 | | | | 3 | | | | 1 | | B | Q |
| *Chiloglottis diphylla* | H | 3 | | 5 | 1 | | | | 3 | 1 | 2 | B | BDG |
| *Corybas barbarae* | | 1 | | 3 | | | | | | | 2 | B | I |
| *Corybas fimbriatus* | | 2 | | | 2 | | | | | | 4 | B | I |
| *Cryptostylis subulata* | | 1 | | | 1 | | | | 3 | | | N | O |
| *Cymbidium suave* | | 7 | | | 5 | 6 | | | 3 | 3 | 6 | ANB | ADETVY |
| *Dendrobium aemulum* | | 5 | | 11 | 1 | | | | | 2 | 6 | ANB | BRW |
| *Dendrobium fairfaxii* | | 3 | 8 | 5 | | | | | | 1 | 4 | B | BPW |
| *Dendrobium gracilicaule* | | 8 | 23 | 11 | 1 | | | | 3 | 2 | 9 | ANB | EIRW |
| *Dendrobium kingianum* | | 2 | | 3 | 1 | | | | | 2 | | B | BD |
| *Dendrobium mortii* | | 1 | | 3 | | | | | | | 2 | B | I |
| *Dendrobium pugioniforme* | | 3 | 15 | 3 | | | | | | 1 | 4 | B | E |
| *Dendrobium schneiderae* | | + | + | | | | | | | | + | B | R |
| *Dendrobium schoeninum* | | 3 | 23 | | | | | | | | 6 | B | RW |
| *Dendrobium tarberi* | | 1 | | 3 | | | | | | 1 | | B | B |
| *Dendrobium tetragonum* | | 3 | 15 | 3 | | | | | | 1 | 4 | B | BEW |
| *Dipodium punctatum* | | 1 | | 3 | | | | | 3 | | | N | J |
| *Diuris sulphurea* | | 1 | | | 1 | | | | | | 2 | B | I |
| *Eriochilus cucullatus* | | 1 | | | | 100 | | | | | 2 | B | M |
| *Plectorhiza tridentata* | | 7 | 23 | 8 | 1 | | | | | 3 | 7 | ANB | BEFW |
| *Pterostylis curta* | | 1 | | 3 | | | | | | 1 | | B | B |
| *Pterostylis daintreana* | | 1 | | | | 100 | | | | | 2 | B | M |
| *Pterostylis grandiflora* | | 1 | | 3 | | | | | | | 2 | B | I |
| *Pterostylis hispidula* | H | 2 | | | 2 | | | | | | 4 | B | I |
| *Pterostylis longifolia* | | 2 | | | 2 | | | | | | 4 | B | I |
| *Pterostylis nutans* | | 1 | | | 1 | | | | | | 2 | B | I |
| *Rhinerrhiza divitiflora* | | 1 | 8 | | | | | | | | 2 | B | W |
| *Sarcochilus falcatus* | | 1 | 8 | | | | | | | | 2 | B | R |
| *Sarcochilus hillii* | | 1 | | 3 | | | | | | 1 | | B | B |
| *Sarcochilus olivaceus* | | 1 | 8 | | | | | | | | 2 | B | E |
| *Sarcochilus spathulatus* | | 1 | | 3 | | | | | | | 2 | B | I |
| **PETERMANNIACEAE** | | | | | | | | | | | | | |
| *Petermannia cirrosa* | | 2 | | 5 | | | | | | 2 | | N | R |
| **PHILYDRACEAE** | | | | | | | | | | | | | |
| *Philydrum lanuginosum* | | 3 | | | 2 | | 50 | | 3 | 1 | 2 | ANB | DG |
| **PHORMIACEAE** | | | | | | | | | | | | | |
| *Dianella caerulea* | | 108 | 8 | 66 | 63 | 70 | | | 54 | 61 | 61 | ANB | ABDEFGIJLMOPQRSTUVWY |
| *Dianella longifolia* | | 9 | | | 9 | 3 | | | 14 | 3 | 2 | AN | BEQRS |
| *Dianella longifolia* | | | | | | | | | | | | | |
| var. *stenophylla* | H | 2 | | | 1 | 3 | | | 3 | | 2 | B | FQ |
| *Dianella revoluta* | H | 6 | | | 4 | 6 | | | 6 | 2 | 4 | NB | BDOQU |
| *Stypandra glauca* | | 1 | | | | 100 | | | | | 2 | B | M |
| **POACEAE** | | | | | | | | | | | | | |
| *Alloteropsis semialata* | H | 25 | | | 21 | 15 | | | 14 | 16 | 9 | ANB | ABDEFGLMQUY |
| *Anisopogon avenaceus* | | 7 | | | 2 | 15 | | | 6 | 5 | | N | AEGMV |

| Species | Freq | Tot | Broad floristic group Rf | Ws | Gf | Hf | Sh | Sw | Logging L1 | L2 | UL | Obs | State Forests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | | |
| *Aristida acuta* | H | 1 | | | 3 | | | 3 | | | B | Q |
| *Aristida benthamii* | H | 9 | | | 24 | 100 | | | 1 | 15 | NB | ABGHMOQ |
| *Aristida calycina* var. *calycina* | | 12 | | 9 | 12 | | | 9 | 5 | 7 | AN | ABEGMQY |
| *Aristida calycina* var. *praealta* | H | 1 | | | 3 | | | | | 2 | B | E |
| *Aristida ramosa* var. *ramosa* | H | 7 | | 6 | 3 | | | 9 | 2 | 4 | NB | EMQSU |
| *Aristida vagans* | | 55 | | 49 | 27 | | | 40 | 35 | 17 | ANB | ABDEFGLMOQRSTUVY |
| *Aristida warburgii* | H | 12 | | 4 | 24 | | | 6 | 8 | 6 | NB | ADGHOQT |
| *Axonopus affinis* | H | 5 | | 5 | | | | 3 | 4 | | ANB | DEFMU |
| *Bothriochloa decipiens* | H | 6 | | 6 | | | | 6 | 3 | 2 | ANB | EMQU |
| *Capillipedium spicigerum* | | 5 | | 4 | 3 | | | 9 | 2 | | NB | EFLRS |
| *Cenchrus caliculatus* | | 2 | 3 | 1 | | | | | 2 | | N | PR |
| *Chionochloa pallida* | | 1 | | | 3 | | | | | 2 | B | B |
| *Chloris ventricosa* | | 1 | | 1 | | | | | | 2 | N | E |
| *Cymbopogon refractus* | H | 71 | | 60 | 42 | 100 | | 46 | 45 | 26 | ANB | ABDEFGLMOQRSTUVY |
| *Cynodon dactylon* | | 2 | | 2 | | | | | 2 | | N | GN |
| *Danthonia tenuior* | | 2 | | 1 | 3 | | | 3 | 1 | | N | ST |
| *Deyeuxia reflexa* | H | + | + | | | | | + | | | B | E |
| *Dichanthium setosum* | | 1 | | 1 | | | | | | 2 | N | E |
| *Dichelachne micrantha* | H | 19 | | 17 | 9 | | | 14 | 14 | 2 | ANB | ABDEGMQSU |
| *Digitaria breviglumis* | H | 1 | | | | 100 | | | | 2 | B | M |
| *Digitaria longiflora* | | 1 | | 1 | | | | | | 2 | N | E |
| *Digitaria parviflora* | H | 47 | 8 | 41 | 15 | | | 46 | 25 | 15 | ANB | ABDEFGIJLMOQRSUY |
| *Digitaria ramularis* | H | 3 | | 2 | 3 | | | 3 | 1 | 2 | B | FQU |
| *Digitaria* sp. aff. *ororia* | H | 1 | | 1 | | | | | 1 | | B | U |
| *Echinchloa telmatophila* | H | 1 | | | | | 50 | | | 2 | B | D |
| *Echinopogon caespitosus* | | 36 | | 35 | 9 | | | 20 | 28 | 6 | ANB | ABDFGMNOQRSVY |
| *Echinopogon ovatus* | | 2 | | 2 | | | | | 1 | 2 | NB | DI |
| *Enneapogon nigricans* | | 1 | | 1 | | | | | | 2 | N | E |
| *Enteropogon unispiceus* | H | 2 | | 2 | | | | | 1 | 2 | B | FL |
| *Entolasia marginata* | H | 14 | 3 | 13 | 3 | | | 3 | 10 | 7 | NB | DFGILMNQUWY |
| *Entolasia stricta* | | 105 | 18 | 71 | 91 | 100 | | 57 | 65 | 46 | ANB | ABDEFGHILMOQRSTUVWY |
| *Entolasia whiteana* | H | 4 | 3 | 1 | 6 | | | 3 | | 6 | B | ADG |
| *Eragrostis benthamii* | | 12 | | 10 | 9 | | | 6 | 9 | 4 | AB | BFOQUY |
| *Eragrostis brownii* | H | 6 | | 3 | 6 | 100 | | 6 | 1 | 6 | NB | DMQY |
| *Eragrostis elongata* | H | 3 | | 3 | | | | 6 | | 2 | NB | EFS |
| *Eragrostis leptostachya* | H | 35 | 3 | 29 | 21 | | | 34 | 20 | 9 | ANB | ABDEFGMOQSTUVY |
| *Eragrostis interrupta* | | 4 | | 4 | | | | 3 | 2 | 2 | N | DMVY |
| *Eragrostis parviflora* | | 1 | | 1 | | | | 3 | | | N | Q |
| *Eragrostis pubescens* | H | 1 | | 1 | | | | 3 | | | B | Y |
| *Eragrostis sororia* | | 2 | | 1 | 3 | | | | 2 | | N | AB |
| *Eragrostis spartinoides* | | 4 | | 2 | 6 | | | | 1 | 6 | A | BM |
| *Eragrostis trachycarpa* | | 1 | | 1 | | | | | 1 | | A | B |
| *Eremochloa bimaculata* | H | 17 | | 10 | 24 | | | 6 | 9 | 13 | ANB | ABDEFGLOQUY |
| *Eriachne glabrata* | H | 2 | | | 6 | | | | 1 | 2 | B | HO |
| *Eriachne pallescens* | H | 2 | | | 6 | | | | 1 | 2 | NB | G |
| *Heteropogon contortus* | | 2 | | 2 | | | | 3 | | 2 | N | EQ |
| *Hyparrhenia filipendula* | | 1 | | 1 | | | | | | 2 | N | E |
| *Imperata cylindrica* var. *major* | | 106 | 29 | 90 | 30 | | | 77 | 63 | 39 | ANB | ABDEFGIJLMNOPQRSTUVWY |
| *Ischaemum australe* | | 6 | | 5 | 3 | | | 6 | 4 | | AN | ADT |
| *Microlaena stipoides* var. *stipoides* | | 32 | 8 | 27 | 12 | | | 23 | 16 | 17 | ANB | ABDEFGIMNORSUY |
| *Oplismenus aemulus* | | 51 | 8 | 34 | 38 | 3 | | 43 | 26 | 22 | ANB | BDEFGIJLMNOPRSUWY |

| | | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Oplismenus imbecillus* | | 21 | 31 | 24 | 7 | 3 | . | . | 6 | 10 | 19 | ANB | BDGIKMOPRUW |
| *Ottochloa gracillima* | | 5 | 8 | 5 | 2 | . | . | . | 3 | 1 | 6 | AN | EGRW |
| *Panicum effusum* | H | 21 | . | . | 17 | 15 | . | . | 26 | 11 | 4 | ANB | ABEGMQSUY |
| *Panicum lachnophyllum* | | 1 | . | 3 | . | . | . | . | . | . | 2 | B | P |
| *Panicum pygmaeum* | | 1 | . | 3 | . | . | . | . | . | . | 2 | B | W |
| *Panicum simile* | H | 51 | . | . | 40 | 39 | . | . | 29 | 29 | 26 | ANB | ABDEFGHLMOQRSTUVY |
| *Paspalidium aversum* | H | 2 | . | . | 2 | . | . | . | 3 | 1 | . | B | QY |
| *Paspalidium criniforme* | H | 3 | . | . | 2 | 3 | . | . | 6 | . | 2 | NB | EQ |
| *Paspalidium gausum* | | 1 | . | . | . | 3 | . | . | . | 1 | . | N | A |
| *Paspalidium grandispiculatum* | H | 2 | . | 3 | . | 3 | . | . | 3 | . | 2 | B | DG |
| * *Paspalum ciliatifolium* | H | 1 | . | . | 1 | . | . | . | 3 | . | . | B | Y |
| *Paspalum distichum* | | 24 | . | . | 22 | 9 | . | . | 17 | 13 | 11 | ANB | BDEFGLMOQUV |
| *Paspalum orbiculare* | H | 5 | . | . | 5 | . | . | . | 3 | 3 | 2 | ANB | DMU |
| * *Paspalum scrobiculatum* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | A |
| * *Paspalum urvillei* | | 2 | . | . | 2 | . | . | . | 3 | 1 | . | N | GR |
| *Poa queenslandica* | H | 3 | . | 3 | 2 | . | . | . | . | 3 | . | NB | EM |
| *Poa labillardieri* | | 18 | . | 16 | 13 | . | . | . | 17 | 5 | 13 | NB | EGIJRW |
| *Poa sieberiana* var. *sieberiana* | | 9 | . | 8 | 6 | . | . | . | 3 | 8 | 2 | AN | BMOPRW |
| *Sacciolepis indica* | | 4 | . | . | 3 | 3 | . | . | . | 3 | 2 | N | ADOY |
| * *Sorghum halepense* | | 1 | . | . | 1 | . | . | . | . | 1 | . | N | G |
| *Sorghum leiocladum* | | 21 | . | 5 | 20 | . | . | . | 17 | 11 | 9 | ANB | BEGIJMPRSW |
| *Sporobolus creber* | H | 2 | . | . | 2 | . | . | . | . | 2 | . | AB | MU |
| *Sporobolus diander* | H | 15 | . | . | 16 | . | . | . | 11 | 10 | 4 | ANB | ABFGMQRSUY |
| *Sporobolus elongatus* | | 3 | . | . | 3 | . | . | . | 6 | . | 2 | N | EQ |
| *Stipa puberula* | H | 4 | . | 3 | 1 | 6 | . | . | 3 | . | 6 | B | DG |
| *Stipa ramosissima* | H | 1 | . | 3 | . | . | . | . | . | . | 2 | B | W |
| *Stipa rudis* subsp. *nervosa* | | 3 | . | . | . | 9 | . | . | . | 1 | 4 | B | ABQ |
| *Themeda australis* | H | 92 | . | . | 73 | 70 | . | . | 69 | 50 | 41 | ANB | ABDEFGILMOQRSTUVY |
| *Tripogon loliiformis* | H | 1 | . | . | . | . | 100 | . | . | . | 2 | B | M |
| *Vetiveria filipes* | H | + | . | . | + | . | . | . | + | . | . | B | L |
| **RESTIONACEAE** | | | | | | | | | | | | | |
| *Hypolaena fastigiata* | H | 1 | . | . | . | 3 | . | . | . | . | 2 | B | H |
| *Leptocarpus tenax* | | 1 | . | . | . | 3 | . | . | . | . | 2 | B | H |
| *Lepyrodia scariosa* | H | 6 | . | . | 3 | 9 | . | . | 3 | 3 | 4 | NB | DHOT |
| *Restio pallens* | H | 1 | . | . | . | . | 1 | 50 | . | . | 2 | B | D |
| *Restio tetraphyllus* subsp. *meiostachyus* | | 7 | . | . | 5 | 6 | . | . | . | 7 | 2 | ANB | DH |
| **RIPOGONACEAE** | | | | | | | | | | | | | |
| *Ripogonum album* | | 1 | . | 3 | . | . | . | . | . | 1 | . | A | R |
| *Ripogonum brevifolium* | | 3 | 8 | 5 | . | . | . | . | . | 1 | 4 | B | BPR |
| *Ripogonum elseyanum* | | 10 | 38 | 13 | . | . | . | . | 9 | 3 | 7 | ANB | ERW |
| **SMILACACEAE** | | | | | | | | | | | | | |
| *Smilax australis* | | 58 | 15 | 76 | 28 | 3 | . | . | 31 | 35 | 28 | ANB | BDEGIJKMOPRTVW |
| *Smilax glyciphylla* | | 15 | . | 21 | 6 | 3 | . | . | 9 | 9 | 7 | ANB | BDEIM |
| **UVULARIACEAE** | | | | | | | | | | | | | |
| *Tripladenia cunninghamii* | | 3 | . | 6 | . | 3 | . | . | 6 | 1 | . | BN | ADE |
| **XANTHORRHOEACEAE** | | | | | | | | | | | | | |
| *Xanthorrhoea fulva* | | 1 | . | . | . | 3 | . | . | . | . | 2 | B | H |
| *Xanthorrhoea glauca* subsp. *glauca* | H | 7 | . | 5 | 4 | 3 | . | . | 3 | 1 | 9 | B | EIU |
| *Xanthorrhoea johnsonii* | | 3 | . | . | 2 | 3 | . | . | . | 3 | . | N | AFM |

| | Tot | Broad floristic group | | | | | | Logging | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Rf | Ws | Gf | Hf | Sh | Sw | L1 | L2 | UL | | |
| Species | Freq | 13 | 38 | 94 | 33 | 1 | 2 | 35 | 92 | 54 | Obs | State Forests |
| *Xanthorrhoea latifolia* | | | | | | | | | | | | |
| subsp. *latifolia* | H 23 | | 3 | 11 | 36 | | | 20 | 7 | 19 | ANB | ABDEGMOQR |
| *Xanthorrhoea macronema* | 1 | | | 1 | | | | | | 2 | A | M |
| *Xanthorrhoea malacophylla* | 4 | | 3 | 3 | | | | 6 | 1 | 2 | ANB | IRW |
| **XYRIDACEAE** | | | | | | | | | | | | |
| *Xyris operculata* | 7 | | | 5 | 6 | | | | 7 | 2 | N | ADY |
| **ZINGIBERACEAE** | | | | | | | | | | | | |
| *Alpinia arundeliana* | 1 | | 3 | | | | | 3 | | | B | D |
| *Alpinia caerulea* | 16 | 15 | 29 | 3 | | | | 14 | 8 | 7 | ANB | DEJKRW |
| The following records require confirmation. They are mostly of species which are beyond their formerly known range, but for which occurrence in CMA currently cannot be confirmed. | | | | | | | | | | | | |
| *Grevillea arenaria* | 1 | | | | 3 | | | | | 2 | A | M |
| *Isotoma fluviatilis* | 1 | | | 1 | | | | 3 | | | A | D |
| *Lomandra glauca* | 1 | | | 1 | | | | | 1 | | N | B |
| *Melaleuca viridiflora* | 1 | | | 1 | | | | | 1 | | A | V |
| *Melichrus erubescens* | 1 | | | | 3 | | | | 1 | | N | V |
| *Parsonsia* species B | 2 | | 3 | | 3 | | | 3 | | 2 | N | JT |
| *Persoonia conjuncta* | 1 | | | 1 | | | | | 1 | | N | T |
| *Persoonia lanceolata* | 1 | | | 1 | | | | 3 | | | A | R |
| *Sida goniocarpa* | 1 | | | 1 | | | | | 1 | | N | D |
| *Thysanotus jncifolius* | 2 | | | 1 | 3 | | | | 1 | 2 | A | D |
| *Xanthorrhoea arborea* | 1 | | | 1 | | | | | 1 | | N | D |
| *Xanthorrhoea media* | 4 | | | 2 | 6 | | | | 4 | | N | BGM |
| *Xanthorrhoea resinosa* | 2 | | | | 6 | | | | 1 | 2 | A | D |

# *APPENDIX 2*

## *SUMMARY OF MAJOR SITE FEATURES OF FLORA SURVEY PLOTS*

Date is given as YYYYMMDD. SF is State Forest, coded as: Ban=Banyabba, Bel=Mount Belmore, Bil=Billilimbra, Bra=Braemar, Bun=Bungawalbin, Cam=Camira, Che=Cherry Tree, Dev=Devils Pulpit, Dou=Doubleduke, Ell=Ellangowan, Ewi=Ewingar, Gib=Gibberagee, Mar=Mount Marsh, Mor=Mororo, Myr=Myrtle, Nev=Mount Neville, Pik=Mount Pikapene, Ric=Richmond Range, Roy=Royal Camp, Sug=Sugarloaf, Tab=Tabbimoble, Was=Washpool, Whi=Whiporie; CL=leasehold tenure, BNP=Bundjalung NP, NNR=Mount Neville NR, WNP=Washpool NP. Plots with NCA prefix were surveyed by Austeco, NCNP prefix by NEFBS (NPWS), others by Binns.

Altitude (Alt) is in metres. Lith is lithology (parent material) coded: Av = acid volcanic, Bi = Basic igneous, Gr = granitic, Qa = Quaternary alluvium, Sh = sedimentary, high quartz, Sl = sedimentary, low quartz, Sq = quartz sandstone. MFT is mapped Forest Type from Forestry Commission of NSW (1989).

Fire and logging histories are field estimates, coded as: first digit - intensity (1 low to 3 high); digits 2-3 = age in years; digits 4-5 = accuracy, +/- years, 9 = fire or logging history indeterminate.

CASov and CASf are overstorey and floristic communities respectively, as described in the text.

| Plot | Date | AMGE | AMGN | SF | Alt | Lith | MFT | Fire | Log. | CASov | CASf |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NCA00004 | | 521560 | 6775335 | Dou | . | Ss | 38 | 20101 | 90000 | 31 | 1 |
| NCA00005 | | 522230 | 6771725 | Dou | . | Ss | 38 | 20201 | 90000 | 30 | 7 |
| NCA00006 | | 519760 | 6767315 | Dou | . | Ss | 38 | 20301 | 12505 | 27.2 | 1 |
| NCA00007 | | 515890 | 6766925 | Dou | . | Qa | 92 | 10101 | 30201 | 35 | 9 |
| NCA00008 | | 516575 | 6766000 | Dou | . | Qa | 41 | 10301 | 31505 | 26 | 17 |
| NCA00009 | | 516575 | 6761265 | Dev | . | Ss | 74 | 10201 | 21505 | 26 | 17 |
| NCA00010 | | 522170 | 6761760 | Dev | . | Sl | 76 | 10701 | 21505 | 24.3 | 8 |
| NCA00011 | | 472700 | 6829445 | Ric | . | Sl | 71a | 90000 | 33000 | 21.5 | 12 |
| NCA00013 | | 470705 | 6830000 | Ric | . | Ss | 65 | 10401 | 20505 | 17.2 | 12 |
| NCA00014 | | 477270 | 6824410 | Ric | . | Sl | 71b | 12005 | 11505 | 21.4 | 12 |
| NCA00015 | | 472595 | 6821385 | Ric | . | Sl | 48 | 10101 | 33000 | 12 | 27 |
| NCA00016 | | 474126 | 6816475 | Ric | . | Bi | 1 | 90000 | 11505 | 1 | 37 |
| NCA00017 | | 474035 | 6813150 | Ric | . | Bi | 48 | 90000 | 31505 | 13 | 33 |
| NCA00018 | | 474475 | 6812380 | Ric | . | Bi | 65 | 30101 | 20505 | 39.2 | 13 |
| NCA00019 | | 472885 | 6809105 | Ric | . | Sl | 21 | 30101 | 33000 | 8 | 37 |
| NCA00020 | | 476070 | 6774435 | Bel | . | Ss | 36 | 31005 | 21505 | 27.1 | 29 |
| NCA00021 | | 476845 | 6773750 | Bel | . | Ss | 41 | 13000 | 13000 | 28.2 | 2 |
| NCA00023 | | 481320 | 6767870 | Mar | . | Sl | 74b | 20201 | 90000 | 28.1 | 16 |
| NCA00024 | | 482650 | 6768225 | Mar | . | Ss | 41 | 30001 | 90000 | 29.3 | 2 |
| NCA00025 | | 480100 | 6764980 | Mar | . | Sl | 37a | 20001 | 90000 | 27.2 | 7 |
| NCA00026 | | 485450 | 6766050 | Mar | . | Ss | 62 | 10301 | 90000 | 28.1 | 16 |
| NCA00027 | | 445765 | 6781365 | Ewi | . | Gr | 47 | 22500 | 32505 | 14.1 | 34 |
| NCA00028 | | 444085 | 6779485 | Ewi | . | Gr | 53 | 21500 | 31505 | 14.3 | 34 |
| NCA00029 | | 445430 | 6779975 | Ewi | . | Gr | 11 | 90000 | 22505 | 3 | 38 |
| NCA00030 | | 446945 | 6779105 | Ewi | . | Av | 47 | 90000 | 30501 | 14.1 | 34 |
| NCA0012A | | 470770 | 6832090 | Ric | . | Ss | 48 | 90000 | 20101 | 12 | 33 |
| NCA0012B | | 471450 | 6831560 | Ric | . | Ss | 47a | 90000 | 23000 | 16 | 33 |
| NCA0022A | | 476130 | 6771880 | Bel | . | Ss | 41 | 21500 | 22505 | 27.1 | 2 |
| NCA0022B | | 476220 | 6771720 | Bel | . | Ss | 37a | 20201 | 20505 | 27.2 | 2 |
| NCA0031B | | 442200 | 6760830 | WNP | . | Sl | 46 | 23005 | 90000 | 13 | 35 |

| Plot | Date | AMGE | AMGN | SF | Alt | Lith | MFT | Fire | Log. | CASov | CASf |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NCA0031C | | 443100 | 6761790 | Was | . | Sl | 62 | 22005 | 90000 | 17.2 | 30 |
| NCA0031D | | 442520 | 6761925 | Was | . | Sl | 53 | 30001 | 90000 | 13 | 35 |
| NCA0CL35 | | 476685 | 6777590 | Bel | . | Ss | 37a | 10101 | 13005 | 27.1 | 8 |
| NCA0CL36 | | 476150 | 6777175 | Bel | . | Ss | 37a | 10101 | 13005 | 22.2 | 8 |
| NCABAN30 | | 496500 | 6749335 | Ban | . | Sl | 74 | 10201 | 13000 | 24.2 | 8 |
| NCABAN31 | | 499530 | 6749750 | Ban | . | Sl | 74 | 10201 | 13000 | 24.2 | 8 |
| NCABAN32 | | 500550 | 6749045 | Ban | . | Sl | 74 | 10100 | 11505 | 24.2 | 8 |
| NCABAR37 | | 473010 | 6773475 | Bel | . | Ss | 37a | 10101 | 32005 | 27.1 | 8 |
| NCABAR38 | | . | . | Bel | . | | | | | 27.1 | . |
| NCAWHP33 | | 485050 | 6758035 | Mar | . | Sl | 72 | 10100 | 21505 | 21.4 | 9 |
| NCBAN001 | 19940302 | 494930 | 6752050 | Ban | 140 | Sl | 97 | 10201 | 00000 | 28.2 | 2 |
| NCBAN002 | 19940302 | 496030 | 6750650 | Ban | 110 | Sl | 39 | 10201 | 00000 | 24.2 | 2 |
| NCBEL001 | 19940131 | 472900 | 6784730 | Bel | 190 | Sl | 87 | 12510 | 26010 | 38 | 28 |
| NCBEL002 | 19940131 | 473930 | 6782580 | Bel | 480 | Ss | 234 | 20201 | 00000 | 27.1 | 2 |
| NCBEL003 | 19940302 | 477300 | 6772630 | Bel | 240 | Ss | 234 | 10502 | 00000 | 27.2 | 2 |
| NCBEL004 | 19940415 | 475180 | 6773750 | Bel | 180 | Ss | 49/53 | 11505 | 13510 | 13 | 36 |
| NCBIL001 | 19940222 | 440080 | 6767450 | Bil | 840 | Av | 136 | 10401 | 11503 | 40 | 26 |
| NCBIL002 | 19940412 | 429400 | 6760650 | Bil | 920 | Av | 47a | 22505 | 00000 | 14.3 | 34 |
| NCBIL003 | 19940412 | 431330 | 6761450 | Bil | 870 | Av | 163b | 11203 | 00000 | 14.3 | 14 |
| NCBIL004 | 19940412 | 430330 | 6762230 | Bil | 900 | Sl | 62a | 20201 | 00000 | 14.3 | 14 |
| NCBIL005 | 19940412 | 434380 | 6762950 | Bil | 880 | Av | 47a | 12505 | 00000 | 14.3 | 34 |
| NCBIL006 | 19940412 | 433430 | 6763830 | Bil | 730 | Av | 62a | 10301 | 00000 | 17.2 | 14 |
| NCBIL007 | 19940412 | 435330 | 6763680 | Bil | 900 | Av | 163a | 12505 | 00000 | 40 | 34 |
| NCBRA001 | 19940301 | 501850 | 6788900 | Bra | 20 | Qa | 80 | 11005 | 21505 | 19.2 | 10 |
| NCBRA002 | 19940301 | 502500 | 6789880 | Bra | 20 | Qa | 80 | 10301 | 00000 | 19.2 | 10 |
| NCBUN001 | 19940226 | 515050 | 6780530 | Bun | 5 | Qa | 84/126 | 10201 | 25010 | 19.1 | 10 |
| NCBUN002 | 19940226 | 514980 | 6783200 | Bun | 20 | Sl | 84/119 | 30201 | 00000 | 17.2 | 11 |
| NCBUN003 | 19940226 | 511350 | 6783300 | Bun | 40 | Sl | 70/74 | 10200 | 10201 | 24.3 | 8 |
| NCBUN004 | 19940226 | 510080 | 6783900 | Bun | 30 | Sl | 82 | 10301 | 24010 | 19.2 | 10 |
| NCBUN005 | 19940226 | 511780 | 6785950 | Bun | 30 | Sl | 40/41 | 10401 | 24010 | 27.1 | 8 |
| NCDOU001 | 19940227 | 520750 | 6771150 | Dou | 30 | Ss | 128 | 20301 | 00000 | 24.1 | 23 |
| NCDOU002 | 19940227 | 520030 | 6772280 | Dou | 10 | Qa | 32 | 20301 | 14010 | 35 | 20 |
| NCDOU003 | 19940227 | 517550 | 6769530 | Dou | 10 | Qa | 60 | 10401 | 20803 | 15 | 36 |
| NCDOU004 | 19940227 | 516880 | 6768080 | Dou | 100 | Qa | 231 | 00000 | 00000 | . | 41 |
| NCELL001 | 19940301 | 501900 | 6788100 | Ell | 30 | Sl | 85 | 11005 | 21505 | 19.1 | 10 |
| NCEWI001 | 19940222 | 442750 | 6767080 | Ewi | 910 | Gr | 2/3 | 00000 | 22005 | 38 | 38 |
| NCEWI002 | 19940222 | 441200 | 6764930 | Ewi | 950 | Av | 23/26 | 00000 | 00000 | 6 | 38 |
| NCEWI003 | 19940223 | 446700 | 6781930 | Ewi | 650 | Gr | 163b | 10401 | 10301 | 22.1 | 13 |
| NCEWI004 | 19940223 | 446200 | 6777650 | Ewi | 560 | Gr | 2/3 | 00000 | 00000 | 2 | 38 |
| NCEWI005 | 19940223 | 444470 | 6675330 | Ewi | 710 | Sl | 11 | 00000 | 00000 | 5 | 38 |
| NCEWI006 | 19940223 | 443380 | 6774700 | Ewi | 850 | Gr | 2/3 | 00000 | 00000 | 4 | 38 |
| NCEWI007 | 19940224 | 442780 | 6782600 | Ewi | 740 | Gr | 234 | 10301 | 00000 | 27.1 | 2 |
| NCEWI008 | 19940224 | 444430 | 6770580 | Ewi | 710 | Av | 163 | 12505 | 00000 | 40 | 34 |
| NCGIB001 | 19940228 | 507300 | 6750010 | Gib | 130 | Ss | 97 | 10201 | 00000 | 25.3 | 2 |
| NCGIB002 | 19940228 | 507430 | 6750950 | Gib | 190 | Ss | 234 | 20301 | 00000 | 25.3 | 2 |
| NCGIB003 | 19940228 | 509800 | 6755280 | Gib | 40 | Sl | 60 | 10502 | 00000 | 22.1 | 12 |
| NCMAR001 | 19940414 | 478680 | 6763080 | Mar | 430 | Av | 234 | 00000 | 00000 | . | 39 |
| NCMOR001 | 19940227 | 524150 | 6757830 | Mor | 30 | Sl | 40/41 | 30401 | 21203 | 30 | 5 |
| NCMYR001 | 19940301 | 497350 | 6772750 | Myr | 40 | Sl | 83 | 20301 | 14010 | 19.1 | 10 |

| Plot | Date | AMGE | AMGN | SF | Alt | Lith | MFT | Fire | Log. | CASov | CASf |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NCMYR002 | 19940301 | 498530 | 6771800 | Myr | 30 | Qa | 130 | 10100 | 20200 | 22.2 | 8 |
| NCNP1009 | 19921214 | 527000 | 6759500 | BNP | 20 | Sl | | 30400 | 23010 | 33 | 8 |
| NCNP1010 | 19921214 | 527000 | 6760200 | BNP | 20 | Sl | | 20300 | 20301 | 33 | 8 |
| NCNP1011 | 19921214 | 528700 | 6763800 | BNP | 5 | Qs | | 10300 | 00000 | | 24 |
| NCNP1012 | 19921215 | 515800 | 6765600 | Tab | 25 | Qa | | 10502 | 00000 | 30 | 5 |
| NCNP1013 | 19921215 | 523900 | 6768300 | Tab | 25 | Sl | 41 | 20502 | 23010 | 27.1 | 8 |
| NCNP1014 | 19921215 | 521700 | 6767400 | Tab | 30 | Sl | 74 | 10502 | 24010 | 21.2 | 23 |
| NCNP1015 | 19921215 | 518100 | 6766000 | Dou | 30 | Qa | 36 | 20201 | 33010 | 16 | 36 |
| NCNP1016 | 19921216 | 517000 | 6766000 | Dou | 15 | Qa | 41/92 | 20301 | 24010 | 27.1 | 17 |
| NCNP1017 | 19921216 | 515800 | 6765600 | Dou | 10 | Qa | | 30201 | 22010 | 39.1 | 25 |
| NCNP1018 | 19921221 | 479400 | 6766800 | NNR | 480 | Ss | | 10200 | 15020 | 27.2 | 2 |
| NCNP1019 | 19921221 | 479900 | 6767400 | NNR | 285 | Ss | | 10200 | 00000 | 27.1 | 2 |
| NCNP1020 | 19921221 | 480500 | 6767900 | NNR | 260 | Ss | | 10200 | 13030 | 15 | 36 |
| NCNP1021 | 19921222 | 479900 | 6766300 | Mar | 420 | Ss | | 10502 | 14020 | 27.1 | 7 |
| NCNP1022 | 19921222 | 480300 | 6765400 | Mar | 330 | Ss | 37a | 20402 | 14020 | 25.2 | 7 |
| NCNP1023 | 19921222 | 480200 | 6764400 | Mar | 235 | Sl | 62/74a | 10502 | 14040 | 13 | 36 |
| NCNP1024 | 19921222 | 480600 | 6764100 | Mar | 260 | Sl | 36 | 10502 | 24020 | 21.4 | 12 |
| NCNP1025 | 19921222 | 481300 | 6763400 | Mar | 275 | Sl | 41/92 | 10402 | 24020 | 21.4 | 12 |
| NCNP1026 | 19921222 | 480900 | 6762600 | Mar | 190 | Sl | 30/31/9 | 20402 | 24020 | 21.1 | 12 |
| NCNP1096 | 19930217 | 497600 | 6786800 | Bra | 50 | Sl | 31/92 | 10200 | 33020 | 39.1 | 8 |
| NCNP1097 | 19930217 | 497800 | 6786600 | Bra | 50 | Sl | 85 | 20101 | 32020 | 23 | 10 |
| NCNP1098 | 19930217 | 473400 | 6790600 | Pik | 280 | Sl | 72a/74a | 00000 | 25020 | 23 | 29 |
| NCNP1099 | 19930217 | 472000 | 6791100 | Pik | 300 | Sl | 71 | 10502 | 24030 | 21.4 | 29 |
| NCNP1100 | 19930218 | 470300 | 6790900 | Pik | 300 | Sl | 87 | 00000 | 23020 | 38 | 29 |
| NCNP1101 | 19930223 | 498300 | 6772900 | Myr | 30 | Sl | 130 | 20201 | 31020 | 30 | 8 |
| NCNP1102 | 19930223 | 487600 | 6767400 | Mar | 180 | Sl | 62/74b | 20301 | 32030 | 18 | 8 |
| NCNP1103 | 19930223 | 474000 | 6770600 | Bel | 360 | Sl | 74a | 10201 | 23030 | 21.4 | 12 |
| NCNP1104 | 19930223 | 473700 | 6775500 | Bel | 450 | Ss | 41/97 | 20201 | 12020 | 25.2 | 2 |
| NCNP1105 | 19930224 | 476400 | 6770500 | Bel | 470 | Ss | 62/74a | 20301 | 22020 | 21.1 | 13 |
| NCNP1106 | 19930224 | 497700 | 6749400 | Ban | 50 | Sl | 65/126 | 20401 | 12030 | 30 | 3 |
| NCNP1107 | 19930224 | 497900 | 6749400 | Ban | 40 | Sl | 65/126 | 20201 | 15030 | 30 | 3 |
| NCNP1110 | 19930304 | 507900 | 6752500 | Gib | 250 | Ss | 41/97 | 20502 | 22015 | 25.3 | 2 |
| NCNP1111 | 19930304 | 506600 | 6758200 | Gib | 60 | Sl | 92/126 | 20503 | 34030 | 23 | 8 |
| NCNP1112 | 19920304 | 510400 | 6759700 | Gib | 60 | Sl | 92 | 10301 | 25030 | 39.2 | 9 |
| NCNP1113 | 19930304 | 510800 | 6764700 | Gib | 40 | Sl | 92/126 | 10502 | 34040 | 22.1 | 8 |
| NCNP1114 | 19930305 | 520600 | 6777900 | Gib | 70 | Ss | 129 | 20301 | 13030 | 30 | 8 |
| NCNP1115 | 19930305 | 518000 | 6774000 | Dou | 20 | Ss | 129 | 30201 | 12020 | 30 | 6 |
| NCNP1116 | 19930305 | 518600 | 6766700 | Dou | 50 | Ss | 36 | 20302 | 24040 | 26 | 17 |
| NCNP1117 | 19930305 | 516600 | 6765800 | Dou | 20 | Qa | 41 | 30201 | 33030 | 26 | 17 |
| NCNP1118 | 19930305 | 516100 | 6766100 | Dou | 20 | Qa | 92 | 20201 | 14040 | 37 | 19 |
| NCNP1119 | 19930310 | 501400 | 6751500 | Ban | 90 | Sl | 76 | 20502 | 32030 | 30 | 8 |
| NCNP1120 | 19930310 | 497400 | 6786800 | Bra | 50 | Sl | 31/92 | 10301 | 32030 | 23 | 8 |
| NCNP1121 | 19930310 | 502500 | 6770800 | Myr | 30 | Sl | 72/74 | 10201 | 32010 | 24.3 | 10 |
| NCNP1122 | 19930316 | 518400 | 6763700 | Dev | 130 | Ss | 126 | 20201 | 22020 | 25.3 | 2 |
| NCNP1123 | 19930316 | 519400 | 6762800 | Dev | 220 | Ss | 97 | 20201 | 22020 | 25.2 | 2 |
| NCNP1124 | 19930316 | 529700 | 6771700 | Tab | 30 | Sh | 119 | 20301 | 13020 | 33 | 8 |
| NCNP1125 | 19930317 | 524000 | 6755800 | Mor | 30 | Sl | 62/126 | 20201 | 32040 | 21.3 | 8 |
| NCNP1126 | 19930317 | 523800 | 6757400 | Mor | 30 | Sl | 119 | 20201 | 22030 | 33 | 5 |
| NCNP1127 | 19930317 | 524300 | 6756700 | Mor | 40 | Sl | 62/126 | 20201 | 20503 | 30 | 8 |

| Plot | Date | AMGE | AMGN | SF | Alt | Lith | MFT | Fire | Log. | CASov | CASf |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NCNP1128 | 19930317 | 529600 | 6771100 | Tab | 20 | Sh | 129 | 30301 | 20503 | 22.2 | 5 |
| NCNP1129 | 19930324 | 502400 | 6754500 | Gib | 90 | Sl | 72/74 | 20100 | 33030 | 24.1 | 8 |
| NCNP1130 | 19930324 | 506900 | 6753500 | Gib | 240 | Sl | 84 | 20100 | 21010 | 29.3 | 8 |
| NCNP1131 | 19930324 | 507100 | 6753600 | Gib | 230 | Ss | 84 | 20100 | 31010 | 29.2 | 8 |
| NCNP1132 | 19930324 | 508800 | 6762700 | Gib | 40 | Sl | 62 | 20502 | 23030 | 21.5 | 8 |
| NCNP2001 | 19921221 | 460900 | 6799900 | Sug | 180 | Sl | 72/74a | 20602 | 21005 | 23 | 4 |
| NCNP2002 | 19921220 | 461400 | 6799400 | Sug | 150 | Sl | 65 | 20502 | 20503 | 39.2 | 9 |
| NCNP2003 | 19921221 | 463500 | 6799300 | Sug | 210 | Sl | 72/74b | 20603 | 11005 | 21.4 | 13 |
| NCNP2004 | 19921222 | 475400 | 6799400 | Che | 380 | Ss | 71 | 21003 | 21505 | 21.3 | 29 |
| NCNP2005 | 19921222 | 474900 | 6799200 | Che | 320 | Sl | 65/85 | 21005 | 00000 | 39.2 | 29 |
| NCNP2006 | 19921222 | 475800 | 6799800 | Che | 380 | Ss | 48 | 10201 | 10201 | 12 | 32 |
| NCNP2007 | 19921222 | 475700 | 6801500 | Che | 370 | Bi | 71a | 25020 | 00000 | 21.2 | 29 |
| NCNP2008 | 19921223 | 474400 | 6810700 | Ric | 300 | Sl | 71b | 21003 | 20804 | 21.2 | 12 |
| NCNP2009 | 19921223 | 474600 | 6811800 | Ric | 450 | Bi | 65 | 10503 | 10503 | 39.2 | 13 |
| NCNP2010 | 19921223 | 474300 | 6810400 | Ric | 210 | Sl | 53b | 11005 | 11505 | 21.5 | 29 |
| NCNP2011 | 19921223 | 474700 | 6813400 | Cam | 560 | Bi | 46a | 12010 | 22010 | 13 | 35 |
| NCNP2012 | 19921224 | 474700 | 6812500 | Ric | 450 | Bi | 47b | 21005 | 21505 | 21.5 | 13 |
| NCNP2013 | 19921224 | 473700 | 6809400 | Ric | 220 | Sl | 48 | 11505 | 22005 | 12 | 35 |
| NCNP2014 | 19921224 | 474000 | 6810600 | Ric | 280 | Sl | 71a | 21205 | 21505 | 21.1 | 29 |
| NCNP2027 | 19930120 | 470400 | 6828200 | Ric | 420 | Ss | 71b | 10101 | 10603 | 21.1 | 12 |
| NCNP2035 | 19930126 | 437800 | 6771200 | CL | 320 | Gr | 62b | 10201 | 11030 | 36 | 13 |
| NCNP2036 | 19930126 | 439500 | 6769700 | Ewi | 520 | Gr | 62b | 20502 | 10503 | 36 | 13 |
| NCNP2037 | 19930127 | 450900 | 6779600 | Ewi | 490 | Av | 74b | 10205 | 21030 | 21.1 | 13 |
| NCNP2038 | 19930127 | 448100 | 6778700 | Ewi | 740 | Av | 47b | 10510 | 11030 | 17.1 | 34 |
| NCNP2039 | 19930127 | 443500 | 6782800 | Ewi | 650 | Gr | 37a | 10205 | 11030 | 16 | 7 |
| NCNP2040 | 19930127 | 443600 | 6780900 | Ewi | 710 | Gr | 37b | 10201 | 20510 | 27.1 | 5 |
| NCNP2041 | 19930128 | 439300 | 6769300 | Ewi | 550 | Gr | 53 | 18050 | 22030 | 13 | 34 |
| NCNP2042 | 19930128 | 445400 | 6771200 | Ewi | 620 | Sl | 53 | 15030 | 00000 | 14.2 | 34 |
| NCNP2043 | 19930129 | 447000 | 6770400 | Ewi | 540 | Sl | 47b | 11005 | 20510 | 14.2 | 34 |
| NCNP2044 | 19930129 | 451500 | 6772700 | Ewi | 370 | Gr | 207 | 10101 | 00000 | 20.1 | 15 |
| NCNP2045 | 19930129 | 450900 | 6770800 | Ewi | 150 | Gr | 62b | 10101 | 11005 | 20.1 | 15 |
| NCNP2079 | 19930329 | 491300 | 6792000 | Roy | 70 | Ss | | 10502 | 10201 | 19.2 | 10 |
| NCNP2080 | 19930329 | 458300 | 6806800 | CL | 90 | Qa | | 13020 | 39950 | . | . |
| NCNP2081 | 19930329 | 469700 | 6828500 | Ric | 420 | Bi | | 10201 | 21005 | 21.3 | 14 |
| NCNP2095 | 19930414 | 487600 | 6797300 | SF | 150 | Ss | | 10703 | 11005 | . | 4 |
| NCNP2096 | 19930414 | 484000 | 6793300 | Roy | 200 | Ss | | 10502 | 00000 | 27.1 | 4 |
| NCNP7004 | 19930318 | 522200 | 6755300 | Mor | 30 | Sl | 39 | 10601 | 12005 | 24.2 | 8 |
| NCNP7005 | 19930318 | 523300 | 6763200 | Dev | 20 | Qa | 40/41 | 20205 | 11005 | 27.2 | 8 |
| NCNP7006 | 19930318 | 529700 | 6772900 | CL | 10 | Sh | 31 | 10505 | 00000 | 25 | 21 |
| NCNP7007 | 19930319 | 536200 | 6751100 | BNP | 25 | Sl | na | 13005 | 00000 | . | . |
| NCNP7008 | 19930319 | 530600 | 6772000 | CL | 20 | Sh | 30/31 | 10302 | 00000 | 26 | 17 |
| NCNP7009 | 19930325 | 509800 | 6768100 | Gib | 18 | Qa | mof | 00000 | 00000 | 39.1 | 22 |
| NCNP7010 | 19930325 | 512900 | 6768300 | Dou | 20 | Qa | 74 | 20201 | 12005 | 21.5 | 8 |
| NCNP7011 | 19930325 | 518800 | 6770700 | Dou | 30 | Ss | 92 | 20505 | 00000 | 39.1 | 21 |
| NCNP7012 | 19930326 | 531200 | 6752600 | BNP | 3 | Qs | mof | 20505 | 00000 | . | 18 |
| NCNP7013 | 19930326 | 526900 | 6773900 | Dou | 30 | Sl | 31 | 10301 | 00000 | 34 | 18 |
| NCNP7014 | 19930326 | 498300 | 6772800 | Myr | 40 | Sl | 130 | 30205 | 00000 | 32 | 8 |
| NCNP7015 | 19930330 | 485200 | 6757700 | Mar | 135 | Sl | 85 | 10201 | 12525 | 39.1 | 9 |
| NCNP7016 | 19930330 | 481500 | 6774300 | Nev | 95 | Qa | na | 20502 | 12030 | 39.1 | 9 |

| Plot | Date | AMGE | AMGN | SF | Alt | Lith | MFT | Fire | Log. | CASov | CASf |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NCNP7017 | 19930402 | 477800 | 6774700 | Bel | 300 | Ss | 37a | 20301 | 31005 | 27.1 | . |
| NCNP7020 | 19930408 | 474000 | 6777000 | Bel | 480 | Ss | 39b | 10201 | 32510 | 27.1 | . |
| NCPIK001 | 19940131 | 472130 | 6790330 | Pik | 310 | Sl | 87 | 12005 | 00000 | 38 | 28 |
| NCPIK002 | 19940131 | 469250 | 6788550 | Pik | 270 | Sl | 21 | 00000 | 00000 | 10 | 28 |
| NCRIC004 | 19940129 | 472730 | 6830480 | Ric | 360 | Sl | 231 | 00000 | 00000 | . | 40 |
| NCRIC005 | 19940129 | 474200 | 6827450 | Ric | 490 | Bi | 51 | 11505 | 10201 | 11 | 33 |
| NCRIC006 | 19940129 | 474230 | 6821630 | Ric | 300 | Sl | 21 | 00000 | 00000 | 7 | 37 |
| NCRIC007 | 19940130 | 472880 | 6815100 | Ric | 550 | Bi | 19 | 00000 | 00000 | 7 | 37 |
| NCRIC008 | 19940130 | 473880 | 6812450 | Ric | 500 | Bi | 19 | 00000 | 14010 | 2 | 38 |
| NCROY001 | 19940130 | 486130 | 6797800 | Roy | 130 | Ss | 38 | 20602 | 23010 | 25.1 | 2 |
| NCROY002 | 19940225 | 483900 | 6789250 | Roy | 110 | Ss | 126 | 20301 | 20100 | 29.2 | 4 |
| NCROY003 | 19940225 | 484680 | 6789850 | Roy | 150 | Sl | 234 | 10301 | 00000 | 29.1 | 2 |
| NCWAS001 | 19940224 | 450300 | 6760080 | Was | 320 | Sl | 23 | 00000 | 00000 | 9 | 28 |
| NCWAS002 | 19940224 | 450230 | 6760780 | Was | 400 | Sl | 60 | 31203 | 00000 | 17.2 | 31 |
| NCWAS003 | 19940224 | 450250 | 6761350 | Was | 420 | Sl | 80 | 10100 | 00000 | 19.1 | 12 |
| NCWAS004 | 19940225 | 445280 | 6758900 | Was | 420 | Sl | 70/74 | 21203 | 22005 | 17.1 | 14 |
| NCWAS005 | 19940225 | 444830 | 6759180 | Was | 400 | Sl | 23/26 | 00000 | 00000 | 2 | 38 |
| NCWHP001 | 19940228 | 504700 | 6766380 | Whi | 20 | Qa | 117 | 20201 | 00000 | 33 | 6 |
| NCWHP002 | 19940228 | 504480 | 6765230 | Whi | 20 | Qa | 117 | 20201 | 00000 | 33 | 6 |