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**Vegetation survey of
Batavia Downs
Cape York Peninsula**

**V. J. Neldner, J. R. Clarkson
Botany Branch**



**Department of Primary Industries
Brisbane**

Queensland Government Technical Report

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**Department of Primary Industries
Brisbane**

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Summary

A vegetation survey of the 201,507 ha Batavia Downs property on Cape York Peninsula was undertaken in 1989 and 1990. Fifteen map units were identified and shown on a 1:100 000 vegetation map. Detailed structural and floristic data were gathered for one hundred and eight 0.05 hectare sites.

The most extensive vegetation types on the property were the woodlands dominated by *Eucalyptus tetradonta* and associated *Eucalyptus* species (map units 3,4,5 & 6), which covered approximately 65% of the area. These woodlands occurred predominantly on red earths, yellow earths and earthy sands. Although these woodlands appear similar in structure, subtle differences in their floristic composition and their topographic and edaphic preferences allow them to be mapped as separate units.

Approximately 10% of the property is covered by open-woodlands dominated by either *Eucalyptus leptophleba* or *E. papuana* (map units 9 and 10). These map units occur predominantly on brown clays, and to a lesser extent yellow earths and xanthozems. These open-woodlands show the greatest potential for pasture improvement.

Eucalyptus clarksoniana open-woodlands (map unit 8) cover approximately 12% of the property, mainly on sandy clay and silty clay loams. Low woodlands and low open-woodlands dominated by *Melaleuca viridiflora* (map units 7 & 13) occupy approximately 6%, predominantly on grey earths.

Small areas (approximately 4%) are vegetated with closed-forests (units 1 & 2) or low closed-forests (units 11 & 12) of evergreen, deciduous and semi-deciduous species. Although these vegetation types are small in area they contain a large number of plant species not normally encountered in the woodlands and open-woodlands.

The open-heaths (map unit 14) are variable in structure and floristics, and occupy approximately 3% of the property. They are mainly associated with the sandy alluvial plains along the Wenlock River and occur predominantly on deep podzols.

A list of 630 native or naturalised species of vascular plants has been compiled, and their occurrence in map units is indicated. The conservation status of the vegetation map units is discussed, and the status of 10 plant species previously recognised as rare or threatened is reassessed. A list of the naturalised alien species has been compiled, and a brief discussion of plants in the study area that are toxic to stock has been included.

1. Introduction

Batavia Downs was first selected by James Burne in 1882. Its ownership changed a number of times subsequently until it came under the control of the Queensland Department of Primary Industries in 1987. The property occupies 201 507 hectares on central Cape York Peninsula, with the homestead located one kilometre west of the Peninsula Developmental Road at $12^{\circ}40'S$ and $142^{\circ}40'E$ at an altitude of 70 m (see Figure 1).

As the first step of producing a property management plan for Batavia Downs, a resource assessment involving Botany and Land Resources Branches was instituted in October 1989. For detailed descriptions of the soils and landforms of Batavia Downs, readers are referred to Grundy and Heiner (in prep.). This reference also gives a brief overview of the climate, geology and water resources of the property. Appendix V shows the relationship between the great soil groups and the vegetation map units identified in this study.

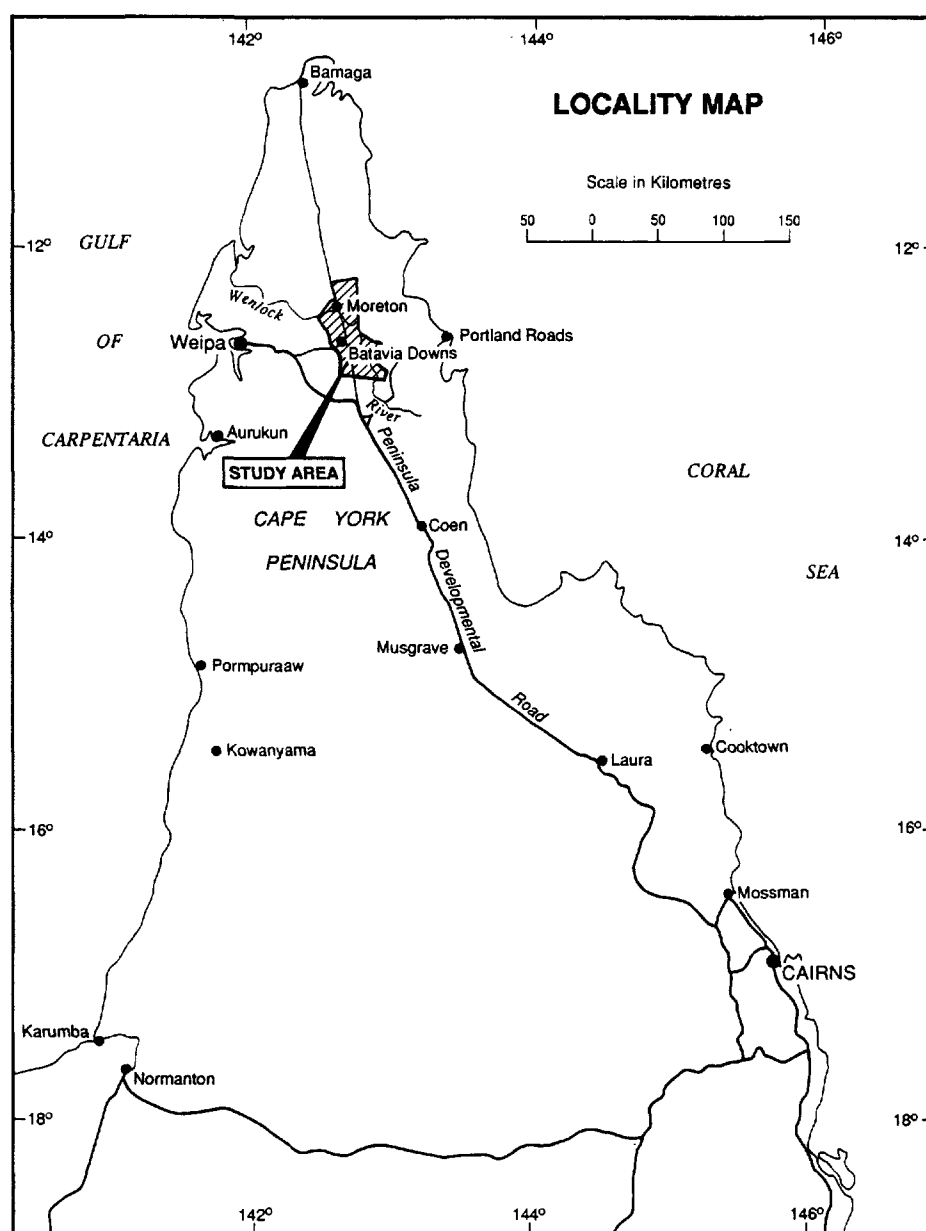


Figure 1. Map of Cape York Peninsula, north Queensland showing the location of Batavia Downs.

2. Survey method

2.1. Mapping

The vegetation patterns were delineated by photo-interpretation of black and white aerial photographs, which were flown between November 1969 and July 1974. The aerial photographs were flown at a height of 7 700 m and are at an approximate scale of 1:80 000.

Photointerpretation was undertaken as part of a vegetation mapping program for the whole of Cape York Peninsula, which aims to produce 1:250 000 scale maps of natural vegetation north of latitude 16°S (Neldner and Clarkson, in prep). This 1:250 000 mapping was used as the basis of field sampling and was extensively ground truthed during a 10 day field trip in October 1989. The aerial photographs were re-examined in November 1989 and modification to map unit boundaries and coding made as required. A 1:150 000 map of the vegetation of Batavia Downs was produced on the Computer Assisted Drafting equipment at the Mareeba DPI office using PC Arc Info software (Neldner and Clarkson 1990). Subsequently, a 1:100 000 vegetation map (included with this report) was prepared by the Drafting Section, Land Resources Branch.

2.2. Sampling

Sampling sites were selected so that at least two sites occurred in each vegetation pattern recognised. Within a vegetation pattern, sites were selected in areas which were the least disturbed, widely separated within the pattern, and reasonably accessible.

Detailed vegetation data was recorded for 108 sites. At 76 sites, detailed soil profile information was gathered (refer to Grundy and Heiner, in prep.). For each sampling site, the slope, aspect and position was recorded. A 50 m x 10 m plot was used as the sampling unit. The height, projective foliage cover (PFC) and density of each of the woody strata was recorded. The heights of trees were measured using a clinometer, while the PFC was calculated using the formula,

$$\text{PFC} = \text{PCC} \times \text{ACC}.$$

where: **PCC =** **percentage crown cover** - the total length of the transect (midline of the 50 m x 10 m plot) covered by the vertical projection of crowns, assuming the crowns to be solid, expressed as a percentage of the total transect length.

ACC = **average percentage canopy cover** - the proportion of the ground area covered by the vertical projection of foliage within the perimeter of the crowns of individual plants estimated by reference to photographs of representative crowns given in Walker and Hopkins (1990).

The basal area of the tree layer was estimated by using the Bitterlich method (Grosenbraugh, 1952), while the diameter breast heights (DBH) of the five closest trees to the centre point were measured using girthing tapes. A complete list of species present was made.

At the time of the October 1989 field trip, fires had burned over the majority of Batavia Downs making adequate sampling of the ground layer impossible. In addition, most of the plants in the deciduous vine thickets (unit 11) were leafless, making identification difficult. A second field trip conducted in April 1990 enabled both the ground layer and deciduous vine thickets to be extensively sampled. The projective foliage cover of each ground layer species occurring in five

0.5 x 1.0 m quadrats located at 10 m intervals along transect lines was recorded. The heights of the ground layer were measured, and additional herbaceous species occurring in the 50 x 10 m plot were recorded. Plants unable to be identified in the field were collected and later determined in the laboratory.

2.3. Classification and vegetation description

The vegetation description is based firstly on dominant species, defined as the species contributing most to the above ground biomass of the site, and secondly on structural formation. Structural formations are modified from Specht (1970) and defined on the height, life form and projective foliage cover of the stratum contributing most to the vegetation biomass (Table 1). In the case of the closed-forests and low closed-forests (map units 1,2,11 & 12), the attributes of the dominant leaf size, the degree of deciduousness and the floristic composition of the canopy trees are incorporated into the classification. The equivalent structural type of Webb (1978) is noted in the description of these units. The structural units adopted by Grundy and Heiner (in prep) follow the classification of Walker and Hopkins (1990). While foliage cover classes of Walker and Hopkins are roughly equivalent to those of Specht, the lack of matching height classes make direct comparison between the vegetation classification of Grundy and Heiner and that presented here inappropriate.

The heights and projective foliage cover measurements stated in the vegetation descriptions apply to the end of the wet season (April-May), when the vegetation is at its most luxuriant. During the dry season (June-November) most of the herbs dry out and lodge. Many areas on Batavia Downs are burnt annually.

Deciduous trees and shrubs are not restricted to the closed-forests. *Eucalyptus platyphylla* and *E. confertiflora* will shed all or nearly all of their leaves in the dry season, and most eucalypts lose some of their canopy during this season.

Table 1. Nomenclature of vegetation structural formations.

Life form and height of dominant stratum*	Projective foliage cover of dominant stratum			
	Dense (100-70)%	Mid-dense (70-30)%	Sparse (30-10)%	Very sparse (< 10)%
Trees† 10-30 m	closed-forest	open-forest	woodland	open-woodland
Trees† < 10 m	low closed-forest	low open-forest	low woodland	low open-woodland
Shrubs■ 1-2 m	closed-heath	open-heath	shrubland	open-shrubland

* Dominant stratum is the layer which contributes most to the above ground biomass.

† Tree is a woody plant > 2 m tall with a single stem or branches well above ground level.

■ Shrub is a woody plant either multi-stemmed at the base or within 0.2 m from ground level and > 1.5 m tall, or if single stemmed < 2 m tall.

2.4. Limitations of the survey

1. The vegetation survey was limited by the scale of the map, the limited time for field work and the lack of road access into many areas.
2. Vegetation communities tend to merge into one another, so that a line on the vegetation map often represents an ecotone rather than a discrete boundary. Discrete boundaries do occur in some situations, e.g. closed-forest (unit 1)/woodland (unit 3) boundary.
3. Sampling was restricted to October 1989 and April 1990, hence some plant species may not have been observed.

3. Vegetation map units

Closed-forest

1. Semi-deciduous notophyll
2. Riverine evergreen notophyll

Woodland

3. *Eucalyptus tetrodonta*, *E. nesophila*
4. *Eucalyptus tetrodonta*, *E. nesophila* and/or *E. hylandii* var. *campestris* ± *E. leptophleba*
5. *Eucalyptus tetrodonta*, *E. nesophila*, *E. cullenii* or *E. crebra*
6. *Eucalyptus tetrodonta*, *E. hylandii* var. *campestris*, *Melaleuca stenostachya* ± *Eucalyptus cullenii*
7. *Melaleuca viridiflora* ± *Lophostemon suaveolens* ± *Asteromyrtus symphyocarpa* ± *Melaleuca* spp.

Open-woodland

8. *Eucalyptus clarksoniana* ± *Melaleuca viridiflora* ± *Eucalyptus platyphylla*
9. *Eucalyptus leptophleba* ± *E. papuana* ± *E. clarksoniana*
10. *Eucalyptus papuana*

Low closed-forest

11. Deciduous microphyll species ± emergent *Lagerstroemia archeriana*
12. Semi-deciduous microphyll species ± emergent *Melaleuca* spp.

Low open-woodland

13. *Melaleuca viridiflora* ± emergent *Eucalyptus clarksoniana*

Open-heath

14. *Asteromyrtus lysicephala* with emergent *A. symphyocarpa*, *Banksia dentata*, *Melaleuca* spp. and *Neofabricia myrtifolia*.

Permanent lagoons

15. Fringing open-forest and aquatic plants

4. Vegetation map unit descriptions

Map unit 1: Semi-deciduous notophyll closed-forest.

Equivalent Webb (1978) structural type: Semi-deciduous notophyll vine forest (SDNVF).

Description: A dense, uneven canopy (25-30 m tall) is dominated by *Acacia polystachya*, *Buchanania arborescens*, *Dysoxylum oppositifolium* and *Welchiodendron longivalve*. A number of other species may be present in the canopy and dominate in places. A mid-dense subcanopy layer (15-20 m tall) and mid-dense low tree layer (3-8 m) are usually also present. The composition of these layers varies between individual vine forest patches. Vines are frequent, and often reach the top of the canopy. Scattered epiphytic orchids are present on the lower branches of the canopy trees. The ground is covered with a thick layer of leaf litter, and rocks frequently outcrop. Scattered forbs and tree seedlings are usually present.

Structural formation range: Closed-forest.

Basal area estimate: Mean 31 m²/ha, range 30-33 m²/ha.

Canopy tree layer: Ht. 25-30 m; PFC 75%; Density 600-1 500 trees/ha; DBH 24-29 cm, occasional trees to 47 cm.

Frequent species: *Acacia fleckeri*, *A. polystachya*, *Alstonia actinophylla*, *Bombax ceiba* var. *leiocarpum*, *Buchanania arborescens*, *Canarium australianum*, *Dysoxylum oppositifolium*, *Elaeocarpus arnhemicus*, *Endiandra glauca*, *Ganophyllum falcatum*, *Garuga floribunda*, *Pleurostyla opposita*, *Polyalthia nitidissima*, *Polyscias elegans*, *Welchiodendron longivalve*.

Subcanopy tree layer: Ht. 15-20 m; PFC 35-50%; Density 500-700 trees/ha.

Frequent species: Mainly lower individuals of canopy species.

Low tree layer: Ht. 3-8 m; PFC 30-40%; Density 3 000-5 600 trees/ha.

Frequent species: *Acronychia imperforata*, *Actephila lindleyi*, *Austromyrtus* sp. (JRC 8510 & VJN) *Callicarpa candicans*, *Canthium coprosmoides*, *Cassine melanocarpa*, *Citriobatus spinescens*, *Cleistanthus hylandii*, *Cupaniopsis foveolata*, *Diospyros compacta*, *Diploglottis macrantha*, *Drypetes australasica*, *Gardenia scabrella*, *Guettardella ovatifolia*, *Jagera pseudorhus*, *Kailarsenia ochreatea*, *Kibara rigidiflora*, *Litsea glutinosa*, *Memecylon pauciflorum*, *Mischocarpus lachnocarpus*, *Planchonella pohlmaniana*, *Pouteria sericea*, *Psychotria loniceroides*, *Randia sessilis*, *Rapanea porosa*, *Rhodamnia australis*, *Sterculia quadrifida*, *Strychnos lucida*, *Toechima daemelianum*, *Vavaea amicornum*, *Wrightia pubescens*.

Vines:

Frequent species: *Abrus precatorius*, *Acacia albizioides*, *Aristolochia* sp., *Caesalpinia scortechinii*, *Cayratia cardiophylla*, *Diplocyclos palmatus*, *Flagellaria indica*, *Hypserpa decumbens*, *Lygodium flexuosum*, *Parsonsia* sp., *Smilax australis*, *Stemona philippinensis*.

Epiphytes:

Frequent species: *Dendrobium discolor*, *Drynaria quercifolia*.

Ground layer: Ht. < 1 m; PFC < 1%.

Forbs:

Frequent species: *Curcuma australasica*, *Cyathula prostrata*, *Doryopteris concolor*, *Helminthostachys zeylanica*, *Pseuderanthemum variabile*.

Graminoids:

Frequent species: *Oplismenus burmannii*.

Ecological notes: This association occurs as a number of discrete patches in *Eucalyptus tetradonta*, *E. nesophila* woodlands (unit 3) on flat plateaus in the north, and on the slopes of low ranges in the south-west. It occupies approximately 650 hectares on Batavia Downs. Scattered patches of this unit occur on Cape York Peninsula to the north and west of Batavia Downs, but are nowhere extensive in area. There is a great variability of species composition between patches of this unit. The soils are generally similar to the surrounding woodland areas (e.g. red earth Dr 4.51), but have a higher organic matter content in the A horizon.

Representative sites: 5, 81, 102.

Map unit 2: Riverine evergreen notophyll closed-forest.

Equivalent Webb (1978) structural type: Notophyll vine forest (NVF).

Description: This map unit varies in structure and floristic composition depending on the position relative to the stream channel, the substrate and the permanence of water flow. It reaches its best development on Batavia Downs on the high banks along the Wenlock River. A dense, closed canopy (12-20 m tall) is dominated by a variety of species including *Lophostemon suaveolens*, *Buchanania arborescens* and *Bombax ceiba* var. *leiocarpum*. Scattered emergent trees up to 30 m in height are frequent. A sparse to mid-dense low tree layer (4-8 m tall) is often present. The ground layer is usually very sparse with scattered herbs and grasses; however in disturbed areas, a dense ground cover of grasses (*Oplismenus* spp.) or tall forbs (dominated by *Triumfetta rhomboidea*) is present. Scattered vines are present and frequently climb up into the canopy.

Structural formation range: Closed-forest to open-forest.

Basal area estimate: Mean 33 m²/ha.

Emergent tree layer: Ht. 30-35 m; PFC 15%; Density 130 trees/ha.

Frequent species: *Acacia auriculiformis*, *A. polystachya*, *Alstonia actinophylla*, *Syzygium bamagense*, *S. forte* subsp. *potamophilum*.

Canopy tree layer: Ht. 12-20 m; PFC 75%; Density up to 1 500 trees/ha.

Frequent species: *Barringtonia calypttrata*, *Blepharocarya involucrigera*, *Bombax ceiba* var. *leiocarpum*, *Brachychiton muellerianus*, *Buchanania arborescens*, *Canarium australianum*, *Carallia brachiata*, *Cryptocarya exfoliata*, *Dysoxylum oppositifolium*, *Endiandra glauca*, *Helicia australasica*, *Jagera pseudorhus*, *Lophostemon suaveolens*, *Notelaea longifolia*, *Polyalthia nitidissima*, *Terminalia sericocarpa*.

Low tree layer: Ht. 3-8 m; PFC 20-30%; Density up to 2 400 trees/ha.

Frequent species: *Alphitonia obtusifolia*, *Breynia cernua*, *Canthium coprosmoides*, *Chionanthus ramiflora*, *Choriceras tricornis*, *Diospyros calycantha*, *Diploglottis macrantha*, *Drypetes australasica*, *Exocarpos latifolius*, *Garcinia warrenii*, *Gardenia scabrella*, *Glycosmis pentaphylla*, *Ixora klanderiana*, *Mallotus polyadenos*, *Memecylon pauciflorum*, *Morinda citrifolia*, *Pavetta australiensis*, *Pongamia pinnata*, *Pouteria sericea*, *Rapanea porosa*, *Rhodamnia australis*, *Rhodomyrtus macrocarpa*, *Tabernaemontana pandacaqui*, *Toechima daemelianum*.

Vines:

Frequent species: *Caesalpinia bonduc*, *Capparis sepiaria*, *Eustrephus latifolius*, *Flagellaria indica*, *Luffa cylindrica*, *Lygodium flexuosum*, *Rauwenhoffia leichhardtii*, *Salacia chinensis*, *Smilax australis*, *Stemona philippinensis*, *Tiliacora australiana*.

Ground layer: Ht. <0.5 m; PFC <5%.

Forbs:

Frequent species: *Curcuma australasica*, *Desmodium trichostachyum*, *Helminthostachys zeylanica*, *Hypoestes floribunda* var. *yorkensis*, *Lygodium flexuosum*, *Stylidium floribundum*, *Waltheria indica*.

In disturbed areas: *Glycine tomentella*, *Hyptis suaveolens*, *Sida acuta*, *Synedrella nodiflora*, *Triumfetta rhomboidea*, *Urena lobata*, *Vernonia cinerea*.

Graminoids:

Frequent species: *Axonopus affinis*, *Fimbristylis aestivalis*, *Oplismenus burmannii*, *O. compositus*, *Panicum seminudum*, *Scleria levis*.

Ecological notes: This map unit is restricted on Batavia Downs to the watercourses of the Wenlock River and its tributaries. It occupies approximately 6 960 hectares on Batavia Downs. The width of the association varies from a single row of trees along the bank in the headwaters of streams, to 150 m in places on the banks of the Wenlock River. Near the headwaters of the tributaries where streamflow is intermittent, the height, density and species diversity decreases. In such situations there is an increase in the frequency of deciduous species, and map unit 2 grades into map unit 11. The soils are sandy alluviums enriched by large quantities of organic matter and silt from wet season flooding.

Along the channels of the Wenlock River, a fringing tall open-forest of *Melaleuca argentea* (30-40 m tall) occurs. *Acacia auriculiformis* and *Nauclea orientalis* are frequent codominants in the canopy. An open, low tree layer (4-8 m tall) of *Barringtonia acutangula*, *Canthium coprosmoides*, *Leptospermum parviflorum* and *Syzygium forte* subsp. *potamophilum* is usually present. This association is frequently flooded in the wet season, and has been mapped as part of unit 2.

Representative sites: 77, 85.

Map unit 3: *Eucalyptus tetradonta*, *E. nesophila* woodland.

Description: *Eucalyptus tetradonta* and *E. nesophila* dominate the canopy (18-27 m tall). In most situations both species are present and codominant, however in places, *E. nesophila* may be dominant or occasionally absent. *Eucalyptus hylandii* var. *campestris* is present in the canopy infrequently. A subcanopy tree layer (14-17 m tall) of *Erythrophleum chlorostachys* and occasionally *Eucalyptus confertiflora* is sometimes present. A very sparse low tree layer (4-10 m tall) is present, with *Acacia rothii*, *Alphitonia obtusifolia*, *Grevillea glauca* and *Parinari nonda* the most frequent species. In areas recently burnt, there is usually a mid-dense, shrubby regrowth layer (0.5-1.5 m tall) of upper storey species. The ground layer biomass is dominated by grasses, with *Heteropogon triticeus*, *Sorghum plumosum* and/or *Schizachyrium crinozonatum* dominating. Scattered forbs are frequent.

Structural formation range: Woodland.

Basal area estimate: Mean 8.5 m²/ha, range 2-14 m²/ha.

Canopy tree layer: Ht. 18-27 m; PFC 20-28%; Density 140-260 trees/ha; DBH 20-31 cm, occasional trees to 61cm.

Predominant species: *Eucalyptus nesophila*, *E. tetradonta*.

Occasional species: *Eucalyptus hylandii* var. *campestris*.

Subcanopy tree layer: Ht. 14-17 m; PFC <5%.

Frequent species: *Erthrophleum chlorostachys*, *Eucalyptus confertiflora*.

Low tree layer: Ht. 4-10 m; PFC 1-5%, occasionally 15%; Density 140-300, rarely 500 trees/ha.

Frequent species: *Acacia crassicarpa*, *A. flavescens*, *A. rothii*, *Alphitonia obtusifolia*, *Erythrophleum chlorostachys*, *Eucalyptus tetradonta*, *Grevillea glauca*, *G. parallela*, *Parinari nonda*, *Persoonia falcata*, *Petalostigma banksii*, *Planchonella pohlmaniana*, *Xylomelum scottianum*.

Low shrub layer: Ht. 0.5-1.5 m; PFC 1-20%, rarely 50%; Density 1,000-8,000, rarely 13,000 shrubs/ha.

Frequent species: All species recorded in the upper layers. Additional frequent species are *Brachychiton muellerianus*, *Croton arnhemicus*, *Cycas media* (abundant at some sites), *Decaschistia peninsularis*, *Grewia retusifolia*, *Morinda reticulata*, *Pandanus* sp., *Planchonia careya*, *Pogonolobus reticulatus*.

Ground layer: Ht. 40-60 cm, grass inflorescences to 200 cm; PFC 50-70%

Forbs:

Frequent species: *Austrodolichos errabundus*, *Brunoniella australis*, *Cassia mimosoides*, *Crotalaria medicaginea*, *C. montana*, *Drosera petiolaris*, *Euphorbia mitchelliana*, *Flemingia parviflora*, *Galactia* sp. (JRC 8226 & VJN), *Helicteres* sp. (JRC 8231 & VJN), *Heliotropium* sp., *Neptunia gracilis*, *Phyllanthus virgatus*, *Polygala longifolia*, *Pycnospora lutescens*, *Spermacoce laevigata*, *Spermacoce* sp. (JRC 8320 & VJN), *Stackhousia intermedia*, *Striga parviflora*, *Tacca leontopetaloides*, *Vernonia cinerea*, *Vigna lanceolata* var. *filiformis*, *Wedelia biflora*, *Zornia muriculata*.

Graminoids:

Frequent species: *Alloteropsis semialata*, *Caesia setifera*, *Capillepidium parviflorum*, *Commelina undulata*, *Eriachne burkittii*, *E. stipacea*, *Eulalia mackinlayii*, *Fimbristylis macrantha*, *Heteropogon triticeus*, *Lomandra filiformis*, *Mnesithea formosa*, *Panicum seminudum* var. *cairnsianum*, *Schizachyrium crinozonatum*, *S. fragile*, *Scleria brownii*, *Setaria surgens*, *Sorghum plumosum*, *Thaumastochloa rariflora*, *Themeda triandra*, *Xyris complanata*.

Ecological notes: This map unit is widespread on Batavia Downs occupying approximately 86 500 hectares and occurs widely over Cape York Peninsula. It occurs most frequently on the upper parts of gently undulating rises, low ranges and low plateaus. In this situation, it generally occurs on red earths (most frequently Gn 2.11 and Gn 2.12) or earthy sands (Uc 4.21 and Uc 5.22). These soils are greater than 60 cm deep, well drained, mildly acidic at depth (pH 5.8-7.0 at 60 cm) and many have ferruginous nodules below 60 cm. This association also occurs on lower slopes of rises and some plains on yellow earths (Gn 2.21, Gn 2.22, Gn 2.24, Gn 2.64 and Dy 2.61). These soils are similar in morphology to the red earths, with pH between 6.0 and 6.8 at depth. In some areas such as the Embley Range, the canopy height reaches 25-27 m and the unit is similar to the tall woodlands that occur on the bauxite plateaus near Weipa.

Representative sites: 1, 4, 8, 9, 17, 19, 33, 46, 47, 51, 57, 65, 68, 70, 71, 90, 94, 99.



Plate 1. *Eucalyptus tetradonta*, *E. nesophila* woodland with shrub understorey of *Cycas media* (map unit 3), on red earth (Dr 4.62). Site 4, 10.5 km north of Schramm Creek on Peninsula Developmental Road.

Map unit 4: *Eucalyptus tetradonta*, *E. nesophila* and/or *E. hylandii* var. *campestris* ± *E. leptophleba* woodland.

Description: *Eucalyptus tetradonta* and either *E. nesophila* or *E. hylandii* var. *campestris* usually codominate to form the canopy (16-21 m tall). *Eucalyptus leptophleba*, and sometimes *E. clarksoniana*, are usually present as scattered canopy or subcanopy trees. *Erythrophleum chlorostachys* and *Eucalyptus confertiflora* frequently form a sparse subcanopy layer (12-18 m tall). A sparse low tree layer (4-8 m tall) is frequently present, and a sparse to medium dense layer (0.5-1.5 m tall) of shrubby regrowth is present, particularly after fire. The ground layer biomass is dominated by grasses, with *Schizachyrium* spp., *Sorghum plumosum* and *Heteropogon triticeus* frequent dominants.

Structural formation range: Woodland.

Basal area estimate: Mean 8.4 m²/ha, range 6-12 m²/ha.

Canopy tree layer: Ht. 16-21 m; PFC 20-28%, rarely 15%; Density 180-360 trees/ha; DBH 18-25 cm, occasional trees to 35 cm.

Predominant species: *Eucalyptus nesophila*, *E. tetradonta*.

Frequent species: *Eucalyptus clarksoniana* (in places), *E. hylandii* var. *campestris*, *E. leptophleba*.

Subcanopy tree layer: Ht. 12-18 m; PFC < 5%; Density 20-60 trees/ha.

Frequent species: *Erythrophleum chlorostachys*, *Eucalyptus confertiflora*, *Lophostemon suaveolens* (near drainage areas).

Low tree layer: Ht. 4-8 m; PFC 2-10%; Density 60-700 trees/ha.

Frequent species: *Acacia crassicaarpa*, *A. rothii*, *Alphitonia obtusifolia*, *Brachychiton muellerianus*, *Denhamia oleaster*, *Erythrophleum chlorostachys*, *Eucalyptus tetradonta*, *Grevillea glauca*, *G. parallela*, *Melaleuca nervosa*, *M. viridiflora*, *Parinari nonda*, *Persoonia falcata*, *Petalostigma banksii*, *P. pubescens*, *Planchonella pohlmaniana*, *Pogonolobus reticulatus*, *Xylomelum scottianum*.

Low shrub layer: Ht. 0.5-1.5 m; PFC 1-15%; Density 300-4000, rarely 13,000 shrubs/ha.

Frequent species: All species recorded in the upper layers. Additional frequent species are *Brachychiton vitifolius*, *Decaschistia peninsularis*, *Grewia retusifolia*, *Morinda reticulata*, *Planchonia careya*, *Syzygium suborbiculare*, *Tylophora erecta*, *Wrightia saligna*.

Ground layer: Ht. 40-60cm, grass inflorescences to 200cm; PFC 50 - 85%.

Forbs:

Frequent species: *Blumea saxatilis*, *Brunoniella australis*, *Cheilanthes contigua*, *Crotalaria medicaginea*, *C. montana*, *Euphorbia mitchelliana*, *Evolvulus alsinoides*, *Flemingia parviflora*, *Galactia* sp. (JRC 8226 & VJN), *Helicires* sp. (JRC 8231 & VJN), *Phyllanthus virgatus*, *Pleurocarpaea denticulata*, *Rostellularia adscendens* var. *clementii*, *Spermacoce laevigata*, *Spermacoce* sp. (JRC 8449 & VJN), *Tacca leontopetaloides*, *Thecanthes cornucopiae*, *Vernonia cinerea*, *Vigna lanceolata* var. *filiformis*.

Graminoids:

Frequent species: *Alloteropsis semialata*, *Eragrostis pubescens*, *Eriachne squarrosa*, *E. stipacea* var. *hirsuta*, *E. trisetata*, *Fimbristylis recta*, *Heteropogon triticeus*, *Lomandra filiformis*, *Mnesithea formosa*, *Schizachyrium crinozonatum*, *S. fragile*, *Scleria brownii*, *Setaria surgens*, *Sorghum plumosum*, *Thaumastochloa pubescens*, *Xyris complanata*.

Ecological notes: This map unit is widespread on Batavia Downs occupying approximately 32,000 hectares, and is widespread on Cape York Peninsula. The presence of *Eucalyptus leptophleba* (and in places, *E. clarksoniana*) in the canopy, and in places, *Melaleuca viridiflora* in the low tree layer are helpful indicators of this map unit. Generally trees in this unit are lower than those of map unit 3. It occurs on level plains, the lower slopes of gently undulating rises and creek frontage areas. Yellow earths (Gn 2.21, Gn 2.34, Gn 2.61, Dy 2.61, Dy 2.62) are the most frequent soil type. These soils are moderately well-drained, mildly acidic (pH 5.8-6.8 at 50 cm depth), with a shallow A horizon (9-17 cm deep), and B horizon of 40 to 90 cm. Ferruginous nodules are generally conspicuous in the B horizon but may occur throughout the profile. This map unit also occurs on red earths (Gn 2.11 and Dr 4.61), grey earths (Gn 2.94 and Dg 2.61) and an earthy sand (Uc 2.21). These latter soils are moderately well-drained, mildly acidic (pH 5.8-6.8 in B horizon) and frequently have ferruginous nodules in the B horizon.

Representative sites: 6, 11, 20, 22, 32, 35, 36, 37, 48, 53, 58, 59, 60, 72, 73, 95, 97, 100.

Map unit 5: *E. tetradonta*, *E. nesophila*, *E. cullenii* or *E. crebra* woodland.

Description: *Eucalyptus tetradonta*, *E. nesophila* and either of the ironbarks *E. cullenii* or *E. crebra*, dominate the canopy (12 to 20 m high). *E. cullenii* and *E. crebra* can be difficult to identify in the field without fruiting material. Both species were recorded on Batavia Downs and it appears that hybridisation may be occurring. *E. hylandii* var. *campestris* is usually present in the canopy, and may be codominant in places. A variable, sparse subcanopy layer (7-13 m tall) of *E. cullenii*, *Erythrophleum chlorostachys*, *Melaleuca stenostachya* and *Eucalyptus leptophleba* is often present. A sparse low tree layer (4-8 m tall) is frequently present. A dense low shrubby layer may develop after fire. The ground layer is mid-dense and dominated by grasses, frequently *Heteropogon triticeus* is dominant. Exposed rock or gravel covers much of the soil surface.

Structural formation range: Woodland.

Basal area estimate: Mean 9.6 m²/ha, range 7-12 m²/ha.

Canopy tree layer: Ht. 12-20 m; PFC 20-25%; Density 120-360 trees/ha; DBH 18-30 cm, occasional trees to 56 cm.

Predominant species: *Eucalyptus crebra*, *E. cullenii*, *E. nesophila*, *E. tetradonta*.

Frequent species: *Eucalyptus hylandii* var. *campestris*.

Subcanopy tree layer: Ht. 7-13 m; PFC 2-15%; Density 20-80 trees/ha.

Frequent species: *Erythrophleum chlorostachys*, *Eucalyptus cullenii*, *E. leptophleba*, *Melaleuca stenostachya*.

Low tree layer: Ht. 4-8 m; PFC 0-10%; Density 0-800 trees/ha.

Frequent species: *Acacia rothii*, *Erythrophleum chlorostachys*, *Eucalyptus tetradonta*, *Grevillea glauca*, *Parinari nonda*.

Low shrub layer: Ht. 0.5-1.5 m; PFC 2-20%; Density 1000-2900 shrubs/ha.

Frequent species: All species recorded in the upper layers. A conspicuous layer (1-2 m tall) of *Cycas media* was present at two sites. Additional species include the subshrubs *Decaschistia peninsularis* and *Hibiscus meraukensis*, and the climbers *Gymnanthera nitida*, *Stemona philippinensis*, *Thunbergia arnhemica* and *Tinospora smilacina*.



Plate 2. *Eucalyptus tetrodonta*, *E. nesophila*, *E. hylandii* var. *campestris* woodland (map unit 3) on red earth (Gn 2.11). Site 1, 3.3 km south of Batavia Downs turnoff on Peninsula Developmental Road.



Plate 3. *Eucalyptus tetrodonta*, *E. cullenii*, *Melaleuca stenostachya* woodland (map unit 6) on yellow earth (Dr 2.84). Site 10, 4.6 km south of Wenlock River on Peninsula Developmental Road.

Ground layer: Ht. 60 cm, grass inflorescences to 200 cm; PFC 40-65%.

Forbs:

Frequent species: *Blumea saxatilis*, *Brunoniella australis*, *Buchnera linearis*, *Cassia mimosoides*, *Cheilanthes tenuifolia*, *Desmodium nemorosum*, *Elephantopus scaber*, *Euphorbia mitchelliana*, *Flemingia parviflora*, *Galactia* sp. (JRC 8226 & VJN), *Glycine curvata*, *Phyllanthus* sp. *P. virgatus*, *Shelhammera multiflora*, *Spermacoce laevigata*, *Vernonia cinerea*, *Wedelia biflora*.

Graminoids:

Frequent species: *Capillipedium parviflorum*, *Chlorophytum laxum*, *Eragrostis spartinoides*, *Eriachne pallescens*, *E. stipacea*, *Heteropogon triticeus*, *Mnesithea formosa*, *Pseudopogonatherum contortum*, *Schizachyrium fragile*, *Setaria surgens*, *Sorghum plumosum*.

Ecological notes: This map unit is widespread on the gently undulating ranges at the northern and south-eastern parts of Batavia Downs. It also occurs on the upper slopes of the Embley Range. It covers approximately 5 700 hectares on Batavia Downs. The presence of either of the ironbarks, *Eucalyptus crebra* or *E. cullenii*, forming a significant proportion of the biomass usually is indicative of this unit. The soils are predominantly red earths (Gn 2.14, Dr 4.61 and Dr 4.62), well-drained and mildly acidic at depth. Ferruginous nodules are present in the B horizon at some sites. This map unit also occurs on a yellow earth (Gn 2.24) and an earthy sand (Uc 5.22).

Representative sites: 7, 38, 42, 43, 44, 103.

Map unit 6: *Eucalyptus tetradonta*, *E. hylandii* var. *campestris*, *Melaleuca stenostachya* ± *Eucalyptus cullenii* woodland.

Description: *Eucalyptus tetradonta* and *E. hylandii* var. *campestris* usually dominate the canopy (10-15 m, occasionally 19 m tall). *E. cullenii* is codominant, particularly on the upper slopes of rises. *Melaleuca stenostachya* usually dominates a subcanopy tree layer (8-10 m tall). A sparse low tree layer (3-8 m tall) is usually present, with *Petalostigma banksii* frequently dominating. The ground layer is sparse and dominated by the grasses, *Schizachyrium fragile*, *Sorghum plumosum* and *Heteropogon triticeus*.

Structural formation range: Woodland.

Basal area estimate: Mean 6 m²/ha, range 4-8 m²/ha.

Canopy tree layer: Ht. 10-15 m, rarely 19 m; PFC 12-20%; Density 120-360 trees/ha; DBH 14-27 cm, occasional trees to 41 cm.

Predominant species: *Eucalyptus cullenii* (on rises), *E. hylandii* var. *campestris*, *E. tetradonta*.

Subcanopy tree layer: Ht. 8-10 m; PFC 5-15%; Density 80-380 trees/ha.

Frequent species: *Erythrophleum chlorostachys*, *Eucalyptus clarksoniana*, *E. confertiflora*, *Melaleuca stenostachya*, *M. viridiflora*.

Low tree layer: Ht. 3-8 m; PFC 2-10%; Density 100-340 trees/ha.

Frequent species: *Acacia rothii*, *Erythrophleum chlorostachys*, *Eucalyptus hylandii* var. *campestris*, *E. tetradonta*, *Grevillea glauca*, *G. parallela*, *Jacksonia thesioides* (in places), *Maytenus cunninghamii*, *Petalostigma banksii*.

Low shrub layer: Ht. 0.5 m; PFC 1-5%; Density 100-1300 shrubs/ha.

Frequent species: All species recorded in the upper layers, plus *Decaschistia peninsularis*.

Ground layer: Ht. 20-35 cm, grass inflorescences to 150 cm ; PFC 25-35%.

Forbs:

Frequent species: *Brunoniella australis*, *Crotalaria medicaginea*, *Desmodium nemorosum*, *D. triflorum*, *Dicerna* sp. Q4, *Drosera petiolaris*, *Indigofera* sp. (JRC 8500 & VJN), *Phyllanthus* sp., *P. virgatus*, *Sebastiania chamalea*, *Spermacoce* sp. (JRC 8320 & VJN), *Tephrosia juncea*, *T. varians*, *Wedelia biflora*, *Zornia ramosa*.

Graminoids:

Frequent species: *Aristida utilis*, *Ectrosia leporina*, *Eriachne agrostidea*, *E. obtusa*, *E. pallescens*, *Heteropogon triticeus*, *Mnesithea formosa*, *Rhynchospora heterochaeta*, *Schizachyrium fragile*, *Sorghum plumosum*, *Xyris complanata*.

Ecological notes: This map unit does not occur in extensive areas on Batavia Downs, occupying only about 6 770 ha. The dominance of the biomass by *Eucalyptus hylandii* var. *campestris*, *Melaleuca stenostachya* and/or *E. cullenii*, are indicators of this unit. It occurs on gently undulating rises, which are covered with ironstone gravel in areas south of the Wenlock River. In this situation, *E. cullenii* is conspicuous and codominant. It also occurs on the level plains, west of the Peninsula Developmental Road, usually on very slight, ironstone rises. *E. cullenii* can be absent in this situation. It occurs on yellow earths (Dy 2.84 and Dy 4.62), and also a Uc 2.12 and Um 2.12 soil. These soils are all acidic at depth (pH 4.8-6.8) and are well-drained. Ferromanganiferous nodules occur throughout the profile increasing in frequency with depth.

Representative sites: 10, 23, 34, 39, 78, 80, 86, 104.

Map unit 7: *Melaleuca viridiflora* ± *Lophostemon suaveolens* ± *Asteromyrtus symphyocarpa* ± *Melaleuca* spp. woodland.

Description: The floristic composition of this map unit varies with the duration and depth of wet season flooding. *Melaleuca viridiflora* consistently dominates the canopy (10-18 m tall) throughout. *Lophostemon suaveolens* and sometimes *M. quinquenervia* are codominant in the central part of the swamp. *Asteromyrtus symphyocarpa* frequently forms a low tree layer (8-10 m tall) with *Calycopeplus casuarinoides* on the margins of the wettest areas. On the margins of the swamp, *Banksia dentata*, *Neofabricia myrtifolia* and *Thryptomene oligandra* occur with *Melaleuca viridiflora*. A conspicuous shrub layer is usually absent, and the ground layer is sparse to mid-dense with graminoids dominant.

Structural formation range: Woodland to open-forest.

Canopy tree layer: Ht. 10-18 m; PFC 25-35%; Density 400-900 trees/ha.

Predominant species: *Melaleuca viridiflora*

Frequent species: *Eucalyptus brassiana* (in places), *Lophostemon suaveolens*, *Melaleuca cajuputi*, *M. quinquenervia*.

Low tree layer: Ht. 8-10 m; PFC 30-40%.

Frequent species: *Asteromyrtus symphyocarpa*, *Calycopeplus casuarinoides*, *Leptospermum parviflorum*, *Melaleuca viridiflora*, *Pandanus* sp. (JRC 8573 & VJN).

Species on sandy swamp margins: *Acacia leptocarpa*, *Banksia dentata*, *Eucalyptus clarksoniana*, *Grevillea pteridifolia*, *Neofabricia myrtifolia*, *Thryptomene oligandra*.

Ground layer: Ht. 25-40 cm; PFC 30-70%.

Forbs:

Frequent species: *Alternanthera micrantha*, *Desmodium trichostachyum*, *Drosera petiolaris*, *Hedyotis galioides*, *Lindernia crustacea*, *Nymphoides* sp., *Spermacoce* sp. (JRC 8450 & VJN), *Utricularia* sp.

Graminoids:

Frequent species: *Aristida* sp. (JRC 8457 & VJN), *Cyperus angustatus*, *C. aquatilis*, *C. fulvus*, *Ectrosia leporina*, *Eragrostis interrupta*, *Eriachne burkittii*, *Fimbristylis recta*, *Leptocarpus spathaceus*, *Panicum mindanense*, *Paspalum scrobiculatum*, *Schizachyrium crinozonatum*.

Ecological notes: This map unit is restricted to drainage depressions and swamps, which are generally flooded during the wet season and retain standing water for a number of months. It occupies approximately 1 200 hectares on Batavia Downs, and occurs widely on Cape York Peninsula. It occurs on humic clays and grey clays. Frequently, the narrow-leaved swamp biotype of *Melaleuca viridiflora* is present, as well as the normal biotype of this species.

Observation points: 142, 143, 144, 147, 159, 161, Site 101.

Map unit 8: *Eucalyptus clarksoniana* ± *Melaleuca viridiflora* ± *Eucalyptus platyphylla* open-woodland.

Description: *Eucalyptus clarksoniana* dominates the canopy layer, which can vary greatly in height (6-18 m) and foliage projective cover (8-20%). Other *Eucalyptus* spp. may occasionally be present in the canopy. A very sparse low tree layer of *Melaleuca viridiflora* (4-6 m tall) is frequently present. A sparse low shrub layer (<0.5 m tall) of woody regrowth is generally present. The ground layer is mid-dense and dominated by the grasses, *Schizachyrium crinozonatum*, *Heteropogon triticeus* and *Sorghum plumosum*.

Structural formation range: Woodland, open-woodland to low open-woodland.

Basal area estimate: Mean 7 m²/ha, range 5-10 m²/ha.

Canopy tree layer: Ht. 6-18 m; PFC 8-20%; Density 120-200 trees/ha; DBH 13-30 cm, occasional trees to 42cm.

Predominant species: *Eucalyptus clarksoniana*.

Frequent species: *Eucalyptus platyphylla*.

Occasional species: *Eucalyptus hylandii* var. *campestris*, *E. leptophleba*, *E. nesophila*, *E. tessellaris*.

Low tree layer: Ht. 4-6 m; PFC 0-10%; Density 0-300, rarely 1 000 trees/ha.

Frequent species: *Acacia crassicarpa*, *Eucalyptus clarksoniana*, *Grevillea glauca*, *Melaleuca viridiflora*, *Parinari nonda*.

Low shrub layer: Ht. <0.5 m; PFC 1-5%; Density 900-3 000 shrubs/ha.

Frequent species: *Antidesma ghaesembilla*, *Eucalyptus clarksoniana*, *E. platyphylla*, *Melaleuca viridiflora*, *Planchonia careya*, *Pogonolobus reticulatus*, *Wrightia saligna*.

Ground layer: Ht. 40 cm, grass inflorescences to 200 cm; PFC 50-70%.

Forbs:

Frequent species: *Alysicarpus rugosus*, *Cassia mimosoides*, *Crotalaria montana*, *Desmodium trichostachyum*, *Euphorbia mitchelliana*, *Evolvulus alsinoides*, *Phyllanthus virgatus*, *Polygala longifolia*, *Pycnospora lutescens*, *Spermacoce* sp. (JRC 8320 & VJN), *Uraria picta*, *Vigna lanceolata* var. *filiformis*.

Graminoids:

Frequent species: *Aristida warburgii*, *Eriachne burkittii*, *E. obtusa*, *E. squarrosa*, *Eulalia mackinlayii*, *Fimbristylis recta*, *Haemodorum coccineum*, *Heterachne abortiva*, *H. gulliveri*, *Heteropogon triticeus*, *Ischaemum fragile*, *Murdannia graminea*, *Rhynchospora heterochaeta*, *Schizachyrium crinozonatum*, *Scleria lithosperma* var. *linearis*, *Sorghum plumosum*, *Thaumastochloa pubescens*, *Whiteochloa airoides*, *Xyris complanata*.

Ecological notes: This map unit occurs over extensive areas of the central and south-western parts of Batavia Downs covering approximately 23 750 hectares. On the level plains to the west of the Peninsula Developmental Road it forms a low open-woodland on uniform silty clay loam (Um 2.12) and gradational sandy clay loam soils (Gn 2.94 and Gn 2.84). This association was also noted as a low woodland on a soloth (Dg 2.81) and an earthy sand (Uc 5.22). These soils were all acidic at depth (pH 5.5-6.0 at 50 cm) with ferromanganiferous nodules occurring in the B horizons of some soils. This unit occurs as a woodland mainly in the south-western area, where it often adjoins units 8 and 13. In this situation, it occurs on yellow earths (Gn 2.24 and Dy 3.61) and a xanthozem (Gn 3.71). These soils are acidic (pH 5.5-6.0 at 50 cm) with some ferromanganiferous nodules at depth. In some low-lying areas, *Eucalyptus platyphylla* dominates the unit but these areas are very limited in extent.

Representative sites: 12, 13, 14, 16, 31, 45, 54, 67, 76, 84.

Map unit 9: *Eucalyptus leptophleba* ± *E. papuana* ± *E. clarksoniana* open-woodland.

Description: *Eucalyptus leptophleba* dominates the very sparse to sparse canopy (8-25% PFC), forming woodlands to open-woodlands. *E. papuana* is a frequent codominant tree in the open-woodlands, while *E. clarksoniana* is often present in both structural formations. Other tree species are occasionally present in the woodlands. A very sparse low tree layer (4-8 m tall) is occasionally present in the open-woodlands, but more frequent in the woodlands. A very sparse, shrubby regrowth layer (<0.5 m) is infrequently present. The ground layer is mid-dense and dominated by a variety of grasses, including *Heteropogon triticeus*, *H. contortus*, *Sorghum plumosum* and *Capillipedium parviflorum*.

Structural formation range: Open-woodland to woodland.

Basal area estimate: Mean 6 m²/ha, range 2-9 m²/ha.

Canopy tree layer: Ht. 12-18 m; PFC 8-25%; Density 40-280 trees/ha; DBH 12-30 cm, occasional trees to 64 cm.

Predominant species: *Eucalyptus leptophleba*.

Frequent species: *Eucalyptus clarksoniana* (often subcanopy), *E. papuana*.

Occasional species: *Erythrophleum chlorostachys*, *Eucalyptus chlorophylla*, *E. confertiflora* (subcanopy), *E. cullenii*, *E. platyphylla*.

Low tree layer: Ht. 4-8 m tall; PFC 0-5%; Density 0-340 trees/ha.

Frequent species: *Acacia rothii*, *Brachychiton muellerianus*, *Capparis* sp., *Erythrophleum chlorostachys*, *Grevillea glauca*, *Hakea persiehana*, *Melaleuca viridiflora*, *Petalostigma banksii*, *Planchonia careya*, *Santalum lanceolatum*.

Low shrub layer: Ht. < 0.5 m; PFC 0-5%; Density 0-1 400 shrubs/ha.

Frequent species: All species recorded in the low tree layer.

Additional species are *Abelmoschus moschatus* subsp. *tuberosus*, *Antidesma ghaesembilla*, *Dolichandrone heterophylla*, *Eucalyptus clarksoniana*, *Grewia retusifolia*, *Tylophora erecta*.

Ground layer: Ht. 60-80 cm, grass inflorescences to 180 cm ; PFC 50-75%.

Forbs:

Frequent species: *Alysicarpus rugosus*, *A. vaginalis*, *Brunoniella australis*, *Cassia mimosoides*, *Crotalaria calycina*, *C. medicaginea*, *C. montana*, *Desmodium nemorosum*, *Euphorbia mitchelliana*, *Evolvulus alsinoides*, *Flemingia parviflora*, *Galactia muelleri*, *Heliotropium* sp. (JRC 8296 & VJN), *Indigofera trifoliata*, *Ipomoea eriocarpa*, *Merremia quinata*, *Neptunia gracilis*, *Pycnospora lutescens*, *Uraria picta*, *Vigna lanceolata* var. *filiformis*, *V. vexillata*, *Wedelia biflora*.

Graminoids:

Frequent species: *Arundinella nepalensis*, *A. setosa*, *Capillipedium parviflorum*, *Commelina undulata*, *Cyperus pulchellus*, *Dichanthium sericeum* subsp. *polystachyum*, *Eragrostis spartinoides*, *Eriachne burkittii*, *E. obtusa*, *E. squarrosa*, *Heteropogon contortus*, *H. triticeus*, *Rottboellia cochinchinensis*, *Schizachyrium fragile*, *Setaria surgens*, *Sorghum plumosum*, *Themeda arguens*, *T. triandra*, *Xyris complanata*.

Ecological notes: This map unit is fairly extensive in the south-western parts of Batavia Downs and occupies approximately 17 870 hectares. The open-woodlands occur mainly on the brown clays (Ug 5.34 and Ug 5.35) on gently undulating rises and level plains. These soils are deep (> 150 cm), acidic to alkaline at depth (pH 5.8-9.5 at 150 cm) and infrequently have scattered ferromanganiferous nodules at depth. The woodlands occur predominantly on the yellow earths (Gn 2.24, Gn 2.61 and Dy 3.84) and soils with affinities to the xanthozems (Uf 4.43 and Uf 6.34). These soils are all acidic at depth (pH 5.8-6.3 at 40 cm) with ferromanganiferous nodules frequently scattered throughout the profile. *Eucalyptus chlorophylla* occurs infrequently in this map unit, usually replacing *E. leptophleba* where it occurs. It was recorded at 3 sites, and occurred on yellow earths (Gn 2.21, Gn 2.24, Gn 2.64). These soils were all acidic at depth (pH 4.5-6.3 at 60 cm) with ferruginous nodules present throughout the profile and increasing with depth.

Representative sites: 21, 24, 26, 27, 30, 40, 56, 62, 63, 64, 74, 91, 92.

Map unit 10: *Eucalyptus papuana* open-woodland.

Description: This association has the appearance of an open parkland. Scattered *Eucalyptus papuana* trees (9-15 m tall) dominate the biomass and form a very sparse canopy (PFC < 5%). Occasional *E. leptophleba* trees may be present. Shrubs and low trees are usually absent, and the dense ground layer is dominated by grasses. *Themeda arguens*, *Heteropogon triticeus* and *Capillipedium parviflorum* are the major dominant grasses, with *H. contortus*, *Dichanthium sericeum* subsp. *polystachyum*, *Sorghum plumosum* and *Mnesithea rottboellioides* dominating small areas.

Structural formation range: Open-woodland.

Basal area estimate: < 1 m²/ha.

Canopy tree layer: Ht. 9-15 m; PFC 5%; Density 20 trees/ha; DBH 30-35 cm.

Predominant species: *Eucalyptus papuana*.

Occasional species: *Eucalyptus leptophleba*, *Piliostigma malabaricum*.

Low shrub layer: Ht. <0.5m; PFC <1%.

Frequent species: *Abelmoschus moschatus* subsp. *tuberosus*, *Antidesma ghaesembilla*, *Grewia retusifolia*.

Ground layer: Ht. 80-120 cm, grass inflorescences to 220 cm ; PFC 80-95%.

Forbs:

Frequent species: *Brunoniella australis*, *Cassia mimosoides*, *Crotalaria calycina*, *C. montana*, *Cucumis melo* subsp. *agrestis*, *Euphorbia mitchelliana*, *Flemingia involucrata*, *F. parviflora*, *Indigofera trifoliata*, *Ipomoea graminea*, *Rhynchosia minima*, *Vernonia cinerea*.

Graminoids:

Frequent species: *Capillipedium parviflorum*, *Dichanthium sericeum* subsp. *polystachyum*, *Eriachne burkittii*, *E. pallescens*, *Eulalia mackinlayi*, *Heteropogon contortus*, *H. triticeus*, *Mnesithea rottboellioides*, *Murdannia graminea*, *Rottboellia cochinchinensis*, *Sorghum laxiflorum*, *Themeda arguens*.

Ecological notes: This map unit occurs on level plains in the south-western part of Batavia Downs and covers a limited area (1 650 hectares). It generally occurs in close proximity to map unit 9, with the *E. leptophleba* dominated map unit extending further upslope. The soils are predominantly brown clays (Ug 5.32, Ug 5.34, Ug 5.35) and a grey clay (Ug 5.28). These soils are moderately deep (> 80 cm), heavy textured and alkaline at depth (pH > 7 below 1.4 m), and may have some ferromanganiferous nodules present. The soil surface is heavily gilgaied, with gilgais up to 60 cm deep and more than 1.5 m wide. These gilgais fill with water in the wet season, and frequently support *Nymphoides exiliflora*, *Crinum* sp. and *Fimbristylis* sp.

Representative sites: 3, 25, 41, 55, 75, 93, 108.

Map unit 11: Deciduous microphyll species low closed-forest ± emergent
Lagerstroemia archeriana.

Equivalent Webb (1978) structural types: Deciduous vine thicket (DVT).

Description: A dense low tree layer (5 m tall) forms a fairly uneven canopy. It is composed of a variety of species many of which are completely deciduous in the dry season, while the remainder are semi-evergreen, e.g. *Ficus* spp. Deciduous emergent trees are frequent and may reach heights up to 27 m. Vines are frequent often reaching canopy level. A sparse low tree layer (1-2 m tall) is sometimes present. In the wet season, the ground layer is mid-dense and dominated by the grass *Oplismenus burmannii* and various forbs. Large amounts of leaf litter accumulate on the soil surface.

Structural formation range: Low closed-forest.

Basal area estimate: 15 m²/ha.



Plate 4. *Eucalyptus leptophleba* open-woodland (map unit 9). Near site 55, 6.8 km south of Batavia Downs turnoff on Peninsula Developmental Road.



Plate 5. Deciduous microphyll species low closed-forest on Necktie Creek (map unit 11).

Emergent tree layer: Ht. 15-27 m; PFC 5-7%; Density 80 trees/ha.

Frequent species: *Acacia auriculiformis*, *Bombax ceiba* var. *leiocarpum*, *Canarium australianum*, *Garuga floribunda*, *Lagerstroemia archeriana*, *Lophostemon grandiflorus* subsp. *riparius* (on stream lines), *Mimusops elengi*, *Terminalia sericocarpa*, *Tetrameles nudiflora*.

Canopy tree layer: Ht. 5-10 m; PFC 70-85%; Density 2 000 trees/ha, Mean DBH 13 cm.

Frequent species: *Bombax ceiba* var. *leiocarpum*, *Cassine melanocarpa*, *Croton arnhemicus*, *Cochlospermum gillivraei* (on edge), *Cupaniopsis anacardioides*, *Diospyros fasciculosa*, *D. hebecarpa*, *Ficus drupacea*, *F. virens*, *Leea indica*, *Litsea glutinosa*, *Lophostemon suaveolens*, *Mallotus nesophilus*, *M. polyadenos*, *Maytenus fasciculiflora*, *Mimusops elengi*, *Planchonella pohlmaniana* var. *vestita*, *Polyalthia nitidissima*, *Strychnos lucida*, *Terminalia subacroptera*, *Turraea brownii*.

Low tree layer: Ht. 1-2 m; PFC 5-25%; Density 1000-5000 trees/ha.

Frequent species: *Antidesma parviflorum* (on edge), *Breynia oblongifolia*, *Citriobatus spinescens*, *Cleistanthus apodus*, *Eugenia reinwardtiana*, *Gardenia scabrella*, *Guettardella ovatifolius*, *Helicteres isora*, *Ixora klanderiana*, *Kailarsenia ochreatea*, *Strychnos lucida*, *Vitex helogiton*, *Wrightia pubescens*.

Vines:

Frequent species: *Abrus precatorius*, *Canavalia rosea*, *Cissus adnata*, *C. reniformis*, *Dioscorea transversa*, *Diplocyclos palmatus*, *Entada pursaetha*, *Gymnathera nitida*, *Ipomoea nil*, *Luffa cylindrica*, *Malaisia scandens*, *Parsonsia velutina*, *Pisonia aculeata*, *Protasparagus racemosus*, *Smilax australis*, *Stemona philippinensis*, *Ziziphus oenoplia*.

Ground layer: Ht. 30-60 cm; PFC 30-70%.

Forbs:

Frequent species: *Abutilon auritum*, *Achyranthes aspera*, *Bidens bipinnata*, *Curcuma australasica*, *Cyathula prostrata*, *Dicliptera spicata*, *Hypoestes floribunda* var. *yorkensis*, *Hyptis suaveolens*, *Laportea interrupta*, *Pseuderanthemum variabile*, *Synedrella nodiflora*, *Triumfetta rhomboidea*, *Urena lobata*.

Graminoids:

Frequent species: *Oplismenus burmannii*, *Panicum* sp. nov. (JRC 8477 & VJN).

Ecological notes: This map unit is very limited in extent (approximate area on Batavia Downs is 650 ha), and occurs on the watercourses of seasonally dry streams, west of Batavia Downs homestead. It usually occurs near the sources of streams, such as Necktie and Lydia Creeks, where the stream channels are poorly defined, and grades into riverine closed-forest (unit 2) further downstream. The soils are grey cracking clays. The occurrence of this unit on Cape York Peninsula is restricted to some of the tributaries of the Wenlock, Archer and Mission Rivers, which rise in the vicinity of the Embley Range and areas south of it.

Representative sites: 87, 98.

Map unit 12: Semi-deciduous microphyll species low closed-forest ± emergent *Melaleuca* spp.

No equivalent Webb (1978) structural type.

Description: A dense low tree/tall shrub layer (5-6 m tall) is dominant and forms a fairly continuous canopy. It is composed of a variety of semi-deciduous species with no species showing clear dominance. A recognised but undescribed *Melaleuca* sp. (Clarkson 4553) and *M. saligna* are frequent emergent trees (12-15 m tall). A low shrub layer (1-2 m tall) is present, but fairly sparse. The ground layer is very sparse.

Structural formation range: Low closed-forest to woodland.

Basal area estimate: 11 m²/ha.

Emergent tree layer: Ht. 12-15 m; PFC 10%; Density 800 trees/ha.

Predominant species: *Melaleuca* sp. (Clarkson 4553), *M. nervosa*, *M. saligna*.

Frequent species: *Acacia polystachya*, *Adenantha abrosperma*, *Asteromyrtus symphyocarpa*, *Canarium australianum*, *Cochlospermum gillivraei*.

Low tree/tall shrub layer: Ht. 5-6 m; PFC 70%; Density 10 000 trees/ha.

Frequent species: *Acacia crassicarpa*, *Aidia racemosa*, *Alphitonia obtusifolia*, *Alyxia spicata*, *Canthium coprosmoides*, *Carissa laxiflora*, *Croton* sp. (Clarkson 4061 B), *Diospyros hedecarpa*, *D. humilis*, *Drypetes australasica*, *Exocarpos latifolius*, *Gardenia scabrella*, *Hakea pedunculata*, *Leptospermum parviflorum*, *Mallotus polyadenos*, *Melodorum* sp. (Jessup 814), *Memecylon pauciflorum*, *Notolaea longifolia*, *Rapanea porosa*, *Terminalia subacroptera*, *Vitex helogiton*.

Low shrub layer: Ht. 1-2 m; PFC 20%.

Frequent species: Smaller individuals of a variety of canopy species. Additional species include *Breynia oblongifolia*, *Canthium* sp. (JRC 8600 & VJN) and *Gardenia scabrella*.

Epiphytes:

Frequent species: *Dendrobium bigibbum*.

Ground layer: Ht. 5-50 cm; PFC 5%.

Forbs:

Frequent species: *Cassytha filiformis*, *Cynanchum brachystelmoides*, *Utricularia* sp. (JRC 8603 & VJN).

Graminoids:

Frequent species: *Aristida macroclada* subsp. *queenslandica*, *Eleocharis nigescens*, *Eragrostis interrupta*, *Ischaemum fragile*.

Ecological notes: This map unit is very limited in extent occupying approximately 520 hectares. It occurs in small, roughly circular drainage depressions on the level plains along the road to Mission River. The soils were not sampled but are probably grey clays which have been enriched by organic matter accumulation. The low closed-forest areas are usually surrounded by a woodland of *Melaleuca* sp. (Clarkson 4553), *M. viridiflora* and *Asteromyrtus symphyocarpa*.

Representative site: 79, 107.

Map unit 13: *Melaleuca viridiflora* ± *Eucalyptus clarksoniana* low open-woodland.

Description: *Melaleuca viridiflora* dominates the very sparse canopy (6-9 m tall) with scattered emergent *Eucalyptus clarksoniana* (8-20 m tall) frequently being present. Other *Eucalyptus* spp. occur very occasionally as emergent trees. A low tree layer (3-7 m tall) is present at some sites, but frequently is absent. A very sparse low shrub layer (<0.5 m) dominated by *M. viridiflora* juveniles is present at most sites. The ground layer is sparse to mid-dense and dominated by grasses, with *Schizachyrium crinozonatum* and *Eremochloa bimaculata* frequent dominants.

Structural formation range: Low open-woodland to low woodland.

Basal area estimate: Mean 8 m²/ha, range 4-12 m²/ha.

Emergent tree layer: Ht. 8-20 m; PFC 5%; Density 20-120 trees/ha; DBH 34-53 cm.
Frequent species: *Eucalyptus clarksoniana*, *E. tetradonta*.

Canopy tree layer: Ht. 6-9 m; PFC 8-10, rarely 20%; Density 300-660 trees/ha; DBH 11-16 cm, occasional trees to 27 cm.
Predominant species: *Melaleuca viridiflora*.

Low tree layer: Ht. 3-7 m; PFC 0-5%; Density 0-220 trees/ha.
Frequent species: *Acacia crassicarpa*, *Asteromyrtus symphyocarpa*, *Eucalyptus tokwa* (occasional), *Grevillea glauca*, *Melaleuca viridiflora*, *Parinari nonda*, *Petalostigma banksii*.

Low shrub layer: Ht. <0.5 m; PFC 0-5%; Density 100-3 500 shrubs/ha.
Frequent species: All species recorded in the upper layers. Additional species are *Acacia rothii*, *Clerodendrum parvulum* and *Pandanus* sp. (JRC 8573 & VJN).

Ground layer: Ht. 20-40 cm, grass inflorescences to 200 cm; PFC 20-55%.

Forbs:

Frequent species: *Brunoniella australis*, *Centranthera cochinchinensis*, *Drosera indica*, *D. petiolaris*, *Goodenia armstrongiana*, *Polygala longifolia*, *Spermacoce brachystema*, *Stackhousia intermedia*, *Stylidium uliginosum*, *Tricoryne anceps*.

Graminoids:

Frequent species: *Aristida dominii*, *A. warburgii*, *Caesia setifera*, *Eragrostis sororia*, *E. unioloides*, *Eremochloa bimaculata*, *Eriachne pallescens*, *E. squarrosa*, *Eulalia mackinlayi*, *Fimbristylis polytrichoides*, *F. squarrolosa*, *Ischaemum fragile*, *Murdannia graminea*, *Paspalum scrobiculatum*, *Rhynchospora heterochaeta*, *R. leae*, *R. subtenuifolia*, *Schizachyrium crinozonatum*, *Scleria lithosperma* var. *linearis*, *Sorghum plumosum*.

Ecological notes: This map unit is widespread throughout Batavia Downs, but does not cover extensive tracts in any area. It occurs on alluvial plains and in drainage depressions, and covers approximately 10 000 hectares. It occurs extensively throughout Cape York Peninsula. It occurs predominantly on grey earths (Gn 2.94 and Dg 4.82) which have a silty clay loam to sandy clay loam fine sandy A horizon of about 20 cm depth, and an acidic (pH 5.8-6.8 at 50 cm), fine sandy clay to silty clay B horizon with ferromanganiferous nodules frequently present at depth. It also occurs on a yellow earth (Gn 2.64) and yellow podzolic soil (Gn 3.84).

Representative sites: 2, 15, 28, 49, 61, 83, 105, 106.



Plate 6. Semi-deciduous microphyll species low closed-forest with emergent *Melaleuca* species (map unit 12). *Melaleuca viridiflora* low open-woodland in foreground. Site 107, 2.4 km west of Lydia Creek on Mission River road.



Plate 7. *Melaleuca viridiflora* low open-woodland (map unit 13). Site 106, 4.3 km east of Peninsula Developmental Road on road to Iron Range.

Map unit 14: *Asteromyrtus lysicephala* open-heath with emergent *A. symphyocarpa*, *Banksia dentata*, *Melaleuca* spp. and *Neofabricia myrtifolia*.

Description: This map unit can vary in structure and species dominance over short distances. *Asteromyrtus lysicephala* usually dominates a medium dense shrub layer (1.5-2.0 m tall). A sparse low tree layer (2-4 m tall) of *Banksia dentata*, *Grevillea glauca* and *G. pteridifolia* is generally present. A very sparse, emergent tree layer (6-10 m tall) composed of *Melaleuca* spp., *Eucalyptus* spp. and *Neofabricia myrtifolia* is usually present. The ground layer is sparse and dominated by graminoids, frequently *Leptocarpus spathaceus* and *Eriachne stipacea* var. *hirstua*.

Structural formation range: Open-heath to low open-woodland.

Basal area estimate: 7 m²/ha.

Emergent tree layer: Ht. 6-10 m; PFC 5%; Density 600-1 500 trees/ha; DBH 5-11 cm, occasional trees to 21 cm.

Frequent species: *Acacia rothii*, *Asteromyrtus brassii*, *Eucalyptus clarksoniana*, *E. tetradonta*, *Lophostemon suaveolens*, *Melaleuca arcana*, *M. viridiflora*, *Neofabricia myrtifolia*, *Xanthostemon crenulatus*.

Low tree layer: Ht. 2-4 m; PFC 10%; Density 600-1 500 trees/ha.

Frequent species: *Acacia crassicarpa*, *Asteromyrtus symphyocarpa*, *Banksia dentata*, *Grevillea glauca*, *G. pteridifolia*, *Persoonia falcata*.

Shrub layer: Ht. 1.5-2.0 m; PFC 30-60%; Density 2 700-7 000 shrubs/ha.

Predominant species: *Asteromyrtus lysicephala*.

Frequent species: *Boronia alulata*, *Jacksonia thesioides*, *Lamprolobium fruticosum*, *Lomandra banksii*, *Pandanus* sp., *Thryptomene oligandra*.

Ground layer: Ht. 40-60 cm; PFC 20-35%.

Forbs:

Frequent species: *Cassytha filiformis*, *Drosera petiolaris*, *Lechenaultia filiformis*, *Lindsaea ensifolia*, *Nepenthes mirabilis*, *Utricularia* sp. (JRC 8401 & VJN), *Utricularia* sp. (JRC 8402 & VJN).

Graminoids:

Frequent species: *Caesia setifera*, *Dianella odorata*, *Eriachne stipacea* var. *hirsuta*, *E. trisetata*, *Fimbristylis insignis*, *F. squarrolosa*, *Ischaemum fragile*, *Leptocarpus spathaceus*, *Schoenus sparteus*, *Thaumastochloa pubescens*, *Xyris complanata*.

Ecological notes: This map unit is restricted on Batavia Downs to the sandy alluvial plains associated with the Wenlock River. It occupies approximately 7 200 hectares on Batavia Downs, but is widespread on Cape York Peninsula. This unit also frequently occurs on the margins of swamps in the area to the north-east of Batavia Downs. It occurs on deep (> 140 cm), imperfectly drained podzols, which have a fine sandy texture and are acidic at depth (pH 5.2 at 120 cm).

Representative sites: 18, 89 (east of Batavia Downs property), 96.

Map unit 15: Fringing open-forest surrounding permanent lagoons.

Description: A narrow (2 m wide) band of fringing open-forest occurs along the edges of the permanent lagoons and billabongs. *Melaleuca leucadendra*, *Lophostemon suaveolens*, *Eucalyptus brassiana* and *E. clarksoniana* form a canopy (13-20 m tall). There are a number of trees forming a low tree layer (4-10 m tall). The ground layer is sparse to mid-dense and dominated by grasses. In the areas of shallow water at the edge of the lagoon, submerged, bottom-rooted aquatic plants such *Nymphaea violacea* and *Nymphoides geminata* are frequent.

Structural formation range: Fringing open-forest to woodland.

Canopy tree layer: Ht. 13-20 m; PFC 25-40%.

Frequent species: *Dillenia alata*, *Eucalyptus brassiana*, *E. clarksoniana*, *Lophostemon suaveolens*, *Melaleuca leucadendra*, *Syzygium angophoroides*, *Xanthostemon crenulatus*.

Low tree layer: Ht. 4-10 m; PFC 10-20%.

Frequent species: *Acacia leptocarpa*, *Alyxia spicata*, *Asteromyrtus symphyocarpa*, *Banksia dentata*, *Calycopeplus casuarinoides*, *Grevillea pteridifolia*, *Jacksonia thesioides*, *Leptospermum parviflorum*, *Livistona muelleri*, *Memecylon pauciflorum*, *Neofabricia myrtifolia*, *Parinari nonda*.

Ground layer: Not sampled but similar to that found in map unit 13.

Aquatic plants:

Frequent species: *Blyxa* sp., *Leersia hexandra*, *Lepironia articulata*, *Najas tenuifolia*, *Nymphaea violacea*, *Nymphoides exiliflora*, *N. geminata*, *Troglochis procera* var. *dubia*, *Utricularia* spp.

Ecological notes: This map unit is extremely limited in extent (approximately 27 ha), and restricted to permanent lagoons and billabongs on the Wenlock River floodplain. The soils are organic matter-enriched humic clays.

Representative site: 82.

5. Floristics

A comprehensive list of the plants known to occur on Batavia Downs is given in Appendix 1. This list is based primarily upon material collected or observed during the course of field work associated with this project. The list has been supplemented by the addition of plants collected on previous visits to the area and from specimens held by the Queensland Herbarium, Indooroopilly. Flowering or fruiting specimens of 57% of the plants listed were collected during the course of the current study and have been lodged with the Queensland Herbarium. Only 2.7% of the plants listed were not observed in the field.

A summary of the flora is given in the Table 2. Six hundred and thirty species represents about 20% of the plants recorded by Clarkson (in press) for the whole of Cape York Peninsula. The largest family in terms of the numbers of both genera and species is Poaceae (grasses) followed by Fabaceae s.str. (legumes). Families with more than 10 genera are listed in Table 3 and those with more than 10 species in Table 4. The relative importance of these families in the Cape York Peninsula flora is indicated. The ranking of families for Batavia Downs is similar to that for the Peninsula as a whole with the exception of the Orchidaceae (second largest family in the Peninsula flora in both genera and species) which is poorly represented.

Large genera are not a feature of the flora of Cape York Peninsula. Clarkson and Kenneally (1989) report only 29 genera with 10 or more species from a total of 1033 genera. Only 2 genera occurring on Batavia Downs include 10 or more species; *Eucalyptus* (15) and *Acacia* (12).

Table 2. Summary of the flora of Batavia Downs.

		Native	Naturalised	Total
Ferns	Families	5	0	5
	Genera	6	0	6
	Species	8	0	8
Gymnosperms	Families	1	0	1
	Genera	1	0	1
	Species	1	0	1
Flowering Plants	Families	99	1	100
	Genera	334	26	360
	Species	574	47	621

The current study produced a number of new or important species records, as listed below.

New Queensland Herbarium records for Queensland.

Cassia harneyi Previously known only from the Northern Territory.

New Queensland Herbarium records for Cape York Peninsula.

<i>*Axonopus affinis</i>	<i>Eriachne agrostoides</i>
<i>*Bothriochloa pertusa</i>	<i>Eulalia aurea</i>
<i>Brachiaria kurzii</i>	<i>Panicum decompositum</i> var. <i>tenuior</i>
<i>Cyathula prostrata</i>	<i>*Panicum maximum</i> var. <i>coloratum</i>
<i>Eragrostis sororia</i>	

* = naturalised alien species.

Table 3. Ranking of families from Batavia Downs with 10 or more genera. Cape York ranking from Clarkson & Kenneally (1988).

Family	No. of genera	Cape York ranking
1. Poaceae	48	1
2. Fabaceae	33	2
3. Rubiaceae	17	5
4. Euphorbiaceae	15	3
5. Myrtaceae	14	6
6. Asteraceae	12	7

Table 4. Ranking of families from Batavia Downs with 10 or more species. Cape York ranking from Clarkson & Kenneally (1988).

Family	No. of species	Cape York ranking
1. Poaceae	99	1
2. Fabaceae	67	2
3. Myrtaceae	43	4
4. Cyperaceae	35	3
5. Rubiaceae	30	7
6. Euphorbiaceae	28	5
7. Mimosaceae	17	> 10
8. Convolvulaceae	14	> 10
9. Asteraceae	13	9
10. Liliaceae	11	> 10

6. Toxic plants

Livestock losses due to toxic plants are only rarely reported by cattle producers on Cape York Peninsula. This may be due in part to husbandry practices which result in cattle being inspected infrequently. Missing stock at musters could be attributed to straying, deaths due to difficulty at calving or diseases such as botulism. Losses due to plant poisoning, if they have been occurring, are almost impossible to segregate. With changes to cattle husbandry such as vaccination against botulism in susceptible areas and early weaning resulting in cows calving in better condition, losses attributable to other causes, such as plant poisoning, may become more apparent.

While over 20 plants recorded from Batavia Downs are listed by Everist (1981) as either known or suspected to be poisonous to stock, only three are sufficiently widespread or locally common to warrant special management concern.

Erythrophleum chlorostachys (Cooktown Ironwood) is extremely poisonous and many cases are on record of heavy mortalities following its consumption (see references quoted by Everist (1981)). The plant is widespread across Cape York Peninsula but tends to be avoided by local cattle. Care should be taken when introducing new stock to areas where the plant is common, particularly if feed is scarce or large numbers of suckers are present, e.g. following fire. It occurs in map units 3, 4, 5, 6, 8 and 9 on Batavia Downs.

The second species, *Cycas media* (Cycas), is abundant in a few areas of *Eucalyptus tetradonta*, *E. nesophila* woodland (map unit 3) mainly north of the Wenlock River. The seeds and young leaves are toxic, although under free range conditions only the young leaves appear to be eaten readily. Mature or dried leaves have been shown to be non-poisonous. Consumption of young leaves over an extended period produces chronic neurological degeneration of the hindquarters which leads to an incoordination of the hind limbs known as 'rickets' (Everist 1981). Stock should be denied access to areas where this plant is common, particularly following fire when young leaves are produced in abundance.

Morinda reticulata (Mapoon) occurs as a sporadic scattered subshrub in areas of *Eucalyptus tetradonta* woodlands (map units 3,4 and 6). It has been reported as being toxic to horses, leading to lameness with loss of hair from the mane and tail. Exclusion of horses from areas containing this plant, particularly when new shoots appear after fire, would prevent the development of the disease, but may not be practicable. It may also be possible to reduce the consumption of the plant by providing supplementary feed for horses at this time of the year (Everist 1981).

7. Alien species

The survey identified 47 introduced species which have become naturalised in the Batavia Downs area (Appendix III). This represents 7.5% of the species listed in Appendix 1. The majority are widespread weeds of tropical areas commonly encountered in disturbed areas along roadsides and around buildings. Nineteen species are pasture plants introduced at various times as commercial pastures or in small trial areas. These species are listed in Appendix IV. Two families Fabaceae (legumes) and Poaceae (grasses) account for over half of the naturalised flora. No species declared under the Rural Lands Protection Act was recorded.

The low incidence of naturalised exotics is one of the features of the flora of Cape York Peninsula. Clarkson (in press) found only 5.5% of the total species known to occur in the area to be naturalised introductions. This contrasts markedly with 12.8 % for Queensland (Johnson 1983), 22.5% for Victoria (Ross 1976) and 26.8% for South Australia (Toelken 1987) but is in line with the proportions reported for other tropical areas of Northern Australia, viz. 5.2% for the Northern Territory (Bowman *et al.* 1988) and 4.8% for the Kimberley (Clarkson & Kenneally 1988). These low figures for northern Australia reflect in part the sparse settlement, generally low soil fertility and a primary land use based on the grazing of native pastures with minimal clearing. This could alter significantly as land use patterns on Cape York Peninsula change.

The increased risk of further introduction of weedy species with changing land use is related to

- increased vehicular traffic;
- movement of earth moving machinery associated with clearing, construction of dams and road grading;
- increased mining activity;
- importing hay;
- importing fencing and construction materials;
- increased use of introduced pasture species with the likelihood of spread of these species into non-grazing areas or the introduction of weed seeds as contaminants of pasture seed.

8. Conservation

8.1. Present conservation status

Four large national parks have been gazetted in the northern part of Cape York Peninsula; Jardine River (239 151 ha), Rokeby (291 000 ha), Archer Bend (166 000 ha) and Iron Range (34 600 ha). Representative samples of many of the vegetation associations which occur on Batavia Downs are probably contained within these parks. However, it is impossible to objectively state the conservation status of vegetation associations on the Peninsula until a biological inventory of the Peninsula is completed. In reviewing the conservation status of plant communities recognised on Batavia Downs an attempt has been made to identify those which are already adequately conserved in declared reserves. The national park estate aims to conserve representative examples of plant communities. Rural landholders can play a significant role in maintaining biodiversity through application of sound land management practices to areas under their control.

The semi-deciduous notophyll closed-forest (map unit 1) occurs as discrete patches, rarely more than 50 hectares in size, in the area between Moreton, Weipa and the Jardine River. These patches vary greatly in their floristic content and may be relicts of a much more widespread vegetation type (Lavarack and Godwin 1987). Although represented in the Jardine River national park, the patches on Batavia Downs have considerable conservation value and have been listed as a key conservation area in the Wildlife Preservation Society's (1990) conservation strategy for Cape York Peninsula. Fire poses the most immediate threat to the long term maintenance of these forests. In some areas, e.g. Forty Mile Scrub national park, cattle using similar forest types for shade and shelter are a major source of understorey disturbance leading to weed encroachment.

The riverine evergreen notophyll closed-forests (map unit 2) vary greatly in structure and floristic composition. These forests are important as wildlife corridors (Winter and Atherton, 1985) and play a significant role in streambank erosion control. Preservation of a corridor along the Wenlock River has been proposed by the Wildlife Preservation Society (1990) to ensure that the link between the closed-forests of eastern and western Cape York Peninsula is maintained. Archer Bend and Iron Range national parks include elements of these forests.

Eucalyptus tetradonta dominated associations (map units 3,4,5 & 6) are widespread on Cape York Peninsula, and exhibit subtle differences in floristic composition and structure. Until mapping work on Cape York Peninsula is completed, the conservation status of these associations cannot be adequately assessed. In the absence of any large scale tree clearing, these communities are not currently considered at risk. The Embley Range which carries significant areas of *Eucalyptus tetradonta*, *E. nesophila* woodland (map unit 3) was designated as a key conservation area in the Wildlife Preservation Society's (1990) conservation strategy for Cape York Peninsula. This area has also been nominated for inclusion in the register of the national estate.

Current knowledge of the conservation status of *Melaleuca viridiflora* dominated associations (map units 7 & 13) is similar to that outlined for *Eucalyptus tetradonta*. While communities dominated by *M. viridiflora* are well represented in national parks, assessment of the conservation status of the many associations in which it occurs must await completion of an inventory of the plant communities of Cape York Peninsula.

Representative stands of open-woodlands similar to those mapped as map units 9 and 10 on Batavia Downs probably occur in the Archer Bend and Rokeby national parks. It will be important to ensure that representative samples of these communities are adequately conserved for they are likely to be the key areas targeted for pasture improvement. While tree clearing on the brown clays and associated xanthozems on which these communities occur has been advised

against due to the risk of salinisation (Grundy and Heiner, in prep.), introduction of exotic pasture species and increased grazing pressure could lead to significant changes in the understorey. Modification of the tree layer could occur in the long term if germination and establishment of tree seedlings is disturbed.

The deciduous microphyll low closed-forests (map unit 11) associated with map units 9 and 10 are restricted to tributaries of the Archer, Wenlock and Mission Rivers. Archer Bend and Rokeby national parks contain some representative stands of this vegetation type. Because of the limited distribution of this forest type on Cape York Peninsula, disturbance should be avoided if possible. Fire poses the most serious long term threat to the maintenance of these forests.

The semi-deciduous microphyll low closed-forests with emergent *Melaleuca sp.* (map unit 12) are restricted and poorly understood. They are not known to occur in any declared reserve.

Eucalyptus clarksoniana dominated open-woodlands similar to those mapped as map unit 8 are common on Cape York Peninsula from north of Coen to the Wenlock River. Representative samples occur on Rokeby and Archer Bend national parks.

The open-heath (map unit 14) is well represented in the Jardine River national park. Due to the impoverished nature of the soil on which this community occurs it has little potential for agricultural or pastoral utilisation.

The permanent lagoons (map unit 15) are important wildlife habitats and watering points for livestock. They should be protected from pollution and erosion of the banks.

8.2. Rare and threatened plants

Ten species known to occur on Batavia Downs are listed by Thomas and McDonald (1989) as rare or threatened. On the basis of observations made during the course of field work associated with this project and ongoing studies of the vegetation of Cape York Peninsula, it is possible to review the status of a number of these plants. A list of the species and their revised status is given in Table 5.

All but one of the species remaining once the amended ratings are applied are plants of closed-forests or low-closed forests (map units 1,2,11,12). Although each has been recorded elsewhere on Cape York Peninsula, none is currently known to occur within a national park or other proclaimed reserve. The woodland species remaining, *Heterachne baileyi*, was until recently, thought to be extinct (Leigh, Boden and Briggs 1984). The plant had not been recollected since the type gathering was made near Weipa in 1901. In 1982 it was rediscovered between Aurukun and Weipa and again in the course of the present survey. In time the plant will probably be shown to be widely distributed and lose its rare and threatened status. It is a small, tufted annual which could easily be overlooked.

Table 5. Rare and threatened plants of Batavia Downs

Species	Rating Thomas & McDonald (1989)	Amended Rating
<i>Acacia albizioides</i>	3R	3R
<i>Acacia fleckeri</i>	3R	3R
<i>Cartonema baileyi</i>	3R	delete
<i>Clerodendrum parvulum</i>	3RC	delete
<i>Cynanchym brachystelmoides</i>	3K+	3V
<i>Decaschistia peninsularis</i>	3K	delete
<i>Gardenia scabrella</i>	3K	3V
<i>Heterachne baileyi</i>	2E	3R
<i>Nymphoides triangularis</i>	2K	delete
<i>Tetrameles nudiflora</i>	3R+	3R+

RATING

Distribution

- 2 - Distribution is Australia very restricted with a maximum geographic range of less than 100 km. This category includes some species which occur outside Australia.
- 3 - Distribution in Australia ranging beyond 100 km but occurring in small populations which are mainly restricted to highly specific habitats.

Conservation Status

- E - Endangered and at risk of disappearing from the wild state within 10 to 20 years if present land use and other casual factors continue to operate.
- V - Vulnerable but not presently endangered
- R - Rare but not considered endangered or vulnerable
- K - Poorly known but suspected of being at risk

Supplementary Codes

- C - Known to occur within a national park or other proclaimed reserve.
- + - Species known to extend beyond Australia

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10. References

- Bowman, D.M.J.S., Wilson, B.A. and Dunlop, C.R. (1988). Preliminary biogeographic analysis of the Northern Territory vascular flora. *Australian Journal of Botany* **36**: 503-517.
- Clarkson, J.R. (in press). *An Annotated Checklist of the Vascular Flora of Cape York Peninsula*. Queensland Department of Primary Industries, Brisbane.
- Clarkson, J.R. and Kenneally, K.F. (1988). The floras of Cape York and the Kimberley: a preliminary comparative analysis. *Proceedings of Ecological Society of Australia* **15**: 259-266.
- Everist, S.L. (1981). *Poisonous Plants of Australia*. Revised edition. Angus and Robertson, London.
- Grosenbraugh, L.R. (1952). Plotless timber estimates. *Journal of Forestry* **50**: 32-37.
- Grundy, M.J. and Heiner, I.J. (in prep.). Soil Landscapes and Land Suitability of Batavia Downs. Queensland Department of Primary Industries, Research Establishments Publication.
- Johnson, R.W. (1983). The Queensland Flora and its collection. *Proceedings of the Royal Society of Queensland* **94**: 1-18.
- Lavarack, P.S. and Godwin, M. (1987). Rainforests of Northern Cape York Peninsula. In, *Australian National Rainforests Study - The Rainforest Legacy*, Australian Heritage Publication Series No. 1, Australian Government Publishing Service, Canberra.
- Leigh, J., Boden, R. and Briggs, J. (1984). *Extinct and Endangered Plants of Australia*. MacMillan, South Melbourne.
- Neldner, V.J. and Clarkson, J.R. (1990). *A Preliminary Report on the Vegetation of Batavia Downs property, Cape York Peninsula*. Department of Primary Industries, Mareeba.
- Neldner, V.J. and Clarkson, J.R. (in prep.). *Vegetation Survey of Queensland. Far Northern Queensland*. Queensland Department of Primary Industries, Botany Bulletin.
- Ross, J.H. (1976). An analysis of the flora of Victoria. *Muelleria* **3**: 169-176.
- Specht, R.L. (1970). Vegetation. In G.W. Leeper (Ed.), *The Australian Environment* (4th edition). CSIRO and Melbourne University Press, pp. 44-67.
- Toelken, H.R. (1987). Analytical notes on the flora of South Australia. *Journal of the Adelaide Botanic Gardens* **10**: 145-153.
- Thomas, M.B. and McDonald, W.J.F. (1989). *Rare and Threatened Plants of Queensland*. Second edition. Queensland Department of Primary Industries, Information Series QI88011.
- Walker, J. and Hopkins, M.S. (1990). Vegetation. In R.C. McDonald, R.F. Isbell, J.G. Speight, J. Walker and M.S. Hopkins, *Australian Soil and Land Survey Field Handbook*. Inkata Press, Melbourne, pp. 58-86.

- Webb, L.J. (1978). A general classification of Australian rainforests. *Australian Plants* 9: 349-363.
- Wildlife Preservation Society (1990). *A Conservation Strategy For Cape York Peninsula*. Wildlife Preservation Society of Queensland, Brisbane.
- Winter, J.W. and Atherton, R.G. (1985). Fauna survey of the natural habitats in the Weipa region. In J.W. Lawrie (Ed.), *Proceedings of the North Australian Mine Rehabilitation Workshop No. 9*, Comalco.

VEGETATION SURVEY OF BATAVIA DOWNS

APPENDICES I-V

Appendix I. Systematic list of vascular plant taxa recorded on Batavia Downs.

1. The families are arranged alphabetically with the genera listed alphabetically within family and species ordered alphabetically within genera.
2. Nomenclature follows that used in Clarkson (in press). Where an undescribed taxon is vouched by a collection in the Queensland Herbarium, the collector and collecting number is given, eg. *Phyllanthus* sp. (Clarkson 7348). Clarkson and Neldner collections have been abbreviated to JRC & VJN in the manuscript.
3. Naturalised alien species are indicated by an * in the first column.
4. Species in cultivation are not included.
5. An information qualifier (I.Q.) is placed in the first column after the scientific name for taxa which are unable to be assigned to map units.

D	=	Taxa occurring in disturbed situations and modified habitats, e.g. roadsides, heavily grazed paddocks, mowed areas.
L	=	Based on the Queensland Herbarium records, only locality data given.
P	=	Pasture species not located beyond sown areas.

6. The occurrence of a taxon in a map unit is indicated by the code number of that unit. Taxa have been allocated to map units on the basis of site data, herbarium label data, field notes and observation in the area.

1	=	Semi-deciduous notophyll closed-forest
2	=	Riverine evergreen notophyll closed-forest
3	=	<i>Eucalyptus tetrodonta</i> , <i>E. nesophila</i> woodland
4	=	<i>Eucalyptus tetrodonta</i> , <i>E. nesophila</i> and/or <i>E. hylandii</i> var. <i>campestris</i> ± <i>E. leptophleba</i> woodland
5	=	<i>Eucalyptus tetrodonta</i> , <i>E. nesophila</i> , <i>E. cullenii</i> or <i>E. crebra</i> woodland
6	=	<i>Eucalyptus tetrodonta</i> , <i>E. hylandii</i> var. <i>campestris</i> , <i>Melaleuca stenostachya</i> ± <i>E. cullenii</i> woodland
7	=	<i>Melaleuca viridiflora</i> ± <i>Lophostemon suaveolens</i> ± <i>Asteromyrtus symphyocarpa</i> ± <i>Melaleuca</i> spp. woodland
8	=	<i>Eucalyptus clarksoniana</i> ± <i>Melaleuca viridiflora</i> ± <i>E. platyphylla</i> open-woodland
9	=	<i>Eucalyptus leptophleba</i> ± <i>E. papuana</i> ± <i>E. clarksoniana</i> open-woodland
10	=	<i>Eucalyptus papuana</i> open-woodland
11	=	Deciduous microphyll species low closed-forest ± emergent <i>Lagerstroemia archeriana</i>
12	=	Semi-deciduous microphyll species low closed-forest ± emergent <i>Melaleuca</i> spp.
13	=	<i>Melaleuca viridiflora</i> low open-woodland ± emergent <i>E. clarksoniana</i>

- 14 = *Asteromyrtus lysicephala* open-heath with emergent *A. symphyocarpa*, *Banksia dentata*, *Melaleuca* spp. and *Neofabricia myrtifolia*.
- 15 = Fringing open-forest around permanent lagoons and aquatic habitats.

7. Coded information on the predominant life form and specialised habitat preference of each taxon is indicated by a 1, 2 or 3 letter code in the last column.

Predominant life form.

- B = Subshrub - woody plant < 1.5 m tall, often multi-stemmed.
- C = Scandent shrub - a woody plant with weak stems usually straggling over surrounding vegetation but without special modifications for climbing.
- F = Forb - an herbaceous or slightly woody plant not having a graminoid life form; mostly dicotyledons.
- G = Graminoid - an herbaceous plant with a grass-like appearance; mostly members of the Poaceae, Cyperaceae and Liliaceae.
- S = Shrub - a woody plant either multi-stemmed at the base or within 0.2 m from ground level and > 1.5 m tall, or if single stemmed < 2 m tall.
- T = Tree - a woody plant > 2 m tall with a single stem or branches well above the base.
- V = Vine - a climbing or trailing plant usually with special modifications for climbing. Vines may range from herbaceous plants such as members of the Cucurbitaceae to robust woody lianes such as many Menispermaceae.

Specialised habitat qualifier

- a = aquatic - growing in water, either rooted in the substrate or free floating.
- e = epiphytic - growing upon another plant but not parasitically.
- l = lithophytic - growing upon rocks.
- p = parasitic or saprophytic - growing upon another plant (living or dead) and drawing some or all of the nutrients required for growth from the host.

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
FERNS & FERN ALLIES																			
LINDSAEACEAE																			
															14		Ft		
OPHIOGLOSSACEAE																			
					1	2												Ft	
POLYPODIACEAE																			
																		Fte	
SCHIZAEACEAE																			
					1	2												Ct	Climbing Maidenhair
SINOPTERIDACEAE																			
																		Ft	
																		Ft	
	D				3					9								Ft	
																		Ft	Rock Fern, Mulga Fern
					1					5								Ft	
					1													Ft	
GYMNOSPERMS																			
CYCADACEAE																			
																		S	Cycas
ANGIOSPERMS																			
ACANTHACEAE																			
																		F	
																		F	
																		FB	
																		F	Love Flower
																		F	
																		V	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name
AMARANTHACEAE																		
												11					F	Chaff Flower
																	F	
	D																F	Green Amaranth
												11					F	
	D																F	Gomphrena Weed
									8								F	Gomphrena Weed
ANACARDIACEAE																		
				2													T	Rose Butternut, Northern Bolly Gum
		1	2														T	Buchanania, Satinwood, Native Mango
ANNONACEAE																		
													12				S	
		1	2									11					T	Canary Beech, China Pine
		1	2														V	
APOCYNACEAE																		
		1	2														T	White Cheesewood, Cape Milkwood
					4								12	13		15	CV	Chainfruit
													12				S	
												11					V	
		1	2														T	
		1										11					T	
					4				8	9							ST	Milkwood
ARALIACEAE																		
																	T	Celerywood, Silver Basswood
ARECACEAE																		
																15	T	Dwarf Fan Palm
ARISTOLOCHIACEAE																		
																	V	
ASCLEPIADACEAE																		
													12				F	
									7								Fe	
						5						11					V	
				3													V	
					4					9							V	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
ASTERACEAE																			
* <i>Acanthospermum hispidum</i> DC.	D																F	Star Burr	
* <i>Ageratum conyzoides</i> L.	D																F	Billygoat Weed	
* <i>Bidens bipinnata</i> L.												11					F	Bipinnate Beggar's Ticks	
<i>Blumea saxatilis</i> Zoll. & Moritzi				3	4	5				9							F		
<i>Blumea</i> sp.					4						10						F		
<i>Calotis breviseta</i> Benth.				3	4												F		
* <i>Elephantopus scaber</i> L.						5											F		
<i>Pleurocarpaea denticulata</i> Benth.				3	4				8	9				13			F		
<i>Spilanthes grandiflora</i> Turcz.																	F		
* <i>Synedrella nodiflora</i> (L.) Gaertner	D		2									11					F	Cindrella Weed	
* <i>Tridax procumbens</i> L.	D																F	Tridax	
<i>Vernonia cinerea</i> (L.) Less.	D		2	3	4	5					10						F	Vernonia	
<i>Wedelia biflora</i> (L.) DC.				3		5	6			9							F		
BIGNONIACEAE																			
<i>Deplanchea tetraphylla</i> (R. Br.) F. Muell.				3													T	Bignonia, Golden Boquet Tree	
<i>Dolichandrone heterophylla</i> (R. Br.) F. Muell.							6		8	9				13			ST	Dolichandrone	
BIXACEAE																			
<i>Cochlospermum gillivraei</i> Benth.												11	12				ST		
BOMBACACEAE																			
<i>Bombax ceiba</i> L.																			
var. <i>leiocarpum</i> Robyns		1	2									11					T	Kapok Tree, Bombax, Canoe Tree	
BORAGINACEAE																			
<i>Heliotropium</i> sp.				3			6		8								F		
<i>Heliotropium</i> sp. {Clarkson 8242 & Neldner}										9							F		
<i>Heliotropium</i> sp. {Clarkson 8296 & Neldner}										9							F		
<i>Heliotropium</i> sp. {Clarkson 8426 & Neldner}						5											F		
BURSERACEAE																			
<i>Canarium australianum</i> F. Muell.																			
var. <i>australianum</i>		1								9		11					T	Scrub Turpentine	
<i>Garuga floribunda</i> Decne.																			
var. <i>floribunda</i>		1										11					T	Garuga	
CAESALPINIACEAE																			
<i>Caesalpinia bonduc</i> (L.) Roxb.				2													V		
<i>Caesalpinia scortechinii</i> (F. Muell.) Hattink		1	2														V		
<i>Cassia absus</i> L.					3					9							F	Hairy Cassia	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
<i>Cassia harneyi</i> Specht						5											F		
<i>Cassia mimosoides</i> L.				3		5			8	9	10						F	Fiveleaf Cassia	
* <i>Cassia roundifolia</i> Pers.	P																F	Wynn Cassia	
<i>Erythrophleum chlorostachys</i> (F. Muell.) Baillon				3	4	5	6		8	9							T	Cooktown Ironwood	
<i>Ptilostigma malabaricum</i> (Roxb.) Benth.											10						ST		
CAMPANULACEAE																			
<i>Isotoma gulliveri</i> F. Muell.	L																F		
<i>Lobelia dioica</i> R. Br.	L																F		
CAPPARACEAE																			
<i>Capparis sepiaria</i> L.				2													SV	Wild Orange	
<i>Capparis</i> sp.										9							SV		
CASUARINACEAE																			
<i>Allocasuarina littoralis</i> (Salisb.) L. Johnson															14		TS	Black Sheoak	
CELASTRACEAE																			
<i>Cassine melanocarpa</i> (F. Muell.) Kuntze	1											11					TS		
<i>Denhamia oleaster</i> (Lindley) F. Muell.				3	4	5	6										TS	White Bark, Weeping Denhamia	
<i>Maytenus cunninghamii</i> (Hook.) Loes.				3	4		6										ST		
<i>Maytenus fasciculiflora</i> Jessup												11					T		
<i>Pleurostylia opposita</i> (Wallich) Alston	1																TS		
<i>Siphonodon pendulus</i> Bailey				3													TS		
CHRYSOBALANACEAE																			
<i>Parinari nonda</i> F. Muell. ex Benth.				3	4	5			8					13		15	T	Nonda	
CLUSIACEAE																			
<i>Garcinia warrenii</i> F. Muell.				2													T	Native Mangosteen	
COMBRETACEAE																			
<i>Terminalia prostrata</i> Pedley					4		6										B		
<i>Terminalia sericocarpa</i> F. Muell.				2								11					T	Damson, Sovereignwood	
<i>Terminalia subacroptera</i> Domin												11	12				T		
COMMELINACEAE																			
<i>Cartonema baileyi</i> Bailey															13		F		
<i>Cartonema parviflorum</i> Hassk.					4				8								F		
<i>Cartonema spicatum</i> R. Br.							6										F		
<i>Commelina</i> sp.				3		5											F		
<i>Commelina undulata</i> R. Br.				3						9							F	Three-seeded Scurvy Pea	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
COMMELINACEAE (Cont.)																			
												11					F		
							6		8	9	10			13			F		
CONVOLVULACEAE																			
	D				4					9							V		
																	F	Blue Periwinkle, Tropical Speedwell	
					3	4			8	9				13			V		
					3	4				9							V		
											9	10	11				V		
												10					V		
											9	10					V		
													11				V		
	D																F		
																	V		
					4	5				9	10						V		
										9							V		
											5						V		
													11				V		
					3												V		
							5			9							V		
CUCURBITACEAE																			
							4										V	West Indian Gherkin	
																	V	Musk Melon	
												10					V	Native Bryony	
																	V	Loofah, Vegetable Sponge	
												10					V		
CYPERACEAE																			
										7							G		
										7							G		
	D																G		
										7							G		
									7	9							G		
	D																G		
											3					9	G		
												6				9	G		
												5					G		
																	G		
														12	13		G		

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
<i>Fimbristylis aestivalis</i> (Retz.) Vahl																			
var. <i>aestivalis</i>	L		2														G		
<i>Fimbristylis dichotoma</i> (L.) Vahl										9							G		
<i>Fimbristylis furva</i> R. Br.															14		G		
<i>Fimbristylis insignis</i> Thwaites															14		G		
<i>Fimbristylis macrantha</i> Boeckeler				3													G		
<i>Fimbristylis modesta</i> S.T. Blake								7									G		
<i>Fimbristylis polytrichoides</i> (Retz.) R. Br.														13			G		
<i>Fimbristylis recta</i> Bailey					4			7	8								G		
<i>Fimbristylis</i> sp.					4		6				10			13			G		
<i>Fimbristylis squarrosa</i> F. Muell.														13	14		G		
<i>Fuirena ciliaris</i> (L.) Roxb.										9							G		
<i>Gahnia sieberiana</i> Kunth															14		G	Swordgrass, Saw Sedge	
<i>Lepironia articulata</i> (Retz.) Domin					4											15	G		
<i>Rhynchospora heterochaeta</i> S.T. Blake							6		8					13			G		
<i>Rhynchospora leae</i> C.B. Clarke														13			G		
<i>Rhynchospora longisetis</i> R. Br.					3		6										G		
<i>Rhynchospora</i> sp.						4			8					13			G		
<i>Rhynchospora subtenuifolia</i> Kuk.														13			G		
<i>Schoenus sparteus</i> R. Br.					3										14		G		
<i>Scleria brownii</i> Kunth					3	4			8								G		
<i>Scleria laxa</i> R. Br.														13			G		
<i>Scleria levis</i> Retz.						2											G		
<i>Scleria lithosperma</i> L.(Sw.)																			
var. <i>linearis</i> Benth.							3			8				13			G		
<i>Scleria</i> sp.							3	4	5	6				9			13	G	
<i>Scleria</i> sp. Q1 {Clarkson 8565 & Neldner}																	13	G	
DATISCAEAE																			
<i>Tetrameles nudiflora</i> R. Br.														11			T	Tetrameles	
DILLENACEAE																			
<i>Dillenia alata</i> (R. Br. ex DC.) Martelli																15	T	Red Beech, Golden Guinea Tree	
<i>Hibbertia</i> sp. {Clarkson 8495 & Neldner}								6									B		
DIOSCOREACEAE																			
<i>Dioscorea transversa</i> R. Br.														11			V		
DROSERACEAE																			
<i>Drosera indica</i> L.															13		F	Indian Sundew	
<i>Drosera petiolaris</i> R. Br. ex DC.							3		6	7	8	9			13	14	F	Rosette Sundew, Woolly Sundew	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
EBENACEAE																			
						2											T		
																	T		
		1											11				T		
													11	12			T	Grey Ebony	
														12			ST		
														12			T		
ELAEOCARPACEAE																			
																	T	Arnhem Land Quandong, Bony Quandong	
ERIOCAULACEAE																			
																15	G		
														13			G		
								7								15	G		
ERYTHROXYLACEAE																			
		1															T		
				3		5											B		
EUPHORBIACEAE																			
																	ST		
						4			8	9	10				14		S		
						4						11					S		
				2													ST		
		1			4							11	12				S	Coffee Bush	
								7								15	ST	False Casuarina	
															14		ST		
				2													T		
		1											11				T		
					3	4	5		8	9	10	11		13			ST		
														12			T		
		1															ST		
		1	2											12			ST	Grey Boxwood, Yellow Tulipwood	
		D															F	Asthma Plant	
					3	4	5		8	9	10						F		
													11				ST		
				2									11	12			ST	Kamala	
					3	4	5	6		9					13		ST	Quinine Bush	
					3	4	5	6	8	9							ST	Quinine Berry	
		D															F		
						4											B		

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name
<i>Phyllanthus novae-hollandiae</i> J. Mueller												11					BS	
<i>Phyllanthus</i> sp.					4	5	6										F	
<i>Phyllanthus</i> sp. {Clarkson 7348}						5											B	
<i>Phyllanthus virgatus</i> G. Forster				3	4	5	6		8								F	
<i>Sauropus ochrophyllus</i> (Benth.) Airy Shaw					4												B	
<i>Sauropus podenzanae</i> (S. Moore) Airy Shaw				3													B	
<i>Sebastiania chamaelea</i> (L.) J. Mueller							6										B	

FABACEAE

<i>Abrus precatorius</i> L.												11					V	Crab's Eye, Rosary Pea, Gidee-Gidee
* <i>Aeschynomene americana</i> L.	P																B	Glenn Jointvetch
* <i>Aeschynomene brasiliana</i> (Poiret) DC.	P																F	
* <i>Aeschynomene elegans</i> Schl. & Cham.	P																F	
* <i>Aeschynomene histrix</i>	P																B	
* <i>Aeschynomene paniculata</i>	P																B	
* <i>Aeschynomene villosa</i> Poiret	P																F	
<i>Alysicarpus rugosus</i> (Willd.) DC.																		
subsp. <i>rugosus</i>				3					8	9	10						FB	Rough Chainpea
<i>Alysicarpus vaginalis</i> (L.) DC.				3						9							F	Alyce Clover
<i>Austrodolichos errabundus</i> (Scott) Verdc.				3	4	5											V	
<i>Cajanus reticulatus</i> (Dryander) F. Muell.																		
var. <i>reticulatus</i>	L																B	
* <i>Calopogonium mucunoides</i> Desvaux	D																V	Calopo
<i>Canavalia rosea</i> (Sw.) DC.												11					V	Wild Jack Bean, Coastal Jack Bean
* <i>Centrosema pascuorum</i> Mart. ex Benth.	P																V	Cavalcade
* <i>Centrosema pubescens</i> Benth.	D																V	Centro
* <i>Clitoria ternatea</i> L.																	V	Butterfly Pea
<i>Crotalaria calycina</i> Schrank									8	9	10						F	
* <i>Crotalaria goreensis</i> Guillemin & Perrottet	D										10						F	Gambia Pea
<i>Crotalaria medicaginea</i> Lam.																		
var. <i>medicaginea</i>				3	4	5	6			9	10						F	Trefoil Rattlepod
<i>Crotalaria montana</i> Roth				3	4		6		8	9	10						F	
<i>Dalbergia densa</i> Benth.																		
var. <i>australis</i> Prain				2													VC	
<i>Derris</i> sp.												11					V	
<i>Desmodium nemorosum</i> F. Muell. ex Benth.				3		5	6			9							F	
<i>Desmodium</i> sp.				3	4												F	
<i>Desmodium</i> sp. Q1 {Clarkson 4780}				3													F	
<i>Desmodium trichostachyum</i> Benth.				2	4	5		7	8	9	10				13		F	
<i>Desmodium triflorum</i> (L.) DC.	D						6										F	Creeping Tick Trefoil
<i>Dicerma</i> sp. Q4 {Clarkson 7105 & Simon}							6										F	
<i>Eriosema chinense</i> Vogel				3						9							F	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
FABACEAE (Cont.)																			
<i>Erythrina vespertilio</i> Benth.				3								11					T	Bat's Wing Coral Tree	
<i>Flemingia involucrata</i> Wall. ex Benth.											10						BF		
<i>Flemingia lineata</i> (L.) Roxb. ex W.T. Aiton	L																BF		
<i>Flemingia parviflora</i> Benth.				3	4	5	6			9	10						F		
<i>Galactia muelleri</i> Benth.										9							V	Mueller's Pea	
<i>Galactia</i> sp.				3	4	5	6										V		
<i>Galactia</i> sp. {Clarkson 8226 & Neldner}				3		5											V		
<i>Glycine curvata</i> Tind.						5											V		
<i>Glycine tomentella</i> Hayata	D		2		4	5											V	Woolly Glycine	
<i>Gompholobium pinnatum</i> Smith															14		B	Poor Man's Gold	
<i>Indigofera parviflora</i> Heyne ex Wight & Arn.				3													F		
<i>Indigofera pratensis</i> F. Muell.				3	4		6			9							B	Forest Indigo	
<i>Indigofera</i> sp. {Clarkson 8500 & Neldner}							6										B		
<i>Indigofera trifoliata</i> L.										9	10						F		
<i>Indigofera trita</i> L.f.												10					F		
var. <i>maffei</i> (Choiv.) Ali																	F		
<i>Jacksonia thesioides</i> Cunn. ex Benth.						5	6							14	15		BS		
<i>Lamprolobium fruticosum</i> Benth.														14			BS		
* <i>Macropilium atropurpureum</i> (DC.) Urban	P																V		
* <i>Macropilium longipedunculatum</i>	P																V	Moldonado	
<i>Pongamia pinnata</i> (L.) Pierre			2														TS	Pongamia, Indian Beech	
<i>Pycnospora lutescens</i> (Poiret) Schindler				3	4	5			8	9							FB		
<i>Rhynchosia minima</i> (L.) DC.										9	10						V	Rhynchosia	
var. <i>minima</i>				3													V		
<i>Sesbania cannabina</i> (Retz.) Poiret																			
var. <i>cannabina</i>												11					BS	Sesbania Pea	
* <i>Stylosanthes hamata</i> (L.) Taubert				3						9							B	Verano	
* <i>Stylosanthes scabra</i> Vog.	P																B		
<i>Tephrosia juncea</i> Benth.							6										BF		
<i>Tephrosia leptoclada</i> Benth.					4												F		
<i>Tephrosia simplicifolia</i> F. Muell. ex Benth.	L																FB		
<i>Tephrosia</i> sp. {Clarkson 8482 & Neldner}						5											B		
<i>Tephrosia</i> sp. {Clarkson 4205}										9							B		
<i>Tephrosia varians</i> (Bailey) C. White							6										B		
<i>Uraria cylindracea</i> Benth.				3						9							F	Purple Clover Weed	
<i>Uraria picta</i> (Jacq.) Desvaux									8	9							F		
<i>Vigna lanceolata</i> Benth.																			
var. <i>filiformis</i> Benth.				3	4	5	6		8	9	10			13			V		
<i>Vigna vexillata</i> (L.) A. Rich.																			
var. <i>vexillata</i>					4					9	10						V	Wild Cowpea	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
<i>Zornia muriculata</i> Mohl. subsp. <i>muriculata</i>				3		5											F	Zornia	
<i>Zornia ramosa</i> S. Reyn. & Holland							6										F		
<i>Zornia</i> sp.					4	5	6			9							F		
FLAGELLARIACEAE																			
<i>Flagellaria indica</i> L.		1	2														V	Supple Jack, Water Vine	
GOODENIACEAE																			
<i>Goodenia armstrongiana</i> Vriese														13			F		
<i>Goodenia pilosa</i> (R. Br.) Carolin									8								F		
<i>Goodenia pumilio</i> R. Br.								7									F		
<i>Goodenia purpurascens</i> R. Br.								7		9							F		
<i>Goodenia</i> sp. {Clarkson 8258 & Neldner}										9							F		
<i>Goodenia</i> sp. {Clarkson 8568 & Neldner}														13			F		
<i>Lechenaultia filiformis</i> R. Br.															14		F		
<i>Velleia spathulata</i> R. Br.				3	4						10						F		
HAEMODORACEAE																			
<i>Haemodorum coccineum</i> R. Br.									8								G	Blood Root	
HIPPOCRATEACEAE																			
<i>Salacia chinensis</i> L.			2														VC		
HYDROCHARITACEAE																			
<i>Blyxa</i> sp.																15	A		
JUNCAGINACEAE																			
<i>Triglochin procera</i> R. Br. var. <i>dubia</i> (R. Br.) Benth.																15	Ga	Water Ribbons	
LAMIACEAE																			
<i>Anisomeles malabarica</i> (L.) R. Br. ex Sims												11					F		
<i>Anisomeles</i> sp. {Clarkson 4993}						4											F		
* <i>Hyptis suaveolens</i> (L.) Poit.	D		2							9		11					F	Hyptis	
<i>Orthosiphon aristatus</i> (Blume) Miq.												11					F		
LAURACEAE																			
<i>Beilschmiedia obtusifolia</i> (F. Muell. ex Meissner) F. Muell.			2														T	Blush Walnut, Hard Bollygum	
<i>Cassytha filiformis</i> L.				3									12		14		Vp	Dodder Laurel	
<i>Cryptocarya exfoliata</i> Allen			2														T		
<i>Endiandra glauca</i> R. Br.		1	2														T	Brown Walnut	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name
LAURACEAE (Cont.)																		
<i>Litsea glutinosa</i> (Lour.) C. Robinson		1	2									11					T	Bollywood, Bollygum,
<i>Litsea leefeana</i> (F. Muell.) Merr.			2														T	Brown Bollywood, Brown Bollygum
LECYTHIDACEAE																		
<i>Barringtonia acutangula</i> (L.) Gaertner																		
subsp. <i>acutangula</i>			2														ST	Freshwater Mangrove, Itch Tree
<i>Barringtonia calyptrata</i> (R. Br. ex Miers) R. Br. ex Bailey			2														T	Barringtonia, Corned-beef Wood
<i>Planchonia careya</i> (F. Muell.) Kunth				3	4	5	6		8	9	10			13			ST	Cocky Apple, Billygoat Plum
LEEACEAE																		
<i>Leea indica</i> (Burman f.) Merr.												11					S	
LENTIBULARIACEAE																		
<i>Utricularia inflexa</i> Forsskal																		
var. <i>stellaris</i> (L.f.) P. Taylor								7									Fa	Bladderwort
<i>Utricularia muelleri</i> Kam.																15	Fa	Bladderwort
<i>Utricularia</i> sp. {Clarkson 8603 & Neldner}												12					F	Bladderwort
<i>Utricularia</i> sp. {Clarkson 8566 & Neldner}													13				F	Bladderwort
<i>Utricularia</i> sp. {Clarkson 8401 & Neldner}														14			F	Bladderwort
<i>Utricularia</i> sp. {Clarkson 8402 & Neldner}														14			F	Bladderwort
LILIACEAE																		
<i>Caesia setifera</i> Baker			3			6		8						13	14		G	
<i>Chlorophytum laxum</i> R. Br.					5												G	
<i>Crinum</i> sp.				4					9	10							G	
<i>Dianella longifolia</i> R. Br.																		
var. <i>longifolia</i>	L																G	Blue Flax Lily, Blueberry Lily
<i>Dianella odorata</i> Blume															14		G	
<i>Dianella</i> sp.			3	4	5												G	
<i>Iphigenia indica</i> (L.) Kunth			3	4													G	
<i>Protasparagus racemosus</i> (Willd.) Oberm.												11					V	Asparagus Fern
<i>Schelhammera multiflora</i> R. Br.			3	4	5												F	
<i>Thysanotus banksii</i> R. Br.			3											13			G	
<i>Tricoryne anceps</i> R. Br.						6		9						13			F	
LOGANIACEAE																		
<i>Mitrasacme connata</i> R. Br.				4													F	
<i>Mitrasacme</i> sp. {Clarkson 8415 & Neldner}				4													F	
<i>Mitrasacme</i> sp. {Clarkson 8416 & Neldner}				4													F	
<i>Strychnos lucida</i> R. Br.												11					ST	Strychnine Bush

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
LORANTHACEAE																			
									8								Bp	Mistletoe	
									8								Bp	Mistletoe	
LYTHRACEAE																			
												11					TS	Queensland Crepe Myrtle	
MALVACEAE																			
																	B		
						4				9	10						S		
												11					B		
					3	4	5	6		9							B		
					3	4	5		8	9							B	Native Hibiscus	
							4										B	Prickly Malvastrum	
	D		2														B	Spinyhead Sida	
										9							FB	Common Sida	
	D		2									11					BS	Urena Burr, Pink Burr	
MELASTOMATACEAE																			
															14		S		
		1	2		4								12			15	ST		
MELIACEAE																			
		1	2														T	Pink Mahogany	
						5								13			T	Rose Almond	
												11					ST		
												11					T		
MENISPERMACAE																			
						4											V		
MENISPERMACEAE																			
		1															V		
			2														V		
						5											V	Snake Vine	
MENYANTHACEAE																			
										9	10					15	Fa		
																15	Fa	Entire Marshwort	
																15	Fa		

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name
MIMOSACEAE																		
<i>Acacia albizoides</i> Pedley		1															V	
<i>Acacia aulacocarpa</i> Cunn. ex Benth. var. <i>aulacocarpa</i>			2		4								12				TS	Brown Salwood, Hickory Wattle
<i>Acacia auriculiformis</i> Cunn. ex Benth.			2									11					T	
<i>Acacia calyculata</i> Cunn. ex Benth.						5											BS	
<i>Acacia crassicarpa</i> Cunn. ex Benth.				3	4	5	6		8	9			12	13	14		TS	Spoon Tree, Northern Wattle
<i>Acacia flavescens</i> Cunn. ex Benth.				3	4	5											T	Red Wattle, Powderpuff Wattle
<i>Acacia fleckeri</i> Pedley		1															T	
<i>Acacia leptocarpa</i> Cunn. ex Benth.				3	4		6	7		9				13	14	15	T	
<i>Acacia ommatosperma</i> (Pedley) Pedley														13			S	
<i>Acacia polystachya</i> Cunn. ex Benth.		1	2										12				T	
<i>Acacia rothii</i> Bailey				3	4	5	6		8	9				13	14		T	Tooror, Roth's Wattle
<i>Acacia simsii</i> Cunn. ex Benth.							6										S	
<i>Adenanthera abrosperma</i> F. Muell.				3	4								12				T	Bead Tree
<i>Albizia procera</i> (Roxb.) Benth.										9							T	Forest Siris, Rain Siris
<i>Entada pursaetha</i> DC.													11				V	Matchbox Bean
<i>Neptunia gracilis</i> Benth. forma <i>gracilis</i>										9							F	Native Sensitive Plant
<i>Paraserianthes toona</i> (Bailey) I. Nielsen				3													T	Red Siris, Acacia Cedar
MONIMIACEAE																		
<i>Kibara rigidifolia</i> A.C. Smith																	TS	
MORACEAE																		
<i>Ficus drupacea</i> Thunb. var. <i>drupacea</i>													11				T	Fig
<i>Ficus hispida</i> L.f. var. <i>hispida</i>																	T	Boombil, Fig
<i>Ficus opposita</i> Miq. var. <i>opposita</i>																	T	Sandpaper Fig
<i>Ficus virens</i> Aiton ex Dryander var. <i>virens</i>													11				T	Banyan
<i>Malaisia scandens</i> (Lour.) Planchon subsp. <i>scandens</i>													11				V	Fire Vine
MYRSINACEAE																		
<i>Rapanea porosa</i> (F. Muell.) Mez		1	2										12				T	
<i>Rapanea variabilis</i> (R. Br.) Mez		1															T	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name
MYRTACEAE																		
<i>Asteromyrtus brassii</i> (Byrnes) Craven															14		ST	
<i>Asteromyrtus lysicephala</i> (F. Muell. & Bailey) Craven															14		S	Back-to-front Bush
<i>Asteromyrtus symphyocarpa</i> (F. Muell.) Craven								7					12	13	14	15	ST	Panja, Linament Tree
<i>Austromyrtus</i> sp. {Clarkson 8510 & Neldner}																	T	
<i>Eucalyptus brassiana</i> S.T. Blake						5		7	8					13	14	15	T	Cape York Red Gum
<i>Eucalyptus chlorophylla</i> Brooker & Done						5			8	9				13			T	
<i>Eucalyptus clarksoniana</i> D. Carr & S. Carr				3	4		6	7	8	9				13	14	15	T	Clarkson's Bloodwood
<i>Eucalyptus confertiflora</i> F. Muell.				3	4	5	6			9							T	Broad-leaved Carbeen, Cabbage Gum
<i>Eucalyptus crebra</i> F. Muell.						5											T	Narrow-leaved Ironbark
<i>Eucalyptus cullenii</i> Cambage				3		5	6										T	Cullen's Ironbark
<i>Eucalyptus hylandii</i> D. Carr & S. Carr																		
var. <i>campestris</i> D. Carr & S. Carr				3	4	5	6		8								T	Gum-topped Bloodwood
<i>Eucalyptus leptophleba</i> F. Muell.				3	4	5			8	9	10				13		T	Molloy Red Box
<i>Eucalyptus nesophila</i> Blakely				3	4	5	6		8						13		T	Melville Island Bloodwood
<i>Eucalyptus papuana</i> auct. Aust non F. Muell. {Clarkson 5043}										9	10						T	Ghost Gum
<i>Eucalyptus platyphylla</i> F. Muell.				3					8	9					13		T	Poplar Gum
<i>Eucalyptus polycarpa</i> F. Muell.	L																T	Long-fruited Bloodwood
<i>Eucalyptus tessellaris</i> F. Muell.				3					8						13		T	Carbeen, Moreton Bay Ash
<i>Eucalyptus tetradonta</i> F. Muell.				3	4	5	6		8	9					13	14	T	Darwin Stringybark, Messmate
<i>Eucalyptus tokwa</i> D. Carr & S. Carr						4									13		T	
<i>Eugenia reinwardtiana</i> (Blume) DC.												11					ST	Beach Cherry
<i>Leptospermum parviflorum</i> Valetton			2					7						12		15	ST	
<i>Lophostemon grandiflorus</i> (Benth.) Peter G. Wilson & Waterhouse																		
subsp. <i>riparius</i> (Domin) Peter G. Wilson & Waterhouse												11					T	
<i>Lophostemon suaveolens</i> (Sol. ex Gaertner) Peter G. Wilson & Waterhouse			2		4			7							14	15	T	Swamp Mahogany
<i>Melaleuca arcana</i> S.T. Blake															14		TS	
<i>Melaleuca argentea</i> W. Fitzg.				2													TS	Silver-crowned Paperbark
<i>Melaleuca cajuputi</i> Powell								7									T	Cajuput Tree
<i>Melaleuca leucadendra</i> (L.) L.				2												15	T	Weeping Paperbark, Weeping Tea-tree
<i>Melaleuca nervosa</i> (Lindley) Cheel																		
forma <i>latifolia</i> Byrnes					3	4				9					12		ST	
<i>Melaleuca quinquenervia</i> (Cav.) S.T. Blake	L							7									T	Bellbowrie
<i>Melaleuca saligna</i> Schauer															12		T	
<i>Melaleuca</i> sp. {Clarkson 4553}															12		T	
<i>Melaleuca stenostachya</i> S.T. Blake																		
var. <i>stenostachya</i>					3	4	5	6		9							ST	
<i>Melaleuca viridiflora</i> Sol. ex Gaertner			2	3	4	5	6	7	8	9				13	14		TS	Broad-leaved Teatree
<i>Neofabricia myrtifolia</i> (Gaertner) J. Thompson					4			7							14	15	ST	Yellow Teatree, Antarra
<i>Rhodammia australis</i> A.J. Scott		1	2														TS	
<i>Rhodomyrtus macrocarpa</i> Benth.		1	2														ST	Finger Cherry
<i>Syzygium angophoroides</i> (F. Muell.) B. Hyland						4										15	T	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
MYRTACEAE (Cont.)																			
<i>Syzygium bamagense</i> B. Hyland			2														T		
<i>Syzygium forte</i> (F. Muell.) B. Hyland																	T	White Apple	
subsp. <i>potamophilum</i> B. Hyland			2														T		
<i>Syzygium suborbiculare</i> (Benth.) T. Hartley & Perry				3	4				8					13			TS	Lady Apple	
<i>Thryptomene oligandra</i> F. Muell.									7						14		ST	Thryptomene	
<i>Welchiodendron longivalve</i> (F. Muell.) Peter G. Wilson & Waterhouse		1															TS		
<i>Xanthostemon crenulatus</i> C. White															14	15	T		
NAJADACEAE																			
<i>Najas tenuifolia</i> R.Br.													12		15		A	Waternymph	
NEPENTHACEAE																			
<i>Nepenthes mirabilis</i> (Lour.) Druce															14		VF	Tropical Pitcher Plant	
NYCTAGINACEAE																			
<i>Pisonia aculeata</i> L.												11					V		
OLEACEAE																			
<i>Chionanthus ramiflora</i> Roxb.			2														T		
<i>Notelaea longifolia</i> Vent.			2											12			T		
ORCHIDACEAE																			
<i>Chiloschista phyllorhiza</i> (F. Muell.) Schltr.																	Fe		
<i>Dendrobium bigibbum</i> Lindley												11	12				Fel	Cooktown Orchid	
<i>Dendrobium discolor</i> Lindley																	Fel	Golden Orchid	
var. <i>discolor</i>																	Fe	Yellow Antelope Orchid	
<i>Dendrobium trilamellatum</i>													12						
PANDANACEAE																			
<i>Pandanus</i> sp. {Clarkson 8573 & Neldner}														13			T	Screw Palm	
<i>Pandanus</i> sp.				3				7							14		T	Screw Palm	
PASSIFLORACEAE																			
* <i>Passiflora foetida</i> L.										9							V	Stinking Passion Flower	
PITTOSPORACEAE																			
<i>Bursaria incana</i> Lindley																			
var. <i>septentrionalis</i> E. Bennett			2														TS		
<i>Citriobatus spinescens</i> (F. Muell.) Druce		1										11					ST	Wallaby Apple, Orange Thorn	
<i>Pittosporum rhombifolium</i> Cunn. ex Hook.								8									T		

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
POACEAE																			
<i>Alloteropsis semialata</i> (R. Br.) Hitchc.				3	4		6							13			G	Cockatoo Grass	
<i>Aristida dominii</i> B. Simon														13			G		
<i>Aristida holathera</i> Domin																			
var. <i>holathera</i>										9				13			G		
<i>Aristida macroclada</i> Henrard																			
subsp. <i>queenslandica</i> B. Simon												11	12				G		
<i>Aristida</i> sp. {Clarkson 8457 & Neldner}								7									G		
<i>Aristida utilis</i> Bailey																			
var. <i>utilis</i>							6										G		
<i>Aristida warburgii</i> Mez	D								8					13			G		
<i>Arundinella nepalensis</i> Trin.										9							G	Reed Grass	
<i>Arundinella setosa</i> Trin.										9							G	Reed Grass	
* <i>Axonopus affinis</i> Chase	D		2														G	Narrowleaf Carpet Grass	
<i>Bothriochloa bladhii</i> (Retz.) S.T. Blake																			
subsp. <i>bladhii</i>										9	10						G	Forest Bluegrass	
* <i>Bothriochloa insculpta</i> (Hochst. ex A. Rich.) A. Camus	P																G	Creeping Bluegrass cv. Hatch	
* <i>Bothriochloa pertusa</i> (L.) A. Camus	D																G	Indian Bluegrass	
<i>Brachiaria holosericea</i> (R. Br.) Hughes																			
subsp. <i>holosericea</i>				3						9							G		
<i>Brachiaria kurzii</i> (J.D. Hook.) A. Camus										9							G		
<i>Brachiaria subquadrifera</i> (Trin.) Hitchc.	D																G		
<i>Brachyachne convergens</i> (F. Muell.) Stapf											10						G	Common Native Couch, Spider Grass	
<i>Capillipedium parviflorum</i> (R. Br.) Stapf				3		5				9	10						G	Scentedtop	
* <i>Cenchrus echinatus</i> L.	D																G	Mossman River Grass	
* <i>Chloris inflata</i> Link	D																G	Purpletop Chloris	
<i>Chrysopogon aciculatus</i> (Retz.) Trin.	D																G	Mackie's Pest	
<i>Cymbopogon queenslandicus</i> S.T. Blake	D																G		
<i>Cymbopogon refractus</i> (R. Br.) A. Camus				3													G		
* <i>Dactyloctenium aegyptium</i> (L.) P. Beauv.	D																G	Coast Button Grass	
<i>Dichanthium sericeum</i> (R. Br.) A. Camus																			
subsp. <i>polystachyum</i> (Benth.) B. Simon										9	10						G	Queensland Bluegrass	
subsp. <i>sericeum</i>	L																G	Queensland Bluegrass	
* <i>Digitaria ciliaris</i> (Retz.) Koeler	D				4												G	Summer Grass	
<i>Dimeria ornithopoda</i> Trin.														13			G		
<i>Ectrosia leporina</i> R. Br.							6	7									G	Hare's Foot Grass	
<i>Ectrosia</i> sp. {Clarkson 8553 & Neldner}														13			G		
<i>Ectrosia</i> sp.				4													G		
* <i>Eleusine indica</i> (L.) Gaertner	D																G	Crowsfoot Grass	
<i>Eragrostis elongata</i> (Willd.) Jacq.										9							G	Clustered Lovegrass	
<i>Eragrostis interrupta</i> P. Beauv.								7					12				G		
<i>Eragrostis pubescens</i> (R. Br.) Steudel				3	4					9							G		

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
POACEAE (Cont.)																			
<i>Eragrostis schultzi</i> Benth.												11					G		
<i>Eragrostis sororia</i> Domin							6							13			G		
<i>Eragrostis</i> sp. {Brass 1840}										9							G		
<i>Eragrostis</i> sp.					4						10						G		
<i>Eragrostis spartinooides</i> Steudel						5				9							G		
<i>Eragrostis uniolooides</i> (Retz.) Nees ex Steudel														13			G		
<i>Eremochloa bimaculata</i> Hackel					4				8					13			G	Poverty Grass	
<i>Eriachne agrostoides</i> F. Muell.							6										G		
<i>Eriachne burkittii</i> Jansen			3	4				7	8	9	10			13			G	Longawn Wanderrie Grass	
<i>Eriachne obtusa</i> R. Br.							6		8	9				13			G	Northern Wanderrie Grass	
<i>Eriachne pallescens</i> R. Br.						5	6				10			13			G		
<i>Eriachne squarrosa</i> R. Br.					4				8	9				13			G		
<i>Eriachne stipacea</i> F. Muell.																			
var. <i>hirsuta</i> Hartley			3	4										13	14		G		
var. <i>stipacea</i>			3		5												G		
<i>Eriachne trisetata</i> Nees			3	4											14		G		
<i>Eulalia aurea</i> (Bory) Kunth										9							G	Silky Browntop	
<i>Eulalia mackinlayi</i> (F. Muell.) Kuntze			3			6		8	9	10				13			G		
<i>Heterachne abortiva</i> (R. Br.) Druce									8								G		
<i>Heterachne baileyi</i> C.E. Hubb.			3														G		
<i>Heterachne gulliveri</i> Benth.									8								G		
<i>Heteropogon contortus</i> (L.) P. Beauv. ex Roemer & Schultes			3							9	10						G	Bunch Spear Grass, Black Spear Grass	
<i>Heteropogon triticeus</i> (R. Br.) Stapf			3	4	5	6			8	9	10			13			G	Giant Spear Grass	
<i>Imperata cylindrica</i> (L.) Raeuschel			3														G	Blady Grass	
<i>Ischaemum australe</i> R. Br.																			
var. <i>australe</i>										9							G		
var. <i>villosum</i> (R. Br.) Benth.														13			G		
<i>Ischaemum fragile</i> R. Br.									8				12	13	14		G		
<i>Ischaemum</i> sp.														13			G		
<i>Leersia hexandra</i> Sw.																15	G	Swamp Ricegrass	
* <i>Melinis minutiflora</i> P. Beauv.	D																G	Molasses Grass	
<i>Mnesithea formosa</i> (R. Br.) Koning & Sosef				3	4	5	6		8	9							G		
<i>Mnesithea rotboellioides</i> (R. Br.) Koning & Sosef				3	4	5					10						G	Northern Canegrass	
<i>Oplismenus burmannii</i> (Retz.) P. Beauv.		1	2									11					G		
<i>Oplismenus compositus</i> (L.) P. Beauv.			2														G		
<i>Panicum decompositum</i> R. Br.																			
var. <i>tenuior</i> Bailey							6				10						G	Native Millet, Australian Millet	
<i>Panicum effusum</i> R. Br.																			
var. <i>simile</i> (Domin) B. Simon														13			G	Hairy Panic	
* <i>Panicum maximum</i> Jacq.																			
var. <i>coloratum</i> C. White	D																G		

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
<i>Panicum mindanaense</i> Merr.								7									G		
<i>Panicum seminudum</i> Domin																	G		
var. <i>cairnstanum</i> Domin				3	4					9							G		
var. <i>seminudum</i>	D		2														G		
<i>Panicum</i> sp. {Clarkson 8477 & Neldner}												11					G		
<i>Panicum</i> sp.											10						G		
<i>Panicum</i> sp. Q3 {Morton 191}	D																G		
<i>Panicum trichoides</i> Sw.	D																G		
<i>Paspalidium distans</i> (Trin.) Hughes	D																G		
<i>Paspalum scrobiculatum</i> L.	D							7			10			13			G	Ditch Millet, Scobic	
* <i>Pennisetum pedicellatum</i> Trin.																	G		
subsp. <i>unispiculum</i> Brunken	D																G		
<i>Perotis rara</i> R. Br.	D																G	Comet Grass	
<i>Planichloa nervilemma</i> B. Simon				3													G		
<i>Pseudopogonatherum contortum</i> (Brongn.) A. Camus				3		5								13			G		
<i>Pseudoraphis spinescens</i> (R. Br.) Vick.										9							G	Spiny Mudgrass	
<i>Rotiboellia cochinchinensis</i> (Lour.) W. Clayton										9	10						G		
<i>Schizachyrium crinizonatum</i> S.T. Blake				3	4			7	8					13			G		
<i>Schizachyrium fragile</i> (R. Br.) A. Camus				3	4	5	6			9							G	Fire Grass, Red Spathe Grass	
<i>Schizachyrium</i> sp.				3	4			7	8	9							G		
* <i>Setaria sphacelata</i> (Schum.) Stapf ex C.E. Hubb.	P																G	Kazungula Setaria	
<i>Setaria surgens</i> Stapf	D			3	4	5				9							G		
<i>Sorghum laxiflorum</i> Bailey											10						G		
<i>Sorghum plumosum</i> (R. Br.) P. Beauv.				3	4	5	6		8	9	10			13			G	Plume Sorghum	
* <i>Sporobolus pyramidalis</i> P. Beauv.	D									9							G		
<i>Thaumastochloa monilifera</i> Sosef & Koning				3	4												G		
<i>Thaumastochloa pubescens</i> (Benth.) C.E. Hubb.					4				8					13	14		G		
<i>Thaumastochloa rariflora</i> (Bailey) C.E. Hubb.				3													G		
<i>Thaumastochloa</i> sp.				3	4	6											G		
<i>Themeda arguens</i> Hackel				3	4					9	10						G		
<i>Themeda triandra</i> Forsskal				3	4					9				13			G	Kangaroo Grass	
* <i>Urochloa mosambicensis</i> (Hackel) Dandy	P																G		
<i>Veiveria rigida</i> B. Simon								7									G		
<i>Whiteochloa airoides</i> (R. Br.) Lazarides									8	9							G		
POLYGALACEAE																			
<i>Polygala longifolia</i> Poirlet ex Lamk.				3		5	6		8	9				13			F		
<i>Polygala</i> sp. {Clarkson 8267 & Neldner}										9							F		
PORTULACACEAE																			
<i>Portulaca oleracea</i> L.	D																F	Pigweed, Purslane	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
PROTEACEAE																			
								7							14	15	TS	Swamp Banksia	
				3	4	5	6		8	9				13	14		T	Bushman's Clothes Pegs	
				3	4		6		8	9				13			ST	Beefwood, Silver Oak	
								7							14	15	TS	Golden Grevillea	
													12				S		
					4				9	10				13			ST	Bootlace Oak	
			2														T		
				3	4	5	6							13	14		T	Geebung	
				3	4	5	6										T	Woody Pear	
RESTIONACEAE																			
								7						13	14		G		
RHAMNACEAE																			
														13			T	Red Ash, Soapwood, Sarsaparilla	
			2	3	4	5			9				12	13			T	Red Ash, Soapwood, Sarsaparilla	
												11					VC		
RHIZOPHORACEAE																			
			2														T	Carallia, Corky Bark, Corkwood	
RUBIACEAE																			
													12				TS		
			1	2									12	13			ST	Marko	
												11					S		
													12				S		
													11				S		
													12				S		
			1	2									11	12			T		
			1										11				S		
	D																F		
								7									F		
				2									11				ST	Black Berry Tree	
			1										11				TS		
	D																F		
				2													TS	Tokoonya	
					3	4		6									BC	Mapoon	
								7									Fe	Ant Plant	
			2														T	Leichhardt Tree, Cheesewood	
			2														ST	Pavetta	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
SCROPHULARIACEAE																			
					4	5											F	Blackrod	
														13			F		
								7									Fa		
	D																F		
	D							7									F		
	D																F	Scoparia	
				3		6		9									F		
SMILACACEAE																			
		1	2									11					V	Wombat Berry	
		1	2									11					V	Barb-wire Vine	
STACKHOUSIACEAE																			
					3	4								13			F		
					3									13			F		
STEMONACEAE																			
		1	2		4	5						11					V		
STERCULIACEAE																			
						4	6			9	10						T		
					2	3	4	5		9							T		
						4											ST		
		1										11					S		
					3	4	6	8	9								B		
												11					FB		
		1															T	Red-fruited Kurrajong, Peanut Tree	
	D				2					9							FB		
STYLIDIACEAE																			
	L																F		
	L				2												F		
					3				8	9				13			F		
								7						13			F		
TACCACEAE																			
					3	4	6	9									F		
THYMELAEACEAE																			
						4											F	Northern Rice Flower	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
<i>Pogonolobus reticulatus</i> F. Muell.				3	4	5	6		8	9							S	Medicine Bush	
<i>Psychotria loniceroides</i> Sieber ex DC.		1															S		
<i>Randia sessilis</i> F. Muell.		1	2														TS		
<i>Spermacoce brachystema</i> R. Br. ex Benth.														13			F		
<i>Spermacoce laevigata</i> F. Muell.				3	4	5											F		
<i>Spermacoce</i> sp. {Clarkson 8499 & Neldner}							6										F		
<i>Spermacoce</i> sp. {Clarkson 8320 & Neldner}				3			6		8								F		
<i>Spermacoce</i> sp. {Clarkson 8449 & Neldner}				4													F		
<i>Spermacoce</i> sp. {Clarkson 8450 & Neldner}								7									F		
<i>Spermacoce</i> sp. {Clarkson 8279 & Neldner}										9							F		
<i>Spermacoce</i> sp.				3		5	6		8								F		
<i>Timonius timon</i> (Sprengel) Merr.												11					TS	Timonius	
RUTACEAE																			
<i>Acronychia imperforata</i> F. Muell.																	TS	Fraser Island Apple	
<i>Boronia alulata</i> Sol. ex Benth.														14			B		
<i>Boronia bowmanii</i> F. Muell.																	B		
<i>Glycosmis pentaphylla</i> (Retz.) Corr.				2													T		
<i>Micromelum minutum</i> (G. Forster) Wight & Arn.		1															ST		
SANTALACEAE																			
<i>Exocarpos latifolius</i> R. Br.		1	2										12				STp	Scrub Cherry	
<i>Santalum lanceolatum</i> R. Br.					4				9					13			STp	Sandalwood, Plumwood	
SAPINDACEAE																			
<i>Atalaya variifolia</i> (F. Muell.) F. Muell. ex Benth.									9								TS		
<i>Cupaniopsis anacardioides</i> (A. Rich.) Radlk.											11						T	Beach Tamarind, Green-leaved Tamarind	
<i>Cupaniopsis foveolata</i> (F. Muell.) Radlk.		1															T	White Tamarind	
<i>Diploglottis macrantha</i> L.S. Smith ex S. Reyn.		1	2														T		
<i>Dodonaea polyandra</i> Merr. & Perry	L																ST		
<i>Ganophyllum falcatum</i> Blume				1													T	Scaly Ash, Honeywood,	
<i>Jagera pseudorhus</i> (A. Rich.) Radlk.																			
var. <i>pseudorhus</i> forma <i>pilosiuscula</i> Radlk.				1	2												T	Pink Tamarind, Foambark Tree	
<i>Mischocarpus lachnocarpus</i> (F. Muell.) Radlk.				1													T		
<i>Toechima daemelianum</i> (F. Muell.) Radlk.				1	2												T		
SAPOTACEAE																			
<i>Mimusops elengi</i> L.												11					TS	Red Coondoo, Tanjong Tree	
<i>Planchonella pohmaniana</i> (F. Muell.) Pierre ex Dubard																			
var. <i>vestita</i> (C. White) P. Royen				1	3	4						11		13			T	Velvet leaf, Yellow Boxwood	
<i>Pouteria sericea</i> (Aiton) Baehni				1	2	3											TS	Hairy Pouteria	

	IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Lfm	Common Name	
TILIACEAE																			
	D									9							F		
<i>Corchorus aestuans</i> L.																	B	Dog's Balls, Dysentery Plant	
<i>Grewia latifolia</i> F. Muell. ex Benth.										9	10						B	Dog's Balls, Dysentery Plant	
<i>Grewia reusifolia</i> Kurz				3	4												B	Chinese Burr	
<i>Triumfetta rhomboidea</i> Jacq.	D					5						11					B		
ULMACEAE																			
<i>Trema tomentosa</i> (Roxb.) Hara													11				S	Poison Peach, Peachleaf Poison Bush	
var. <i>viridis</i> (Planchon) Hewson																			
URTICACEAE																			
<i>Laportea interrupta</i> (L.) Chew													11				F		
VERBENACEAE																			
<i>Callicarpa candicans</i> (Burman f.) Hochr.		1		3													ST		
<i>Clerodendrum parvulum</i> L.S. Smith														13			BS		
<i>Gmelina dalrympleana</i> (F. Muell.) H.J. Lam	L																ST	White Beech, Beech, Grey Teak	
<i>Vitex helogiton</i> Schumann				2								11	12				ST		
VIOLACEAE																			
<i>Hybanthus enneaspermus</i> (L.) F. Muell.																			
subsp. <i>enneaspermus</i>					3	5				9							F		
VITACEAE																			
<i>Cayratia cardiophylla</i> Jackes		1															V		
<i>Cayratia trifolia</i> (L.) Domin						5				9	10						V		
<i>Cissus adnata</i> Roxb.				3								11					V		
<i>Cissus reniformis</i> Domin	L											11					V	Wild Grape	
XANTHORRHOEACEAE																			
<i>Lomandra banksii</i> (R. Br.) Lauterb.															14		BS		
<i>Lomandra filiformis</i> (Thunb.) Britten				3	4												G	Wattle Matrush	
<i>Lomandra longifolia</i> Labill.				3													G	Spinyheaded Matrush, Sag	
<i>Lomandra</i> sp.				3	4												G		
XYRIDACEAE																			
<i>Xyris complanata</i> R. Br.				3	4	6		8	9						14		G		
ZINGIBERACEAE																			
<i>Curcuma australasica</i> J.D. Hook.		1	2	3	4					9		11					F		

Fig	<i>Ficus drupacea</i> or <i>F. hispida</i>
Finger Cherry	<i>Rhodomyrtus macrocarpa</i>
Fire Grass	<i>Schizachyrium fragile</i>
Fire Vine	<i>Malaisia scandens</i>
Fiveleaf Cassia	<i>Cassia mimosoides</i>
Foambark Tree	<i>Jagera pseudorhus</i>
Forest Bluegrass	<i>Bothriochloa bladhii</i>
Forest Indigo	<i>Indigofera pratensis</i>
Forest Siris	<i>Albizia procera</i>
Fraser Island Apple	<i>Acronychia imperforata</i>
Freshwater Mangrove	<i>Barringtonia acutangula</i> subsp. <i>acutangula</i>
Gambia Pea	<i>Crotalaria goreensis</i>
Garuga	<i>Garuga floribunda</i>
Geebung	<i>Persoonia falcata</i>
Ghost Gum	<i>Eucalyptus papuana</i>
Giant Spear Grass	<i>Heteropogon triticeus</i>
Gidee-Gidee	<i>Abrus precatorius</i>
Glenn Jointvetch	<i>Aeschynomene americana</i>
Golden Boquet Tree	<i>Deplanchea tetraphylla</i>
Golden Grevillea	<i>Grevillea pteridifolia</i>
Golden Guinea Tree	<i>Dillenia alata</i>
Golden Orchid	<i>Dendrobium discolor</i>
Gomphrena Weed	<i>Gomphrena celosioides</i>
Green Amaranth	<i>Amaranthus viridis</i>
Green-leaved Tamarind	<i>Cupaniopsis anacardioides</i>
Grey Boxwood	<i>Drypetes australasica</i>
Grey Ebony	<i>Diospyros hebecarpa</i>
Grey Teak	<i>Gmelina dalrympleana</i>
Gum-topped Bloodwood	<i>Eucalyptus hylandii</i> var. <i>campestris</i>
Hairy Cassia	<i>Cassia absus</i>
Hairy Panic	<i>Panicum effusum</i>
Hairy Pouteria	<i>Pouteria sericea</i>
Hard Bollygum	<i>Beilschmiedia obtusifolia</i>
Hare's Foot Grass	<i>Ectrosia leporina</i>
Hickory Wattle	<i>Acacia aulacocarpa</i> var. <i>aulacocarpa</i>
Honeywood	<i>Ganophyllum falcatum</i>
Hyptis	<i>Hyptis suaveolens</i>
Indian Beech	<i>Pongamia pinnata</i>
Indian Bluegrass	<i>Bothriochloa pertusa</i>
Indian Sundew	<i>Drosera indica</i>
Itch Tree	<i>Barringtonia acutangula</i> subsp. <i>acutangula</i>
Kamala	<i>Mallotus polyadenos</i>
Kangaroo Grass	<i>Themeda triandra</i>
Kapok Tree	<i>Bombax ceiba</i> var. <i>leiocarpum</i>
Kazungula Setaria	<i>Setaria sphacelata</i>
Lady Apple	<i>Syzygium suborbiculare</i>
Leichhardt	<i>Nauclea orientalis</i>
Linament Tree	<i>Asteromyrtus symphyocarpa</i>
Long-fruited Bloodwood	<i>Eucalyptus polycarpa</i>
Loofah	<i>Luffa cylindrica</i>
Love Flower	<i>Pseuderanthemum variabile</i>
Mackie's Pest	<i>Chrysopogon aciculatus</i>

Mapoon	<i>Morinda reticulata</i>
Marko	<i>Canthium coprosmoides</i>
Matchbox Bean	<i>Entada pursaetha</i>
Medicine Bush	<i>Pogonolobus reticulatus</i>
Melville Island Bloodwood	<i>Eucalyptus nesophila</i>
Messmate	<i>Eucalyptus tetradonta</i>
Milkwood	<i>Wrightia saligna</i>
Mistlotee	<i>Amyema biniflorum</i> or <i>A. sanguineum</i>
Molasses Grass	<i>Melinis minutiflora</i>
Moldonado	<i>Macroptilium longipedunculatum</i>
Molloy Red Box	<i>Eucalyptus leptophleba</i>
Moreton Bay Ash	<i>Eucalyptus tessellaris</i>
Mossman River Grass	<i>Cenchrus echinatus</i>
Mueller's Pea	<i>Galactia muelleri</i>
Mulga Fern	<i>Cheilanthes tenuifolia</i>
Musk Melon	<i>Cucumis melo</i> subsp. <i>agrestis</i>
Narrow-leaved Ironbark	<i>Eucalyptus crebra</i>
Narrowleaf Carpet Grass	<i>Axonopus affinis</i>
Native Bryony	<i>Diplocyclos palmatus</i>
Native Hibiscus	<i>Hibiscus meraukensis</i>
Native Mango	<i>Buchanania arborescens</i>
Native Mangosteen	<i>Garcinia warrenii</i>
Native Millet	<i>Panicum decompositum</i> var. <i>tenuior</i>
Native Sensitive Plant	<i>Neptunia gracilis</i>
Nonda	<i>Parinari nonda</i>
Northern Bolly Gum	<i>Blepharocarya involucrigera</i>
Northern Canegrass	<i>Mnesithea rottboellioides</i>
Northern Rice Flower	<i>Thecanthes cornucopiae</i>
Northern Wanderrrie Grass	<i>Eriachne obtusa</i>
Northern Wattle	<i>Acacia crassicarpa</i>
Orange Thorn	<i>Citriobatus spinescens</i>
Panja	<i>Asteromyrtus symphyocarpa</i>
Pavetta	<i>Pavetta australiensis</i>
Peachleaf Poison Bush	<i>Trema tomentosa</i> var. <i>viridis</i>
Peanut Tree	<i>Sterculia quadrifida</i>
Pigweed	<i>Portulaca oleracea</i>
Pink Burr	<i>Urena lobata</i>
Pink Mahogany	<i>Dysoxylum oppositifolium</i>
Pink Tamarind	<i>Jagera pseudorhus</i>
Plume Sorghum	<i>Sorghum plumosum</i>
Plumwood	<i>Santalum lanceolatum</i>
Poison Peach	<i>Trema tomentosa</i> var. <i>viridis</i>
Pongamia	<i>Pongamia pinnata</i>
Poor Man's Gold	<i>Gompholobium pinnatum</i>
Poplar Gum	<i>Eucalyptus platyphylla</i>
Poverty Grass	<i>Eremochloa bimaculata</i>
Powderpuff Wattle	<i>Acacia flavescens</i>
Prickly Malvastrum	<i>Malvastrum coromandelianum</i>
Purple Clover Weed	<i>Uraria cylindracea</i>
Purpletop Chloris	<i>Chloris inflata</i>
Purslane	<i>Portulaca oleracea</i>
Queensland Bluegrass	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>

Appendix III. Naturalised alien species on Batavia Downs

AMARANTHACEAE

Amaranthus viridis
Gomphrena celosioides

Green Amaranth
 Gomphrena Weed

ASTERACEAE

Acanthospermum hispidum
Ageratum conyzoides
Bidens bipinnata
Elephantopus scaber
Synedrella nodiflora
Tridax procumbens

Star Burr
 Billygoat Weed
 Bipinnate Beggar's Ticks

Cindrella Weed
 Tridax

CAESALPINIACEAE

Cassia rotundifolia

Wynn Cassia

CONVOLVULACEAE

Ipomoea nil

CUCURBITACEAE

Cucumis anguria

West Indian Gherkin

CYPERACEAE

Cyperus metzii

EUPHORBIACEAE

Euphorbia hirta

Asthma Plant

FABACEAE

Aeschynomene americana
Aeschynomene brasiliiana
Aeschynomene elegans
Aeschynomene histrix
Aeschynomene paniculata
Aeschynomene villosa
Calopogonium mucunoides
Centrosema pascuorum
Centrosema pubescens
Clitoria ternatea
Crotalaria goreensis
Macroptilium atropurpureum
Macroptilium longipedunculatum
Stylosanthes hamata
Stylosanthes scabra

Glenn Jointvetch

Calopo
 Cavalcade
 Centro
 Butterfly Pea
 Gambia Pea

Moldonado
 Verano

LAMIACEAE

Hyptis suaveolens

Hyptis

MALVACEAE

Sida acuta

Spinyhead Sida

PASSIFLORACEAE

Passiflora foetida

Stinking Passion Flower

POACEAE

Axonopus affinis

Narrowleaf Carpet Grass

Bothriochloa insculpta

Creeping Bluegrass cv. Hatch

Bothriochloa pertusa

Indian Bluegrass

Cenchrus echinatus

Mossman River Grass

Chloris inflata

Purpletop Chloris

Dactyloctenium aegyptium

Coast Button Grass

Digitaria ciliaris

Summer Grass

Eleusine indica

Crowsfoot Grass

Melinis minutiflora

Molasses Grass

Panicum maximum

Guinea Grass

Pennisetum pedicellatum

Kazungula Setaria

Setaria sphacelata

Sporobolus pyramidalis

Urochloa mosambicensis

RUBIACEAE

Mitracarpus hirtus

Scoparia

SCROPHULARIACEAE

Scoparia dulcis

Scoparia
dulcis
Scoparia
dulcis
Scoparia
dulcis

FAE

Appendix IV. Pasture species introduced to Batavia Downs

Commercial Plantings

Scientific Name	Common Name	A	B	C
<i>Aeschynomene americana</i>	Glenn Joint Vetch	A	B	C
<i>Cassia rotundifolia</i>	Wynn Cassia	A	B	C
<i>Stylosanthes hamata</i>	Amiga	A	B	C
<i>Stylosanthes scabra</i>	Seca	A	B	C
<i>Bothriochloa insculpta</i>	cv. Hatch	A		
<i>Bothriochloa pertusa</i>	Indian Bluegrass	A		C
<i>Setaria sphacelata</i>	cv. Kazungula Setaria	A		
<i>Urochloa mosambicensis</i>	Sabi Grass			C

- A. Sown December 1989 on dam walls and along disturbed fence lines
- B. Sown December 1989, Bill's paddock
- C. Sown December 1990, Weaner paddock

Trial Plantings

Sown January 1988 near Shilling bore

Scientific Name	Common Name
<i>Aeschynomene americana</i>	Glenn Joint Vetch
<i>Cassia rotundifolia</i>	Wynn Cassia
<i>Centrosema pascuorum</i>	Cavaleade
<i>Clitoria ternatea</i>	Clitoria
<i>Stylosanthes hamata</i>	Verano
<i>Stylosanthes scabra</i>	Walkamin mixture

Sown October, 1990, paddock near yards.

Scientific Name	Common Name and Accession Number
<i>Aeschynomene americana</i>	Glenn Joint Vetch
<i>Aeschynomene americana</i>	CPI 53950
<i>Aeschynomene americana</i>	CPI 91102
<i>Aeschynomene americana</i>	CPI 91235
<i>Aeschynomene americana</i>	CPI 93574
<i>Aeschynomene americana</i>	CPI 93624
<i>Aeschynomene americana</i>	CPI 93661
<i>Aeschynomene americana</i>	CPI 93667
<i>Aeschynomene brasiliana</i>	CPI 92519
<i>Aeschynomene brasiliana</i>	CPI 93592
<i>Aeschynomene elegans</i>	CPI 92523
<i>Aeschynomene histrix</i>	CPI 93636
<i>Aeschynomene paniculata</i>	CPI 93653
<i>Aeschynomene villosa</i>	CPI 93616
<i>Cassia rotundifolia</i>	Wynn Cassia
<i>Cassia rotundifolia</i>	Q 9862
<i>Cassia rotundifolia</i>	CPI 78916
<i>Cassia rotundifolia</i>	CPI 85836
<i>Cassia rotundifolia</i>	CPI 86172
<i>Cassia rotundifolia</i>	CPI 86178
<i>Cassia rotundifolia</i>	CPI 92931
<i>Centrosema pascuorum</i>	Cavalcade
<i>Centrosema pubescens</i>	Centro
<i>Macroptilium atropurpureum</i>	Siratro
<i>Macroptilium longepedunculatum</i>	Moldonado
<i>Stylosanthes hamata</i>	Verano
<i>Stylosanthes hamata</i>	Amiga
<i>Stylosanthes scabra</i>	Seca
<i>Stylosanthes scabra</i>	Q 24671

Appendix V. Relationship of great soil groups recorded on Batavia Downs to vegetation map units.

Great Soil Groups	Vegetation Map Units														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Lithosols						6									
Podzols														14	
Earthy Sands			3	4	5			8							
Red Earths	1		3	4	5										
Yellow Earths			3	4	5	6		8	9				13		
Grey Earths				4				8					13		
Xanthozems								8	9						
Brown Clays									9	10					
Grey Clays										10	11				
Humic Clays							7					12			15
Alluvial Soils		2									11				

This table is based on the 76 soil sites recorded by Grundy and Heiner (in prep.) and less detailed soil observations in map units 2, 11 and 12.