



Browse LNG Precinct



Browse Liquefied Natural Gas Precinct Strategic Assessment Report

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Appendix C-15

Perpendicular Head – North Head, Packer Island,
Coulobmb-Quondong and
Gourdon Bay Flora Assessment

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB- QUONDONG AND GOURDON BAY FLORA ASSESSMENT

Prepared for

*DEPARTMENT OF INDUSTRY AND
RESOURCES*



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PERPENDICULAR HEAD–NORTH HEAD, PACKER ISLAND, COULOMB- QUONDONG AND GOURDON BAY FLORA ASSESSMENT

Prepared for

DEPARTMENT OF INDUSTRY AND RESOURCES

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STATEMENT OF LIMITATIONS

Scope of Services

This environmental site assessment report ('the report') has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and ENV.Australia Pty Ltd (ENV) ('scope of services'). In some circumstances the scope of services may have been limited by factors such as time, budget, access and/or site disturbance constraints.

Reliance on Data

In preparing the report, ENV has relied on data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ('the data'). Except as otherwise stated in the report, ENV has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. ENV will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed to ENV.

Environmental Conclusions

In accordance with the scope of services, ENV has relied on the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, express or implied, is made.

Report for Benefit of Client

The report has been prepared for the benefit of the Client and for no other party. ENV assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including, without limitation, matters arising from any negligent act or omission of ENV or for any loss or damage suffered by any other party relying on the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions, and should make their own enquiries and obtain independent advice in relation to such matters.

Other Limitations

ENV will not be liable to update or revise the report to take into account any events or circumstances occurring or facts becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

EXECUTIVE SUMMARY

ENV.Australia Pty Ltd was commissioned by the Department of Industry and Resources in May 2008 to undertake a flora assessment survey of Perpendicular Head-North Head, Packer Island, Coulomb Point to Quondong Point ('Coulomb-Quondong') and Gourdon Bay, as these four areas are possible locations for the proposed construction of a liquefied natural gas hub. The objectives of this flora assessment were to document all plant species, including plant species of conservation significance and weed species in the survey areas, and to discuss constraints to development posed by the flora present.

The field survey of Perpendicular Head-North Head was undertaken from 21-31 May 2008, with 22 person-days invested. The survey of Packer Island took place from 5-14 June 2008, with 20 person-days invested. The Gourdon Bay survey area was surveyed from 23-26 June 2008, with 12 person-days invested. The Coulomb-Quondong survey area was surveyed from 21-25 August 2008, with 20 person-days invested. Fifty quadrats were surveyed at Perpendicular Head-North Head and Packer Island, 42 quadrats were surveyed at Gourdon Bay, and 30 quadrats were surveyed at Coulomb-Quondong.

No Endangered or Vulnerable species under the Environment Protection and Biodiversity Conservation Act, or Declared Rare Flora species under the Wildlife Conservation Act were recorded from the survey areas. Five Priority flora species were located in the survey areas: *Aphyllodium parvifolium* (Priority 1), *Glycine pindanica* (Priority 1), *Gomphrena pusilla* (Priority 2), *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) (Priority 2) and *Pittosporum moluccanum* (Priority 4). Forty-three flora species of interest were also recorded in the survey areas, which included species records that constituted actual or possible range extensions, species considered to be of regional significance, and specimens with atypical morphology.

Seventeen weed species were recorded in the survey areas: **Aerva javanica*, **Bidens bipinnata*, **Cenchrus biflorus*, **Cenchrus ciliaris*, **Citrullus lanatus*, **Cynodon dactylon*, **Euphorbia tirucalli*, **Gomphrena celosioides*, **Leucaena leucocephala*, **Macroptilium atropurpureum*, **Passiflora foetida*, **Passiflora foetida* var. *hispida*, **Phyla nodiflora*, **Sida cordifolia*, **Stylosanthes hamata*, **Tribulus terrestris* and **Triumfetta pentandra*. One of the weeds recorded during the surveys, **Sida cordifolia*, is a Declared plant for all parts of Western Australia north of the Tropic of Capricorn. This species was recorded at one site at Perpendicular Head-North Head.

Based on a flora constraints analysis, using a qualitative ranking of the quantitative data presented in this report, when the four survey areas are compared, Gourdon Bay and Coulomb-Quondong appear to have the fewest constraints pertaining to flora.

1 INTRODUCTION

1.1 OBJECTIVES

ENV.Australia Pty Ltd ('ENV') was commissioned by the Department of Industry and Resources ('DOIR') in May 2008 to undertake terrestrial biological assessment surveys of Perpendicular Head-North Head, Packer Island, Gourdon Bay and Coulomb Point to Quondong Point ('Coulomb-Quondong'), as these areas are possible locations for the proposed construction of a liquefied natural gas ('LNG') hub. The surveys were conducted in accordance with an access agreement between DOIR and the Kimberley Land Council ('KLC').

This biological assessment comprises the dry-season flora component of what is expected to be a comprehensive flora and vegetation survey, once the hub site has been selected. This report presents survey data for Perpendicular Head-North Head, Packer Island, Gourdon Bay and Coulomb-Quondong ('the survey areas'). The faunal survey component will be reported separately (ENV 2008a, in prep.), as will vegetation mapping for the four survey areas (ENV 2008b, in prep.).

The objectives of the flora component of the biological assessment were to document for the survey areas all:

- plant species;
- plant species of conservation significance; and
- weed species.

The results of this survey will be used by DOIR to identify possible constraints posed by native vegetation to development in the survey areas. ENV understands that the biological survey areas are much larger than the areas likely to be directly impacted by the proposed Kimberley LNG hub, and that the chosen hub site will be positioned to avoid areas of conservation significance. The broader survey work was undertaken in an effort to understand the representation of the flora likely to be impacted. The survey work was conducted in the cooler, drier months of May to August and, therefore, certain flora species (particularly herbs and grasses) were unlikely to be present.

1.2 LOCATION

The Perpendicular Head-North Head and Packer Island survey areas are approximately 130 km and 163 km respectively north-east of Broome (Figure 1). The Gourdon Bay survey area is approximately 74 km south-west of Broome (Figure 1).

Quondong Point is approximately 45 km north of Broome, on the coast of the Dampier Peninsula (Figure 1). Coulomb Point is approximately 20 km north of Quondong Point. Severe access restrictions (see Table 1d) meant the Coulomb-Quondong project area covered a corridor of approximately 11 km from Quondong Point to James Price Point, and extending only 100 m either side of designated roads.

1.3 REGIONAL BIOGEOGRAPHY

The Dampier Peninsula extends to the north and west from a line extending approximately from Derby to Broome, in Western Australia. The survey areas are in the coastal westernmost portion of the Peninsula, which is bound by the Indian Ocean to the north and west, and Cape Leveque Road to the east. Most of the Peninsula is less than 120 m above sea level.

The survey areas are in the Dampierland biogeographic region, as per Thackway & Cresswell (1995), which is in the Northern Botanical Province (Beard 1990). Shepherd *et al.* (2002) give the area of Dampierland as 8 368 692 ha. This region typically consists of sandplain overlying semi-arid scrubland (or pindan) of *Acacia* thickets and grassland. Approximately 25 km north of Broome, a south-to-north transition in pindan occurs, with the tree layer increasing in height and changing from one dominated mainly by *Corymbia polycarpa* to one dominated by *Eucalyptus tectifica* and *C. grandifolia* (Beard 1979).

All four of the survey areas are in the Torresian subtropical region, close to the arid Eyrean sub-region. As a transitional zone between the two, it has flora associated with both bioregions (McKenzie 1983; *ecologia* Environment 2005a).

1.4 CLIMATE

The nearest relevant available climatic data (Bureau of Meteorology ('BoM')) are from Broome Airport, Cape Leveque and Bidyadanga weather stations.

The Cape Leveque weather station is in the northern section of the Dampier Peninsula, 206 km north-east of Broome, and is therefore representative of the Perpendicular Head-North Head and Packer Island survey areas.

The Broome station is considered representative of the central sections of the Dampier Peninsula, and is therefore most relevant to the Coulomb-Quondong survey area.

The Bidyadanga station is in the southern section of the Peninsula, 95 km south-west of Broome, and the climatic data most relevant to the Gourdon Bay survey area is therefore from the Broome and Bidyadanga weather stations.

The climate for Broome and the Dampier Peninsula is tropical, with hot and humid summers and warm winters (Figures 2a, b, c). The wet season lasts typically from December to March, and the dry for the rest of the year.

Long-term minimum temperatures at Cape Leveque (Figure 2b) are 2-3 degrees warmer and maximum temperatures 1-2 degrees cooler than for Broome (Figure 2a) and Bidyadanga (Figure 2c), but otherwise the temperature ranges are similar for the three weather stations. Median annual rainfall for Broome is 533.4 mm, 506.6 mm at Bidyadanga and 768.6 mm at Cape Leveque, although there is considerable variation from year to year (BoM 2008).

There is a gradient of increasing rainfall from south to north on the Dampier Peninsula. Most rainfall is associated with thunderstorms and tropical lows or cyclones, and evaporation is high.

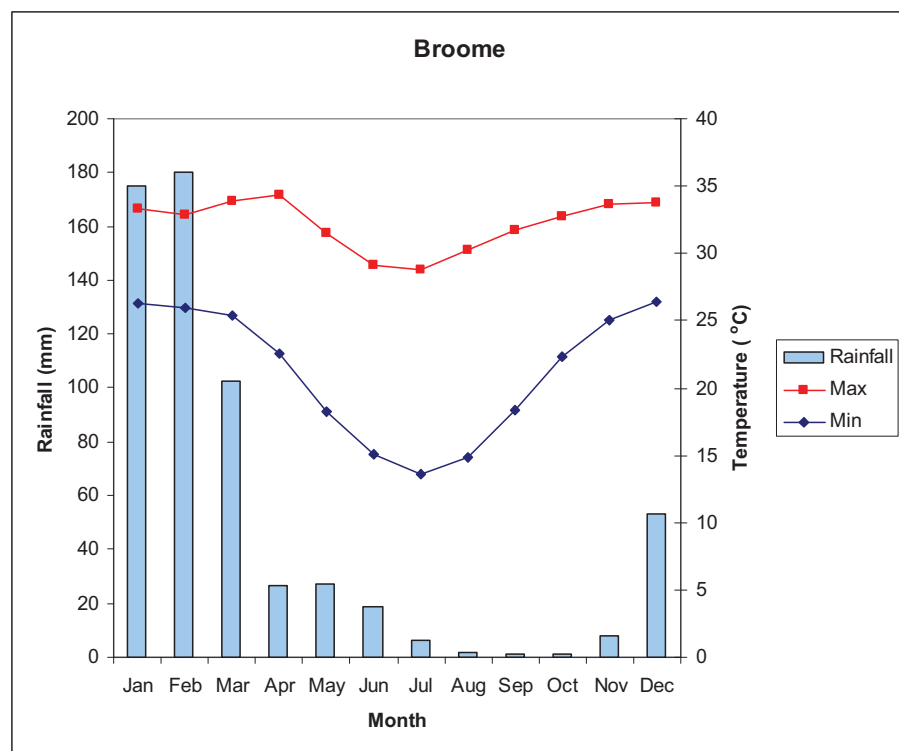


Figure 2a: Average Monthly Rainfall and Maximum and Minimum Temperatures for Broome Airport (BoM 2008)

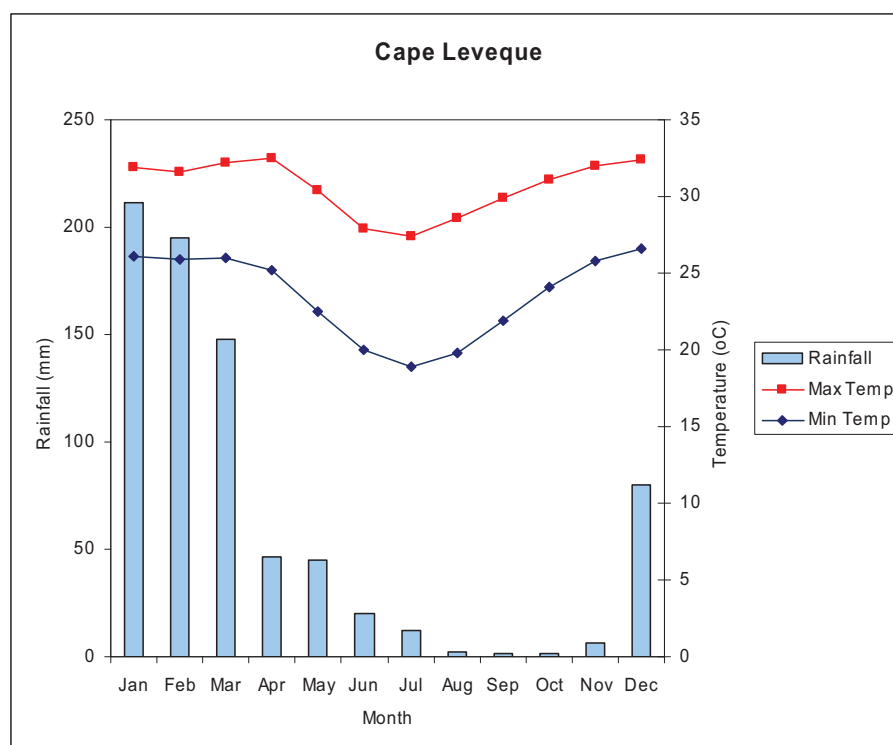


Figure 2b: Average Monthly Rainfall and Maximum and Minimum Temperatures for Cape Leveque (BoM 2008)

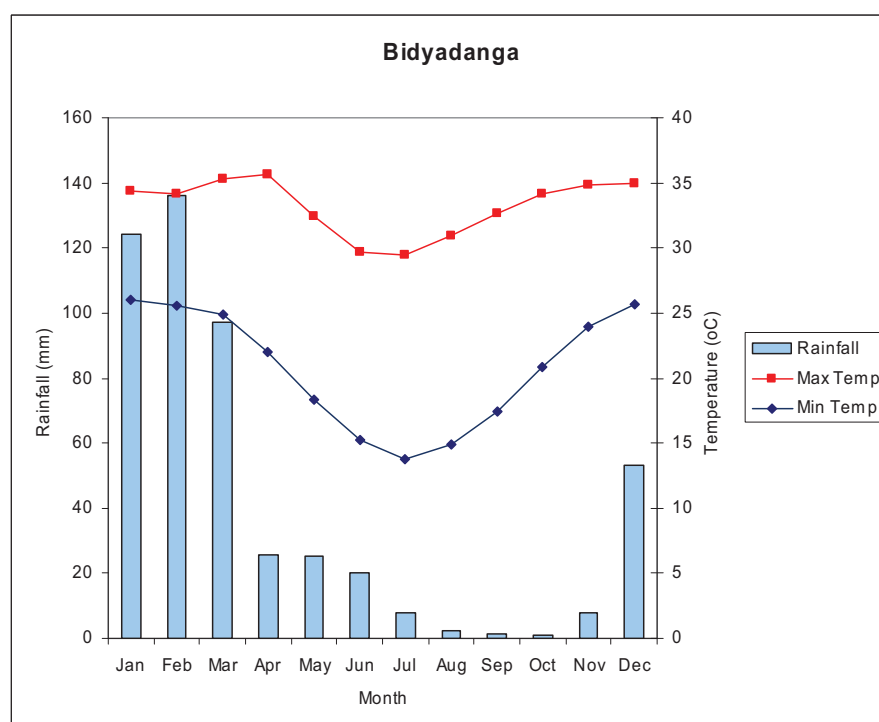


Figure 2c: Average Monthly Rainfall and Maximum and Minimum Temperatures for Bidiyadanga (BoM 2008)

1.5 PREVIOUS BIOLOGICAL SURVEYS

There have been few detailed biological surveys of the Dampier Peninsula.

ecologia Environment (2004) produced a flora report of an area just to the east of the Cape Leveque Road, while Kenneally *et al.* (1996) provided a useful general description of the natural history of the Broome area, with comments on flora, and noting the variety of the coastal flora communities. This report also commented on the unique status of the area as a transitional zone between Western Australia's desert and tropical zones.

A further report by *ecologia* Environment (2005b) provided an assessment of environmental constraints applying to a gas plant development on the western side of the Dampier Peninsula. A desktop biological assessment of the Dampier Peninsula is also in preparation by ENV (2008, in prep.).

In general, unlike in other regions (e.g. the South-West Province of WA), there have been few development projects in the Dampier Peninsula or the greater Kimberley region, and hence comparatively few biological assessments have been completed.

1.6 POTENTIALLY OCCURRING FLORA OF CONSERVATION SIGNIFICANCE

A database search of the Threatened (Declared Rare) Flora Database, WA Herbarium database and the Declared Rare and Priority Flora Species List for the Dampier Peninsula area returned one Declared Rare and 27 Priority Flora species as potentially occurring in the survey areas. The search coordinates and potentially-occurring species list is provided in Appendix A. The search area encompassed Gourdon Bay (to 50 km inland), Broome and the Dampier Peninsula west of Cape Leveque road.

2 METHODS

2.1 SURVEY METHODOLOGY

The field survey of Perpendicular Head-North Head was undertaken from 21-31 May 2008, with 22 person-days invested. The survey of Packer Island took place from 5-14 June 2008, with 20 person-days invested. The Gourdon Bay survey area was surveyed from 23-26 June 2008, with 12 person-days invested. The field survey of Coulomb-Quondong was undertaken from 21-25 August 2008, with 20 person-days invested.

Field staff collected flora information using 50 m x 50 m quadrats, as preferred by the Department of Environment and Conservation [DEC] (S. van Leeuwen, DEC pers. comm.), *relevés* and opportunistic collections. For areas in which a 50 m x 50 m quadrat was inappropriate (e.g. because of terrain, narrow bands of vegetation), suitable quadrat dimensions were used, whilst maintaining the same total search area. Fifty quadrats were surveyed in Perpendicular Head-North Head and Packer Island, and 42 quadrats were surveyed in Gourdon Bay (Figures 3a, b, c). Thirty quadrats were surveyed in Coulomb-Quondong. Fewer quadrats were surveyed in Coulomb-Quondong due to access constraints (Table 1d). The quadrats were selected as being representative of the flora and vegetation of the survey area (flora quadrat locations are presented in Appendix B).

Data was recorded using standardised field sheets (Appendix C). Each species of plant at each quadrat was recorded, including information on height and percentage cover. The opportunistic collections focussed mainly on the location of new flora taxa not recorded in the quadrats, and in particular, Declared Rare and Priority Flora, and flora not well known or not currently described.

2.2 TAXONOMIC IDENTIFICATION

Where field identification of plant taxa was not possible, specimens were collected systematically for later identification by expert taxonomists specialising in the Kimberley region, with the use of identification keys and reference collections.

The species list for each of the survey areas was checked against FloraBase (Western Australian Herbarium ('WAH') 2008) and Atkins (2008) Declared Rare and Priority Flora list to determine whether any of the species were listed as Rare or Priority species. Species were also checked against the EPBC Act listing of Threatened species to determine whether any were federally listed (Department of Water, Environment, Heritage & the Arts 2008). Weed species were checked against the Environmental Weed Strategy for Western Australia (Department of Conservation & Land Management 1999) to obtain weed ratings, and against the

Agriculture and Related Resources Protection Act (1976) to determine whether any weed species were listed as Declared plants for Western Australia.

2.3 PERMITS

Specimens collected during the survey were taken by permit of and subject to the conditions of the following licences issued under sections 23C and 23F of the Wildlife Conservation Act:

- SL008008 Rebecca McIntyre;
- SL008015 Ciaran Sgherza;
- SL008004 Emma Carroll;
- SL008113 Justin Freeman;
- SL008014 Elaine Chua;
- SL008006 Natalie Pawley;
- SL008269 Dale Broun; and
- SL008056 Kerryann McCann.

2.4 FLORA SURVEY LIMITATIONS AND CONSTRAINTS

It is important to note the specific constraints imposed on individual surveys. Constraints are often difficult to predict, as is the extent to which they influence survey outcomes. Survey constraints of the flora survey are detailed in Tables 1a, b, c and d.

Table 1a: Limitations and constraints associated with the Perpendicular Head–North Head Flora Assessment

Variable	Impact on Survey Outcomes
Access Problems	Some areas were inaccessible, and therefore unable to be adequately surveyed, as they were sites of Aboriginal cultural significance. This meant that one vegetation community type, mixed shrubland thicket, could not be adequately sampled.
Experience levels	<p>The biologists who conducted the surveys and completed plant taxonomy and reporting were practitioners suitably qualified in their respective fields:</p> <ul style="list-style-type: none"> • Ms Rebecca McIntyre – Senior Botanist • Ms Kerry McCann – Environmental Biologist • Mr Tim Willing – Taxonomist • Mr Russell Barrett – Taxonomist
Timing, weather, season.	<p>The survey was undertaken in autumn, from 21-31 May 2008. The Cape Leveque area had received 5 mm of rain from April to May 2008 (BOM 2008).</p> <p>Flora composition changes over time, with flora species having specific growing periods, especially annuals and ephemerals (some plants lasting for a markedly brief time, some only a day or two). The current survey was conducted in the dry season, for a single sampling period. Future botanical surveys may expand the species list of this survey through the collection of ephemeral species or flowering/fruitlet specimens.</p>
Completeness	<p>Because of the low level of rainfall received by the area in April and May, few annuals and ephemerals were present, and some species were not in flower. The lack of flowering material limited resolution of plant taxonomy in some cases. Species that were insufficiently mature or dead were identified in the field to genus or family level only (where possible).</p> <p>A species list has not been prepared for areas that were of Aboriginal cultural significance.</p>
Determination	The taxonomy and conservation status of the Western Australian flora are dynamic. This report was prepared using taxonomic and conservation status information current at the time of preparation.

Table 1b: Limitations and constraints associated with the Packer Island Flora Assessment

Variable	Impact on Survey Outcomes
Access Problems	Some areas were inaccessible, and therefore unable to be adequately surveyed, as they were sites of Aboriginal cultural significance. However, representative sections of each of the eight vegetation communities present in the survey area were available for sampling.
Experience levels	<p>The biologists who conducted the surveys and completed plant taxonomy and reporting were practitioners suitably qualified in their respective fields:</p> <ul style="list-style-type: none"> • Ms Emma Carroll – Environmental Biologist • Ms Elaine Chua – Environmental Biologist • Ms Ciaran Sgherza – Environmental Biologist • Mr Tim Willing – Taxonomist • Mr Russell Barrett – Taxonomist
Timing, weather, season.	<p>The survey was undertaken in winter, from 5-14 June 2008. The Cape Leveque area had received 6.4 mm of rain in the April to June period preceding the survey (BoM 2008).</p> <p>Flora composition changes over time, with flora species having specific growing periods, especially annuals and ephemerals (some plants lasting for a markedly brief time, some only a day or two). The current survey was conducted in the dry season, for a single sampling period. Future botanical surveys may expand the species list of this survey through the collection of ephemeral species or flowering/fruitletting specimens.</p>
Completeness	<p>Because of the low level of rainfall received by the area between April and June, few annuals and ephemerals were present, and some species were not in flower. The lack of flowering material limited resolution of plant taxonomy in some cases. Species that were insufficiently mature or dead were identified in the field to genus or family level only (where possible).</p> <p>A species list has not been prepared for areas that were of Aboriginal cultural significance.</p>
Determination	The taxonomy and conservation status of the Western Australian flora are dynamic. This report was prepared using taxonomic and conservation status information current at the time of preparation.

Table 1c: Limitations and constraints associated with the Gourdon Bay Flora Assessment

Variable	Impact on Survey Outcomes
Access Problems	Some areas were inaccessible, and therefore unable to be adequately surveyed, as they were sites of Aboriginal cultural significance. However, representative sections of each of the seven vegetation communities present in the survey area were available for sampling.
Experience levels	<p>The biologists who conducted the surveys and completed plant taxonomy and reporting were practitioners suitably qualified in their respective fields:</p> <ul style="list-style-type: none"> • Ms Elaine Chua – Environmental Biologist • Mr Justin Freeman – Botanical Assistant • Mr Tim Willing – Taxonomist • Mr Russell Barrett – Taxonomist
Timing, weather, season.	<p>The survey was undertaken in winter, from 23-26 June 2008. The Bidyadanga weather station had received no rainfall in the April-May-June period preceding the survey, while Broome had received 2.2 mm rainfall (BoM 2008).</p> <p>Flora composition changes over time, with flora species having specific growing periods, especially annuals and ephemerals (some plants lasting for a markedly brief time, some only a day or two). The current survey was conducted in the dry season, for a single sampling period. Future botanical surveys may expand the species list of this survey through the collection of ephemeral species or flowering/fruitlet specimens.</p>
Completeness	<p>Because of the low level of rainfall received by the area between April and June, few annuals and ephemerals were present, and some species were not in flower. The lack of flowering material limited resolution of plant taxonomy in some cases. Species that were insufficiently mature or dead were identified in the field to genus or family level only (where possible).</p> <p>A species list has not been prepared for areas that were of Aboriginal cultural significance.</p>
Determination	The taxonomy and conservation status of the Western Australian flora are dynamic. This report was prepared using taxonomic and conservation status information current at the time of preparation.

Table 1d: Constraints associated with the Coulomb-Quondong Flora Assessment

Variable	Impact on Survey Outcomes
Access problems	Most of the Coulomb-Quondong project area was inaccessible because of instructions from the Traditional Owners. The area surveyed was a 200-metre wide corridor extending from Quondong Point to approximately one kilometre north of James Price Point. A section of this area was also inaccessible because it was a site of Aboriginal cultural significance. Therefore, a large portion of the project area was unable to be adequately surveyed. However, each of the five vegetation communities present were available for sampling, with the exception of components of the pindan woodland mosaic i.e. – <i>Acacia monticola</i> pindan, <i>Eucalyptus miniata</i> pindan and <i>Corymbia dampieri</i> pindan.
Experience levels	The biologists who conducted the surveys and completed plant taxonomy and reporting were practitioners suitably qualified in their respective fields: <ul style="list-style-type: none"> • Ms Natalie Pawley – Botanist • Mr Dale Broun – Environmental Biologist • Ms Kerry McCann – Environmental Biologist • Mr Tim Willing – Taxonomist • Mr Russell Barrett – Taxonomist
Timing, weather, season.	The survey was undertaken in winter, from 21-25 August 2008. The Broome area had received 4 mm of rain from April to July 2008 (BoM 2008). Flora composition changes over time, with flora species having specific growing periods, especially annuals and ephemerals (some plants lasting for a markedly brief time, some only a day or two). The current survey was conducted in the dry season, for a single sampling period. Future botanical surveys may expand the species list of this survey through the collection of ephemeral species or flowering/fruitletting specimens.
Completeness	Because of the low level of rainfall received by the area in April and July, few annuals and ephemerals were present, and some species were not in flower. The lack of flowering material limited resolution of plant taxonomy in some cases. Species that were insufficiently mature or dead were identified in the field to genus or family level only (where possible). A species list has not been prepared for areas that were of Aboriginal cultural significance.
Determination	The taxonomy and conservation status of the Western Australian flora are dynamic. This report was prepared using taxonomic and conservation status information current at the time of preparation.

3 RESULTS

3.1 FLORA SPECIES

A total of 422 taxa (including species, subspecies and variants) were recorded across the four survey areas. A flora species list for each survey area is presented in Appendix D, with flora species matrices presented in Appendix E.

Perpendicular Head-North Head

Two hundred and thirty-six taxa (including species, subspecies and variants) were recorded in the Perpendicular Head-North Head survey area (Appendix D1, E1). These taxa were from 60 families, 29 of which were represented by only one taxon, and 155 genera, 107 of which were represented by only one taxon.

The plant families with most taxa recorded during the survey were:

- Poaceae (29 taxa);
- Papilionaceae (29 taxa);
- Myrtaceae (12 taxa); and
- Euphorbiaceae (12 taxa).

The genera with most taxa recorded during the survey were:

- *Acacia* (six taxa); and
- *Tephrosia* (six taxa).

The most common taxa recorded in the Perpendicular Head-North Head survey area were *Waltheria indica*, which was recorded at 34 of the 50 sites, and *Acacia tumida*, which was recorded at 32 sites (flora species matrix is presented in Appendix E1).

Packer Island

Two hundred and one taxa (including species, subspecies and variants) were recorded in the Packer Island survey area (Appendix D2, E2). These taxa were from 61 families, 29 of which were represented by only one taxon, and 144 genera, 99 of which were represented by only one taxon.

The plant families with most taxa recorded during the survey were:

- Poaceae (26 taxa);
- Papilionaceae (17 taxa); and

- Cyperaceae (12 taxa).

The genus with most taxa recorded during the survey was:

- *Fimbristylis* (seven taxa).

The most common taxa recorded in the Packer Island survey area were *Acacia tumida* var. *tumida*, which was recorded at 27 of the 50 sites, and *Waltheria indica*, which was recorded at 20 sites (flora species matrix is presented in Appendix E2).

Gourdon Bay

One hundred and seventy-one taxa (including species, subspecies and variants) were recorded in the Gourdon Bay survey area (Appendix D3, E3). These taxa were from 48 families, 19 of which were represented by only one taxon, and 112 genera, 78 of which were represented by only one taxon.

The plant families with most taxa recorded during the survey were:

- Poaceae (21 taxa);
- Papilionaceae (20 taxa); and
- Mimosaceae (12 taxa).

The genera with most taxa recorded during the survey were:

- *Acacia* (12 taxa);
- *Tephrosia* (five taxa); and
- *Indigofera* (five taxa).

The most common taxa recorded in the Gourdon Bay survey area were a *Triodia* sp., which was recorded at 21 of the 50 sites, and *Bauhinia cunninghamii*, which was recorded at 20 sites (flora species matrix is presented in Appendix E3). Reproductive material was not available for the *Triodia* sp., which limited its identification to genus level only (R. Barrett, pers. comm.).

Coulomb-Quondong

One hundred and ninety-three taxa (including species, subspecies and variants) were recorded in the Coulomb-Quondong survey area (Appendices D4, E4). These taxa were from 56 families, 28 of which were represented by only one taxon, and 141 genera, 112 of which were represented by only one taxon.

The plant families with the most taxa recorded during the survey were:

- Poaceae (29 taxa);
- Papilionaceae (18 taxa);
- Myrtaceae (10 taxa); and
- Malvaceae (10 taxa).

The genera with the most taxa recorded during the survey were:

- *Acacia* (eight taxa); and
- *Corymbia* (five taxa).

The most common taxa recorded in the Coulomb-Quondong survey area were *Bridelia tomentosa*, which was recorded at 23 of the 30 sites, and *Ehretia saligna*, which was recorded at 22 sites (flora species matrix is presented in Appendix E4).

3.2 FLORA OF CONSERVATION SIGNIFICANCE

3.2.1 Declared Rare and Threatened Flora

No Endangered or Vulnerable species pursuant to the EPBC Act were located during the survey in the survey areas.

No plant taxa gazetted as Declared Rare pursuant to the WC Act were located during the survey in the survey areas.

3.2.2 Priority Flora

Five Priority flora species (Appendix F, Table 2) were located in the survey areas: *Aphyllodium parvifolium* (Priority 1), *Glycine pindanica* (Priority 1), *Gomphrena pusilla* (Priority 2), *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) (Priority 2) and *Pittosporum moluccanum* (Priority 4). Locations of Priority Flora species in the four survey areas are provided in Appendix F, with representative habitat photographs for these species displayed in Appendix G.

Table 2: Priority Flora Species Recorded in the Survey Areas

TAXON	CONSERVATION SIGNIFICANCE	RECORDED			
		Perpendicular Head–North Head	Packer Island	Gourdon Bay	Coulomb-Quondong
<i>Aphyllodium parvifolium</i>	Priority 1			Y	
<i>Glycine pindanica</i>	Priority 1	Y	Y		
<i>Gomphrena pusilla</i>	Priority 2		Y		
<i>Pterocaulon</i> sp. A Kimberley Flora (B.J. Carter 599)	Priority 2		Y	Y	
<i>Pittosporum moluccanum</i>	Priority 4				Y

Perpendicular Head–North Head

One Priority Flora species, *Glycine pindanica* (Priority 1), was recorded at Perpendicular Head–North Head (Figure 4a; Appendix F1). This species was recorded at seven sites, and primarily in pindan woodland habitat, though it was also recorded once in *Pandanus* coastal forest and once on rocky hill tops in *Eucalyptus miniata* woodland.

Packer Island

Three Priority Flora species - *Glycine pindanica* (Priority 1), *Gomphrena pusilla* (Priority 2) and *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) (Priority 2) - were recorded at Packer Island (Figure 4b; Appendix F2). *Gomphrena pusilla* was recorded at six sites, across a diverse range of habitats including samphire flats, sand dunes, grassy sandplain and *Melaleuca* woodland. *Glycine pindanica* was located at one site on pindan woodland, and *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) was also recorded at one site, among coastal sand dunes.

Gourdon Bay

Two Priority Flora species — *Aphyllodium parvifolium* (Priority 1) and *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) (Priority 2) — were recorded at the Gourdon Bay survey area, each at three sites (Appendix F3; Figure 4c). *Aphyllodium parvifolium* was located in pindan woodland habitat and on a coastal

flat, while *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) was recorded on grassy plains (dominated by **Cenchrus ciliaris*) and on a limestone outcrop.

Coulomb-Quondong

One Priority Flora species, *Pittosporum moluccanum* (Priority 4), was recorded at one site, a coastal sand dune habitat.

3.2.3 Flora Species of Interest

Forty-three flora species of interest were recorded in the survey areas (Appendix F). These species included records that constituted actual or possible range extensions, species considered of regional significance, and specimens with atypical morphology (including undescribed hybrid forms).

Perpendicular Head–North Head

Twelve flora species of interest were located at Perpendicular Head-North Head (Figure 4a), which included two species with unusual morphology (R. Barrett, pers. comm.) – *Acacia monticola* x *tumida* (undescribed hybrid form) and *Trachymene* aff. *didiscoides* (unusual leaf form). The remaining 10 species of interest constitute actual or possible range extensions (see Appendix F1 for complete list).

Packer Island

Ten flora species of interest were recorded at Packer Island (Figure 4b), including three species with atypical morphology (pers. comm., R Barrett) – *Zonia* aff. *chaetophora* (unusually large flowers), *Tephrosia* aff. *oblongata* (unusual venation) and *Gomphrena canescens* (unusually large flowers). A specimen of *Scleria* aff. *brownii* was also considered to require further taxonomic work and to be of possible regional significance (pers. comm., R Barrett). The remaining six species constituted actual or possible range extensions (see Appendix F2 for complete list).

Gourdon Bay

Nine flora species of interest were recorded at Gourdon Bay (Figure 4c), which included one species with atypical morphology (pers. comm., R Barrett) – the undescribed hybrid *Acacia monticola* x *stellaticeps*. The remaining eight species constituted actual or possible range extensions (see Appendix F3 for complete list).

Coulomb-Quondong

Twelve flora species of interest were recorded in the Coulomb-Quondong survey area (Appendix F). These species included one with an unusual morphology (R. Barrett, pers. comm.) – *Acacia* ?*monticola* x *stigmatophylla* (undescribed hybrid

form) and one whose local distribution is poorly known - *Petalostylis cassioides*. Another species, *Parsonsia kimberleyensis* is particularly poorly collected in the Kimberley, and was previously known from only three vouchered specimens (DEC 2008). The remaining seven species constituted actual range extensions (see Appendix F4 for complete list).

3.3 WEED SPECIES

Seventeen weed species were recorded in the survey areas (Table 3; Appendix H): **Aerva javanica*, **Bidens bipinnata*, **Cenchrus biflorus*, **Cenchrus ciliaris*, **Citrullus lanatus*, **Cynodon dactylon*, **Euphorbia tirucalli*, **Gomphrena celosioides*, **Leucaena leucocephala*, **Macroptilium atropurpureum*, **Passiflora foetida*, **Passiflora foetida* var. *hispida*, **Phyla nodiflora*, **Sida cordifolia*, **Stylosanthes hamata*, **Tribulus terrestris* and **Triumfetta pentandra*.

Four of these weed species, **Aerva javanica*, **Cenchrus ciliaris*, **Passiflora foetida* and **Passiflora foetida* var. *hispida*, have a High weed rating under the Environmental Weed Strategy for WA (Department of Conservation and Land Management 1999) because of their invasiveness and environmental impacts. Three species, **Cynodon dactylon*, **Leucaena leucocephala* and **Phyla nodiflora* have a Moderate rating, while **Cenchrus biflorus*, **Citrullus lanatus*, **Euphorbia tirucalli*, **Gomphrena celosioides*, **Macroptilium atropurpureum* and **Triumfetta pentandra* have a Low rating under the Strategy. The remaining four weed species are currently unrated.

One of the weeds recorded during the surveys, **Sida cordifolia*, is a Declared plant for all parts of Western Australia north of the Tropic of Capricorn, under the Agriculture and Related Resources Protection Act (1976).

Perpendicular Head–North Head

Seven weed species were located at Perpendicular Head–North Head (Appendix H1; Figure 5a): **Aerva javanica* (one site adjacent to Milargo Community; approximately 50 plants), **Cenchrus ciliaris* (five sites; maximum cover 6%), **Passiflora foetida* (17 sites; maximum cover 4%), **Phyla nodiflora* (four sites; negligible cover at two sites, 20-30% cover at other two sites), **Sida cordifolia* (one site; cover 4%), **Stylosanthes hamata* (two sites; maximum cover 1%) and **Tribulus terrestris* (one site). Average weed cover at Perpendicular Head-North Head was 2.0% per quadrat (Appendix E1).

Packer Island

Five weed species were recorded at Packer Island (Appendix H2; Figure 5b): **Cenchrus ciliaris* (one site; 1% cover), **Citrullus lanatus* (one site; negligible cover), **Gomphrena celosioides* (two sites; negligible and 10% cover respectively), **Passiflora foetida* (three sites; negligible cover) and **Phyla*

nodiflora (one site; negligible cover). Average weed cover at Packer Island was 0.2% per quadrat (Appendix E2).

Gourdon Bay

Three weed species were located at Gourdon Bay (Appendix H3; Figure 5c): **Aerva javanica* (four sites, max. cover 2%), **Cenchrus ciliaris* (fourteen sites; dominant cover i.e. >50% in five sites, 10% or less in remainder) and **Stylosanthes hamata* (one site; 1% cover). Average weed cover at Gourdon Bay was 8.8% per quadrat (Appendix E3).

Coulomb-Quondong

Twelve weed species were recorded in the survey area (Appendix H4; Figure 5d): **Aerva javanica* (four sites, max. cover 1%), **Bidens bipinnata* (one site; <1% cover), **Cenchrus biflorus* (one site; 1% cover), **Cenchrus ciliaris* (five sites; dominant cover i.e. >50% in two sites, 20% or less in remainder), **Citrullus lanatus* (one site; >1% cover), **Cynodon dactylon* (one site; >1% cover), **Euphorbia tirucalli* (one site; 1% cover), **Leucaena leucocephala* (one site; 7% cover), **Macroptilium atropurpureum* (two sites; >1% cover), **Passiflora foetida* var. *hispida* (nine sites, max. cover 1%), **Stylosanthes hamata* (one site; 1% cover) and **Triumfetta pentandra* (two sites; >1% cover). Average weed cover at Coulomb-Quondong was 7.2% per quadrat (Appendix E4).

Table 3: Weed Species Recorded in the Survey Areas

TAXON	COMMON NAME	Environmental Weed Strategy of WA Rating	Perpendicular Head-North Head	RECORDED		
				Packer Island	Gourdon Bay	Coulomb-Quondong
<i>*Aerva javanica</i>	Kapok Bush	High	✓		✓	✓
<i>*Bidens bipinnata</i>	-	-				✓
<i>*Cenchrus biflorus</i>	-	Low				✓
<i>*Cenchrus ciliaris</i>	Buffel Grass	High	✓	✓	✓	✓
<i>*Citrullus lanatus</i>	Pie Melon	Low		✓		✓
<i>*Cynodon dactylon</i>	Couch	Mild				✓

TAXON	COMMON NAME	Environmental Weed Strategy of WA Rating	RECORDED			
			Perpendicular Head-North Head	Packer Island	Gourdon Bay	Coulomb-Quondong
<i>*Euphorbia tirucalli</i>	-	Low				✓
<i>*Gomphrena celosioides</i>	Gomphrena Weed	Low		✓		
<i>*Leucaena leucocephala</i>	Lead Tree	Moderate				✓
<i>*Macroptilium atropurpureum</i>	Purple Bean	Low				✓
<i>*Passiflora foetida</i>	Stinking Passion Flower	High	✓	✓		
<i>*Passiflora foetida</i> var. <i>hispida</i>	Stinking Passion Flower	High				✓
<i>*Phyla nodiflora</i>	-	Moderate	✓	✓		
<i>*Sida cordifolia</i>	-	-	✓			
<i>*Stylosanthes hamata</i>	Verano Stylo	-	✓		✓	✓
<i>*Tribulus terrestris</i>	Caltrop	-	✓			
<i>*Triumfetta pentandra</i>	-	Low				✓

4 DISCUSSION

Flora

These surveys recorded 422 taxa (including species, subspecies and variants) across the four survey areas at Perpendicular Head-North Head, Packer Island, Coulomb-Quondong and Gourdon Bay. Perpendicular Head-North Head had most taxa (236), Packer Island had 201, followed by Coulomb-Quondong (193) and Gourdon Bay with fewest (171). These levels of flora species richness are 100-150% greater than those expected to occur in the vicinity (<50 km) of each of the survey areas, based on DEC records for each survey area (DEC 2008). This reflects the paucity of previous surveys for the region, and the relative lack of vouchered plant specimens.

Conservation-Significant Flora

No Endangered or Vulnerable flora species under the EPBC Act or Declared Rare Flora under the WC Act were recorded in any of the three survey areas.

Five Priority Flora species were located in the survey areas: *Aphyllodium parvifolium* (Priority 1), *Glycine pindanica* (Priority 1), *Gomphrena pusilla* (Priority 2), *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) (Priority 2) and *Pittosporum moluccanum* (Priority 4). Packer Island had the most Priority Flora species recorded (three species: *Glycine pindanica*, *Gomphrena pusilla* and *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599)), while Gourdon Bay had two species (*Aphyllodium parvifolium* and *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599)). Perpendicular Head-North Head and Coulomb-Quondong both had one species recorded, *Glycine pindanica* and *Pittosporum moluccanum* respectively. None of the five Priority Flora species were considered widespread or locally common within or between the study areas, as they all occurred in relatively few quadrats and at low densities. *Gomphrena pusilla* was the only Priority species to occur at densities of more than 2% (three quadrats at Packer Island), but it was not considered locally common, as it was only recorded in six quadrats (of a total of 50) in the survey area.

In the survey areas, *Glycine pindanica* was found only amongst pindan woodland, which is an extensive vegetation community type in inland areas of the Dampier Peninsula. This species was previously known from 21 records, collected primarily from two main populations - one at Broome and another in an area 100 km north of the town (DEC 2008). *Gomphrena pusilla* occurred in a variety of habitats in the survey areas, though primarily those that were coastal (mixed shrub thickets or coastal communities) or intermittently wetted, i.e. supra tidal mudflats and ephemeral waterways. *Gomphrena pusilla* was previously known from six records, forming one population on the coastal Pilbara and another coastal population ~80 km north of Broome (DEC 2008). *Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) was found in diverse habitats, including

coastal communities, pindan shrubland and supra tidal mudflats. This species was previously known from only three records at three coastal sites within 300 km of Broome (DEC 2008). *Aphyllodium parvifolium* was found in pindan shrubland and coastal heath at Gourdon Bay, and was previously known from six records from one coastal population ~50 km north of Broome, and three sites ~450 km inland (south-east) of Broome (DEC 2008). *Pittosporum moluccanum* was found in a vine thicket community located on a coastal sand dune at Coulomb-Quondong, and was previously known from 13 records from two coastal populations, one ~45 km north of Broome and one ~168 km east of Kalumburu (DEC 2008).

Forty-three flora species of interest were recorded in the survey areas. These species included records that constituted actual or possible range extensions, species considered of regional significance and specimens with atypical morphology (including undescribed hybrid forms). The large number of range extensions recorded for the surveys is unsurprising, given the relative paucity of flora records for the Dampier Peninsula and wider Kimberley bioregion. Both the Perpendicular Head-North Head and Coulomb-Quondong survey areas had the most species of interest (12), with 10 species of interest recorded at Packer Island, and fewest (nine) recorded at Gourdon Bay.

One Declared Rare flora species, *Keraudrenia exastia*, potentially occurs in the survey areas, based on the desktop survey. In particular, this species has been previously recorded in the Beagle Bay area. It is possible *K. exastia* may be present in the Perpendicular Head-North Head area, though as a perennial species it would have been available for collection during this dry season survey. As *K. exastia* was not recorded during this survey, ENV does not consider this species is likely to occur in the Perpendicular Head-North Head survey area, though this may be ascertained through a follow-up survey targeting *K. exastia* in areas of suitable habitat (primarily deep red sands with pindan).

Weed Species

Seventeen weed species were recorded in the survey areas: **Aerva javanica*, **Bidens bipinnata*, **Cenchrus biflorus*, **Cenchrus ciliaris*, **Citrullus lanatus*, **Cynodon dactylon*, **Euphorbia tirucalli*, **Gomphrena celosioides*, **Leucaena leucocephala*, **Macroptilium atropurpureum*, **Passiflora foetida*, **Passiflora foetida* var. *hispida*, **Phyla nodiflora*, **Sida cordifolia*, **Stylosanthes hamata*, **Tribulus terrestris* and **Triumfetta pentandra*. Gourdon Bay had fewest weed species recorded (three), Packer Island had five, followed by Perpendicular Head-North Head (seven species), with most weeds recorded at Coulomb-Quondong (12 species).

However, weed loads were highest at Gourdon Bay (average 8.8% weed cover per quadrat; Appendix E3), followed by Coulomb-Quondong (average 7.2% weed cover per quadrat; Appendix E4), Perpendicular Head-North Head (2.0%;

Appendix E1) and lowest at Packer Island (average 0.2% cover; Appendix E2). Weed cover at Coulomb-Quondong was largely contributed by a widespread low cover of **Passiflora foetida*, a weed species common across the Australian tropics and sub-tropics which may now be considered naturalised in the Kimberley. **Cenchrus ciliaris* was also an important contributor to weed cover at Coulomb-Quondong, as it was recorded at five sites, two of which had cover of >50% for this species. The high weed cover at Gourdon Bay was primarily from dense infestations of **Cenchrus ciliaris* - indeed, the understorey of six of the 48 quadrats sampled at Gourdon Bay was dominated by this species, with cover values of >40%. **Cenchrus ciliaris* is a common weed in northern Western Australia, spread initially by cameleers, then later by pastoralists as a pasture grass (Friedel *et al.* 2006).

One of the weeds recorded during the surveys, **Sida cordifolia*, is a Declared plant for all parts of Western Australia north of the Tropic of Capricorn. This species is a P1 Declared plant under the Agriculture and Related Resources Protection Act (1976), which prohibits all movement of the plant or its seeds in Western Australia, including the movement of contaminated machinery and produce. It was recorded at only one site (PH07) on pindan woodland at Perpendicular Head-North Head, where it had a cover of 4%.

5 FLORA CONSTRAINTS ASSESSMENT

Survey areas were ranked qualitatively, based on the quantitative data presented in this report (Table 4). It was assumed that a survey area with lower floral diversity (at family, genus or species level), fewer species of conservation significance, more weed species and higher weed cover would pose the lowest constraint relating to flora for any proposed development entailing the clearance of native vegetation. The assessment is limited to flora occurrence, and does not consider vegetation communities or their condition (see ENV 2008b).

Based on information collected in this assessment, Gourdon Bay and Coulomb-Quondong appear to have fewest constraints pertaining to flora (Table 4). This analysis relates to the entire survey areas, and not necessarily to any proposed hub site, which would involve the development of a smaller subsection of any survey area. This smaller subsection could be optimally located to avoid or minimise impact to areas considered to be of environmental importance.

Table 4: Ranked Comparison of Flora Characteristics by Survey Area

Rank 1=Most Constraint (shaded), Rank 2=Moderate Constraint, Rank 3=Low Constraint, Rank 4=Lowest Constraint

Survey Area	Presence of Priority Species	Presence of Flora Species of Interest	Total Species Richness	Total Family Richness	Total Genus Richness	Lack of Weed Species	Low Weed Cover
Perpendicular Head– North Head	3	1	1	2	1	3	2
Packer Island	1	2	2	1	2	2	1
Gourdon Bay	2	3	4	4	4	1	4
Coulomb-Quondong	4	1	3	3	3	4	3

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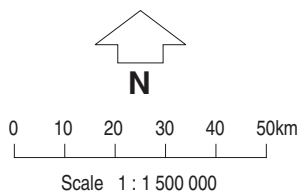
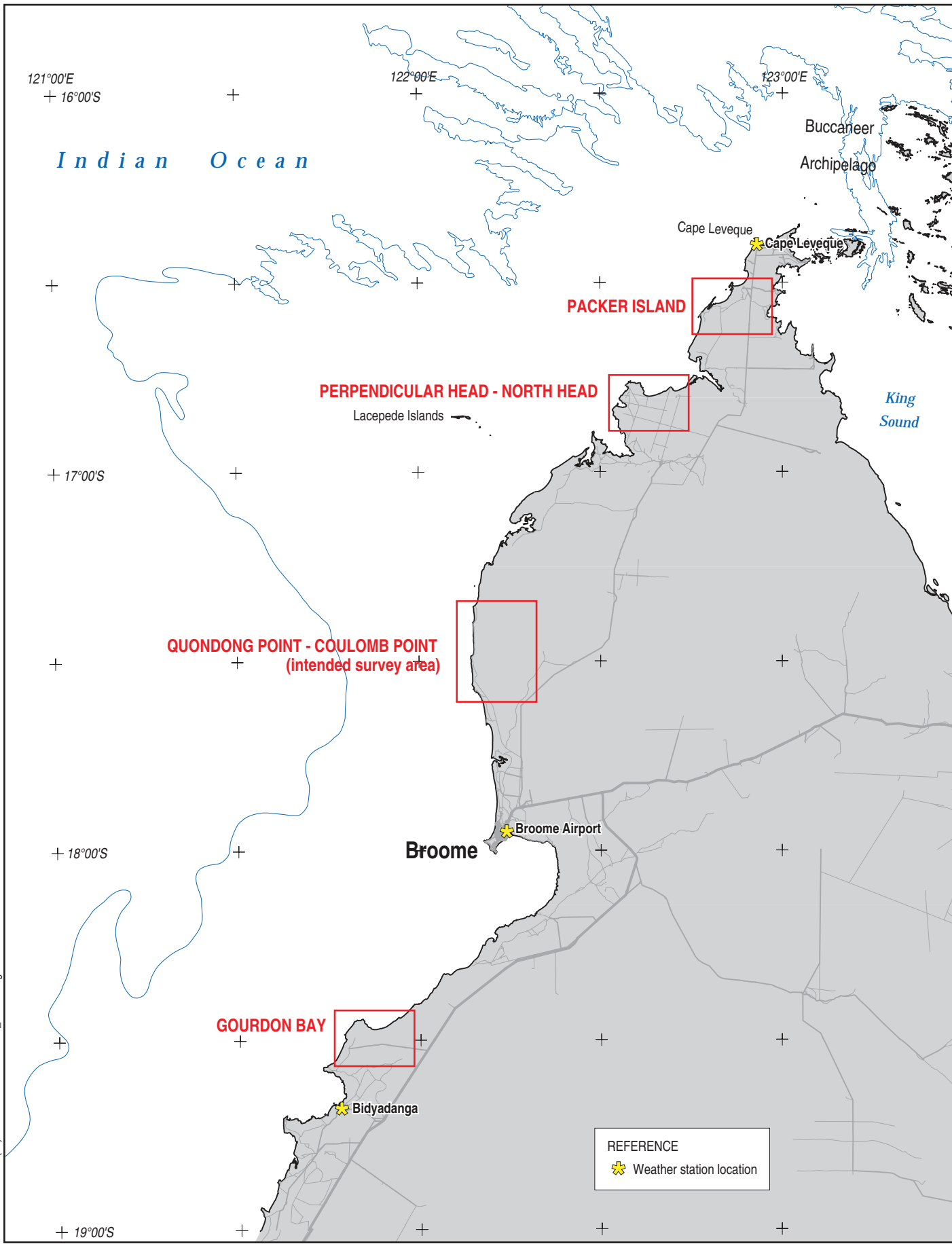
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FIGURES



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PERPENDICULAR HEAD - NORTH HEAD, PACKER ISLAND,
QUONDONG POINT - COULOMB POINT AND GOURDON BAY
FLORA ASSESSMENT

Figure 1

REGIONAL LOCATION

October 2008

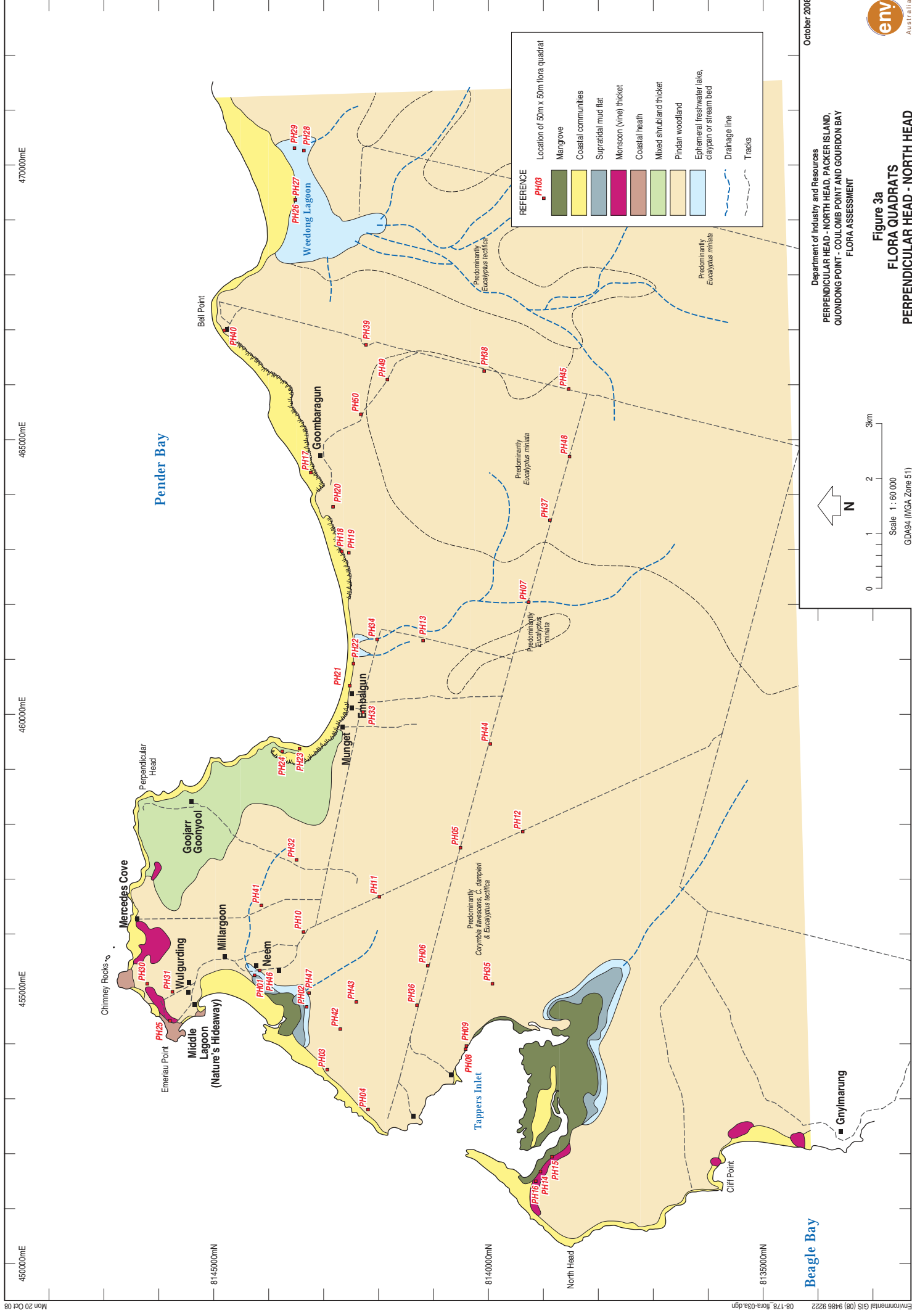
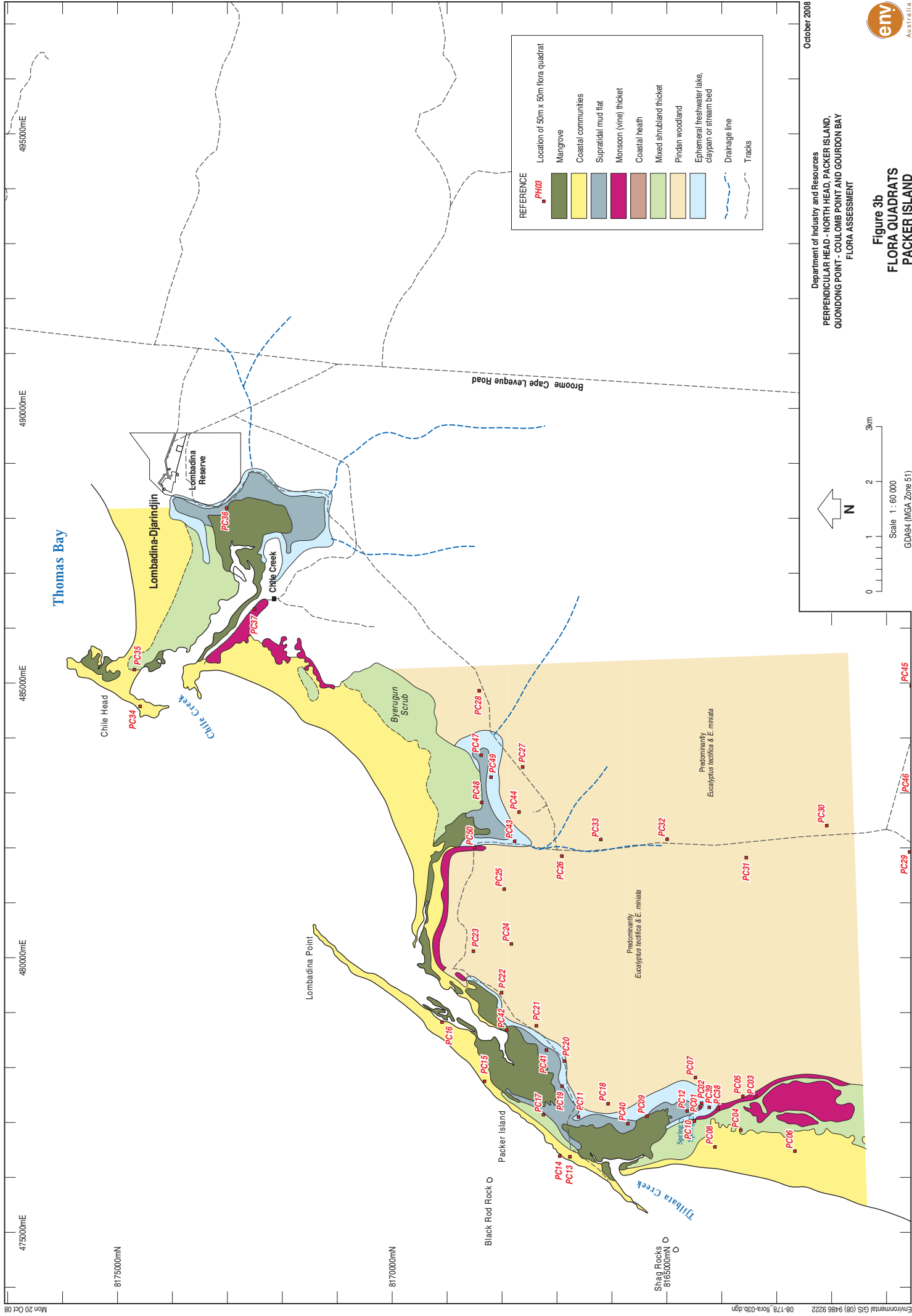


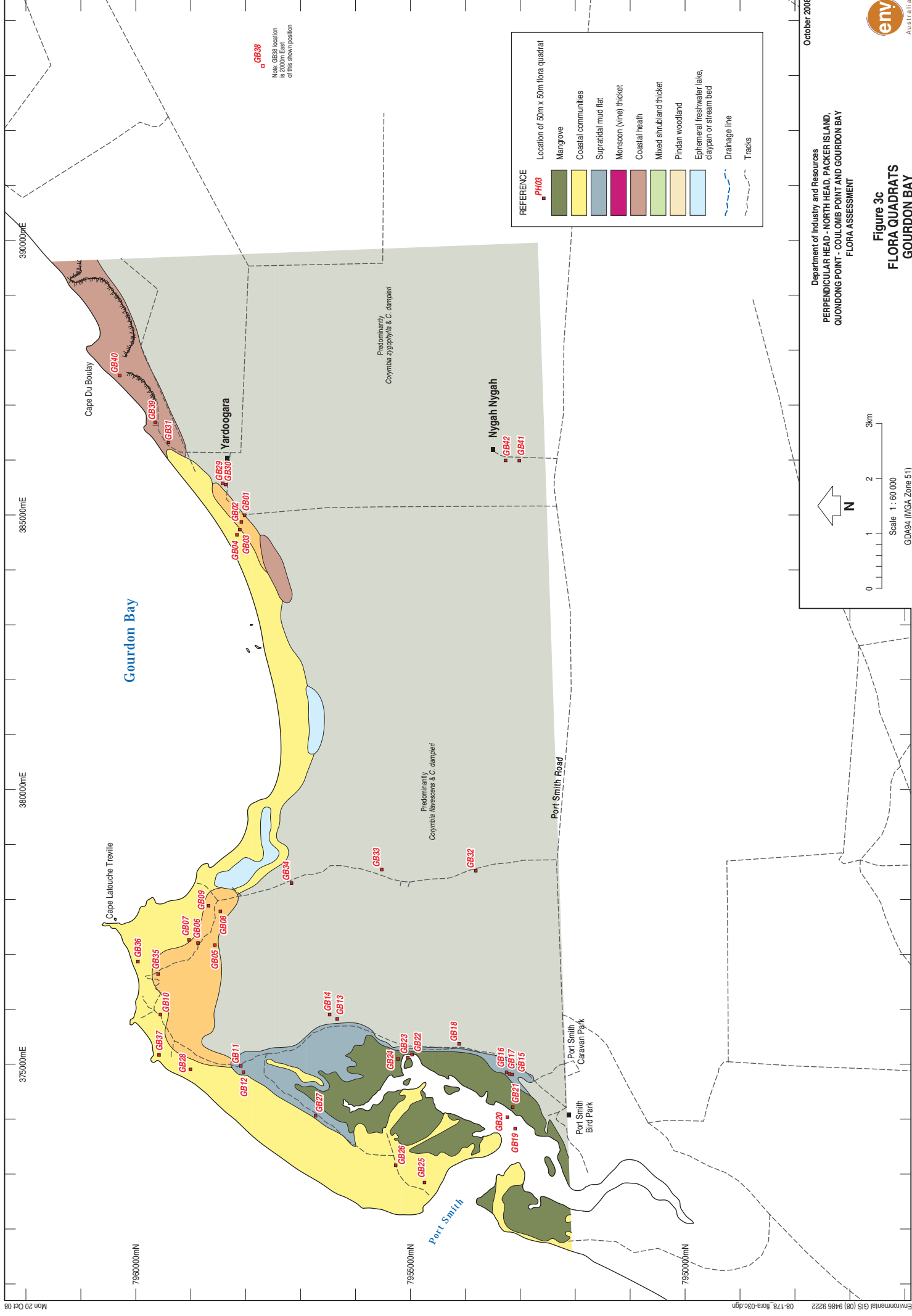
Figure 3a
FLORA QUADRATS
PERPENDICULAR HEAD - NORTH HEAD

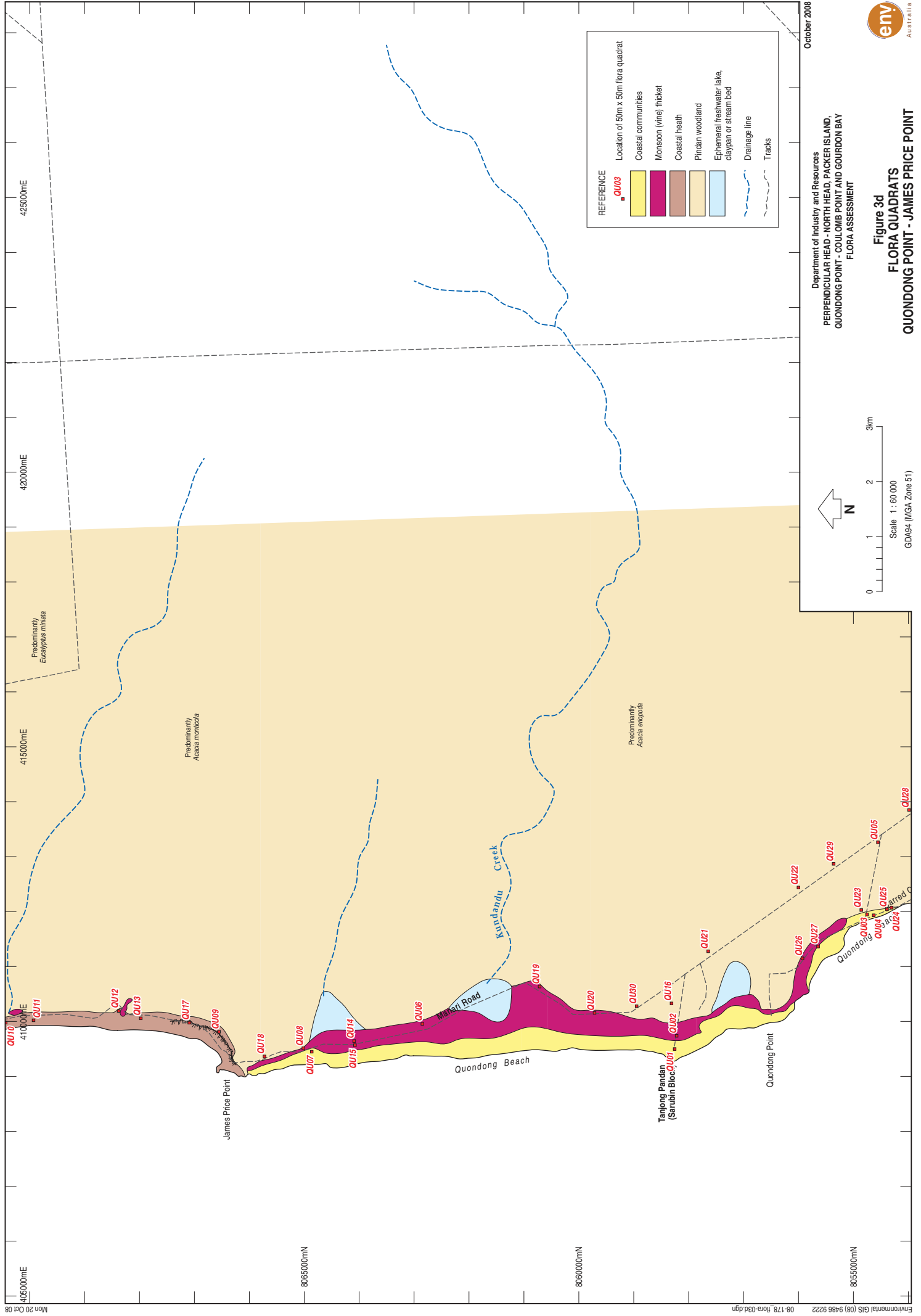
Department of Industry and Resources
 PERPENDICULAR HEAD - NORTH HEAD, PACKER ISLAND,
 QUONDONG POINT - COULOMB POINT AND GOURDON BAY
 FLORA ASSESSMENT

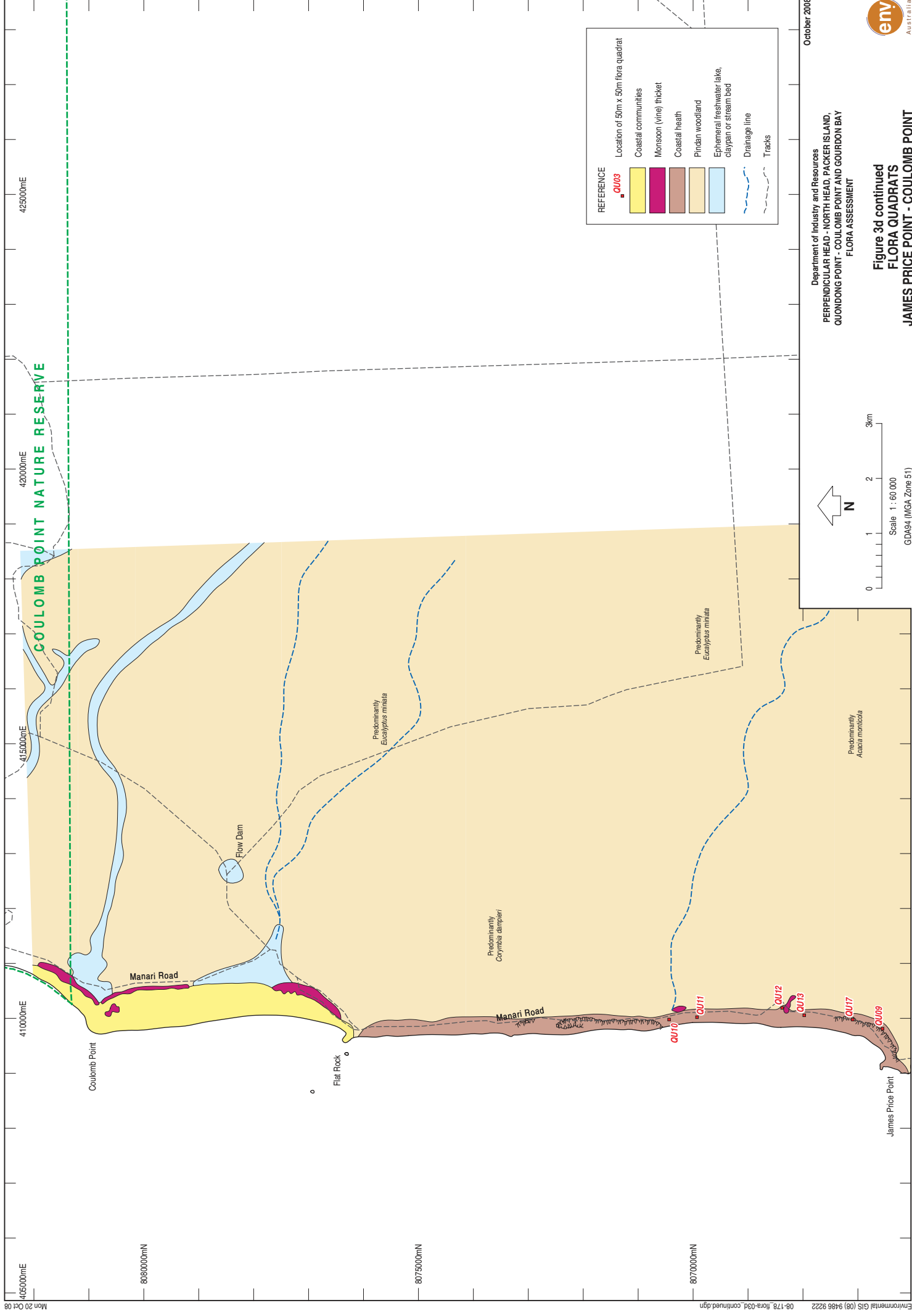
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 GDA94 (MGA Zone 51)

October 2008









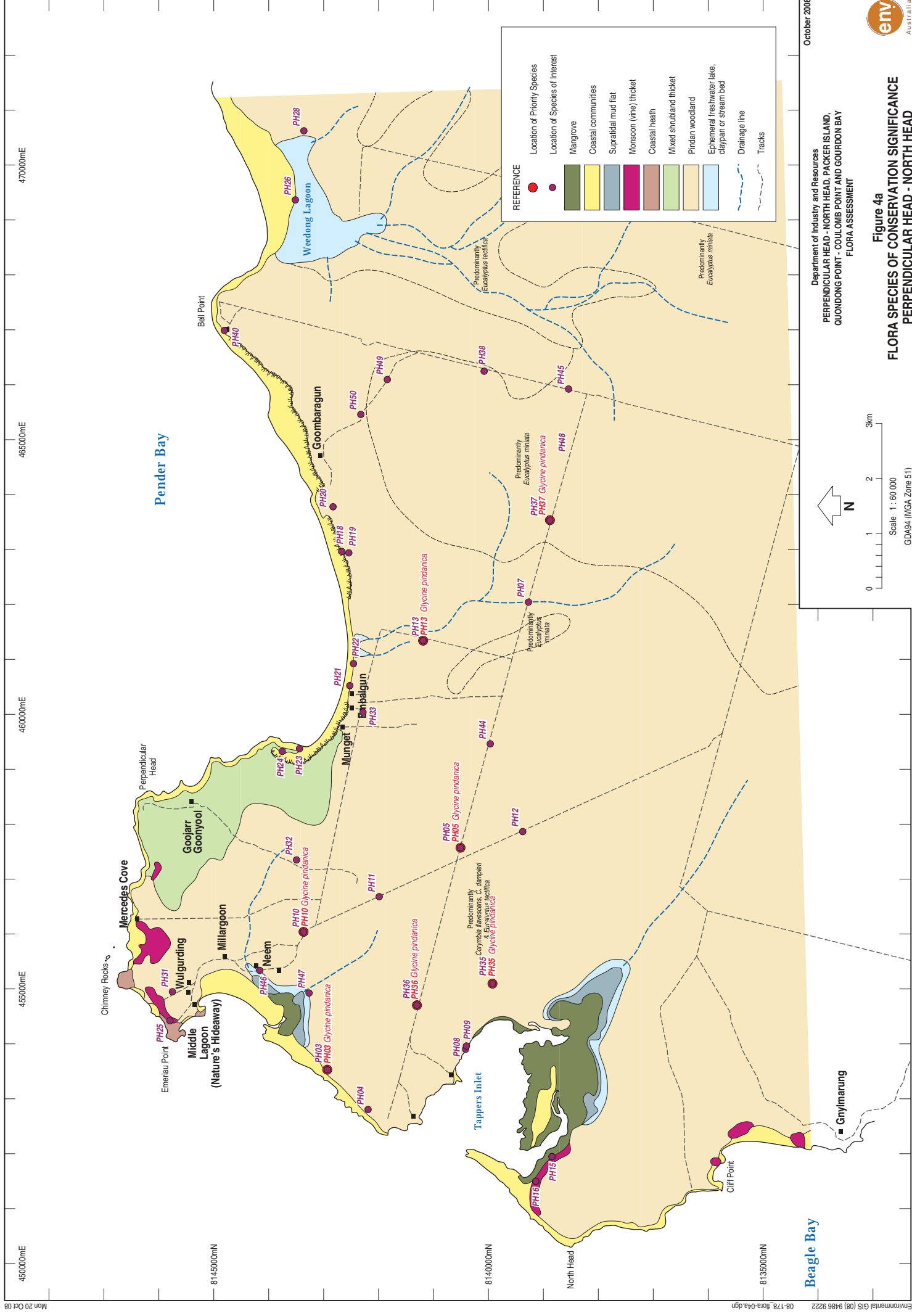
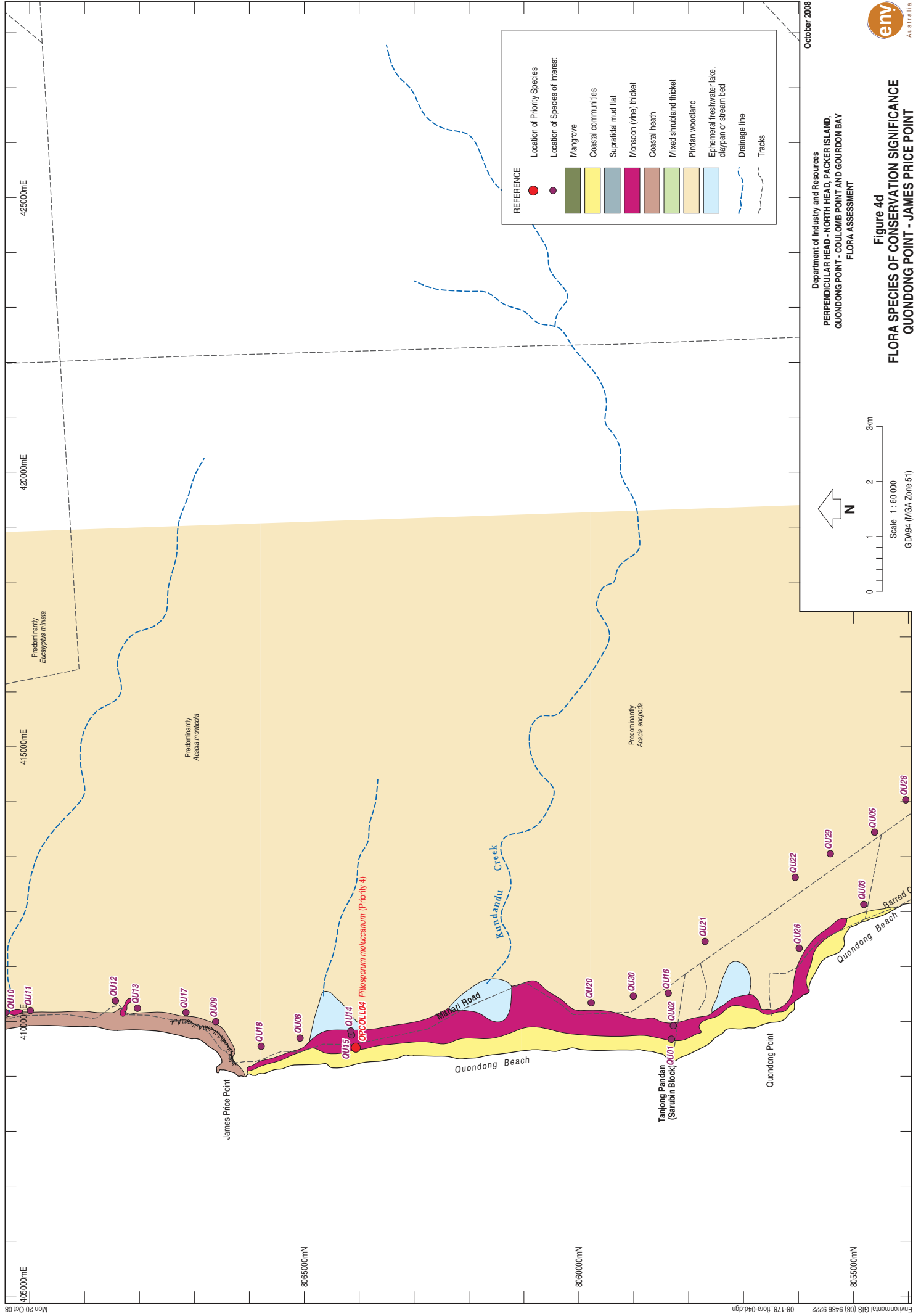
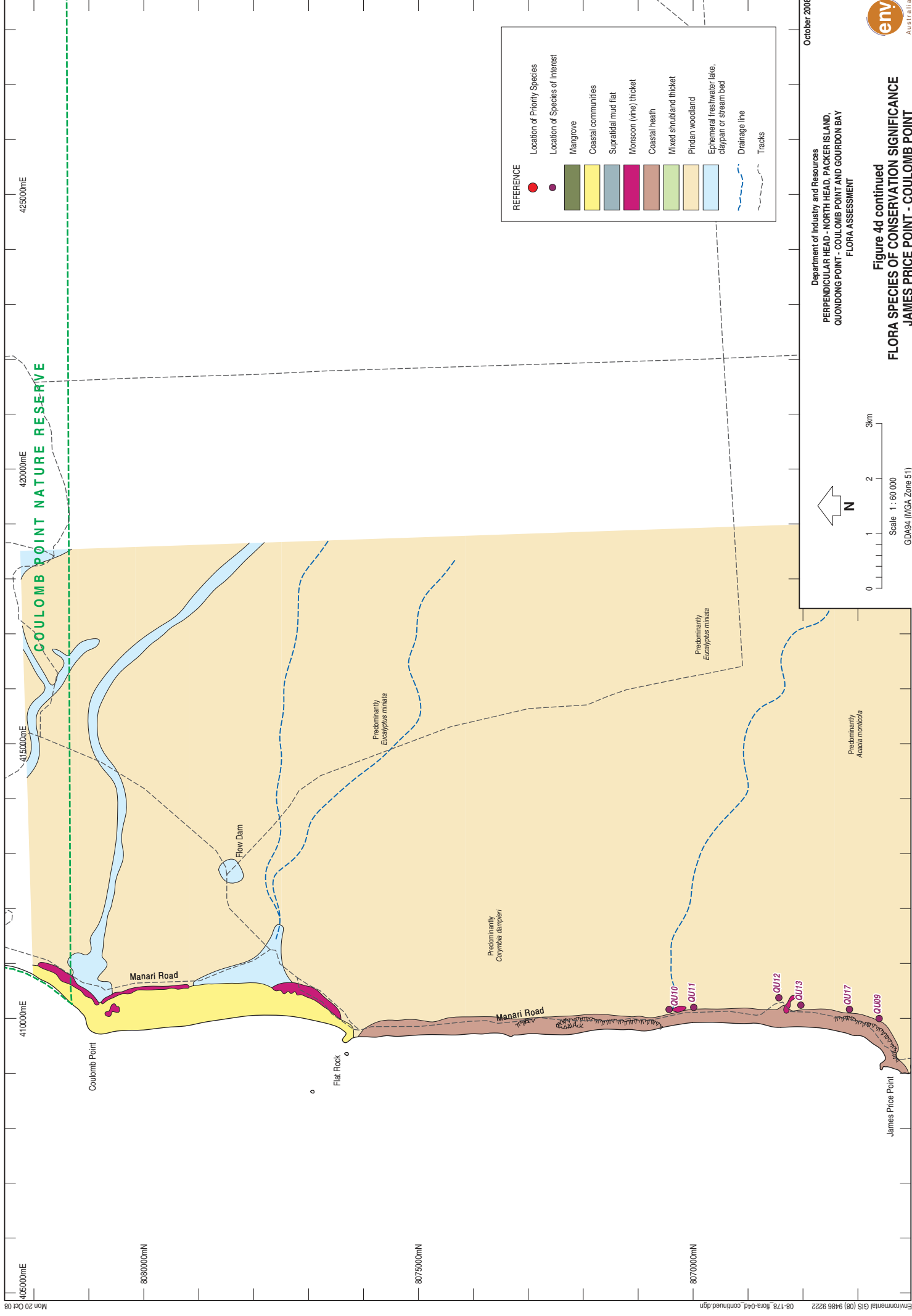
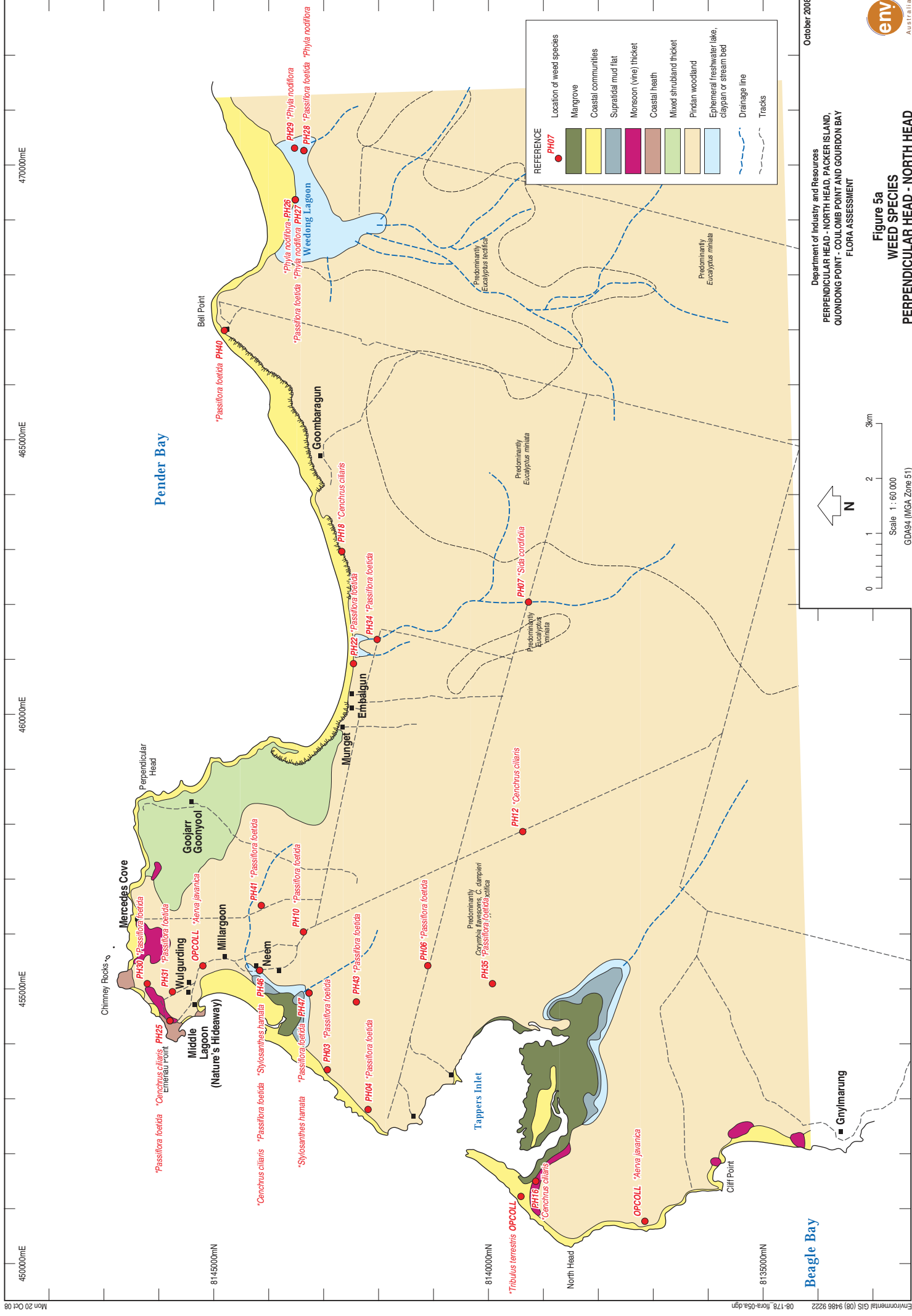


Figure 4a
FLORA SPECIES OF CONSERVATION SIGNIFICANCE
PERPENDICULAR HEAD - NORTH HEAD







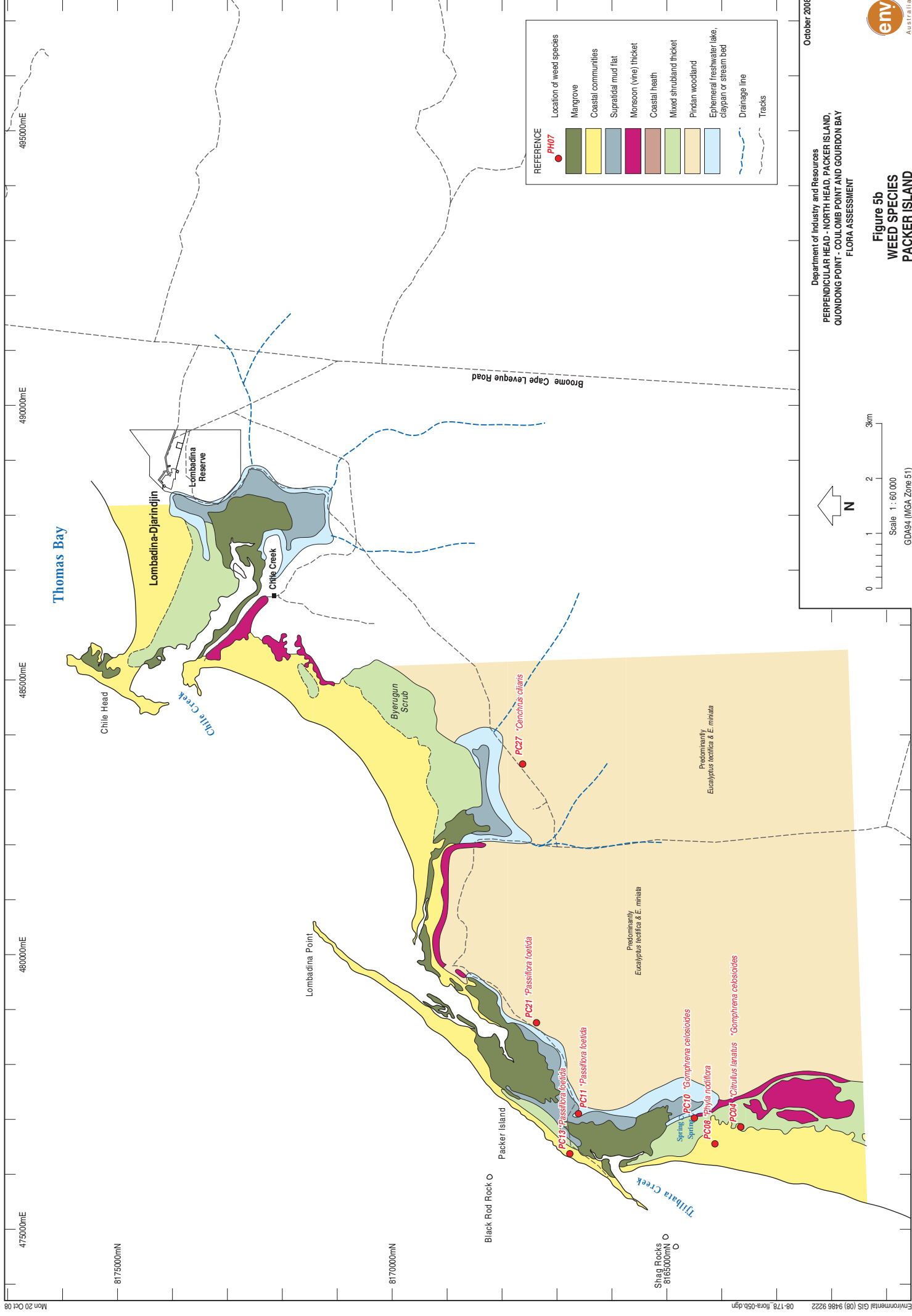
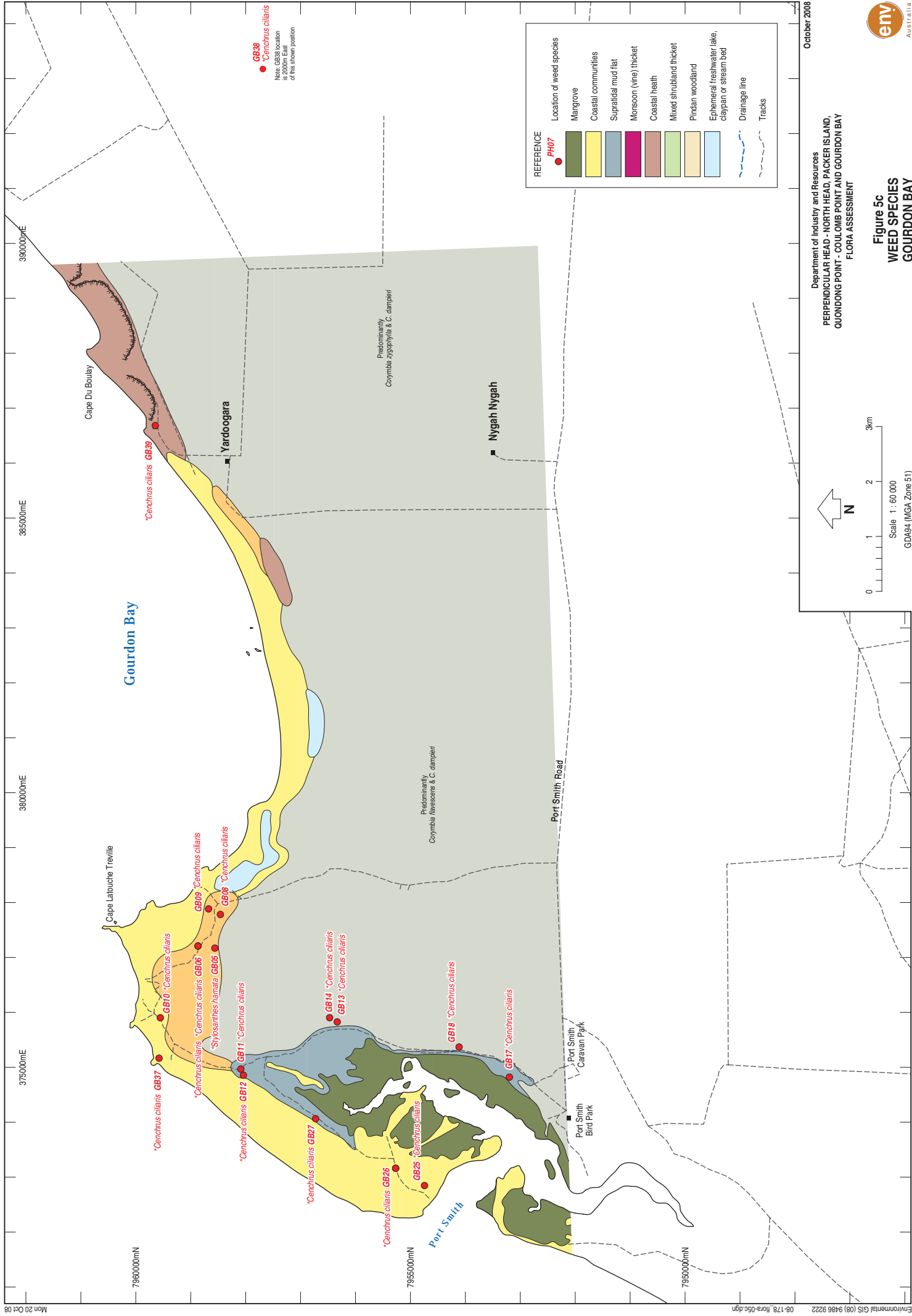
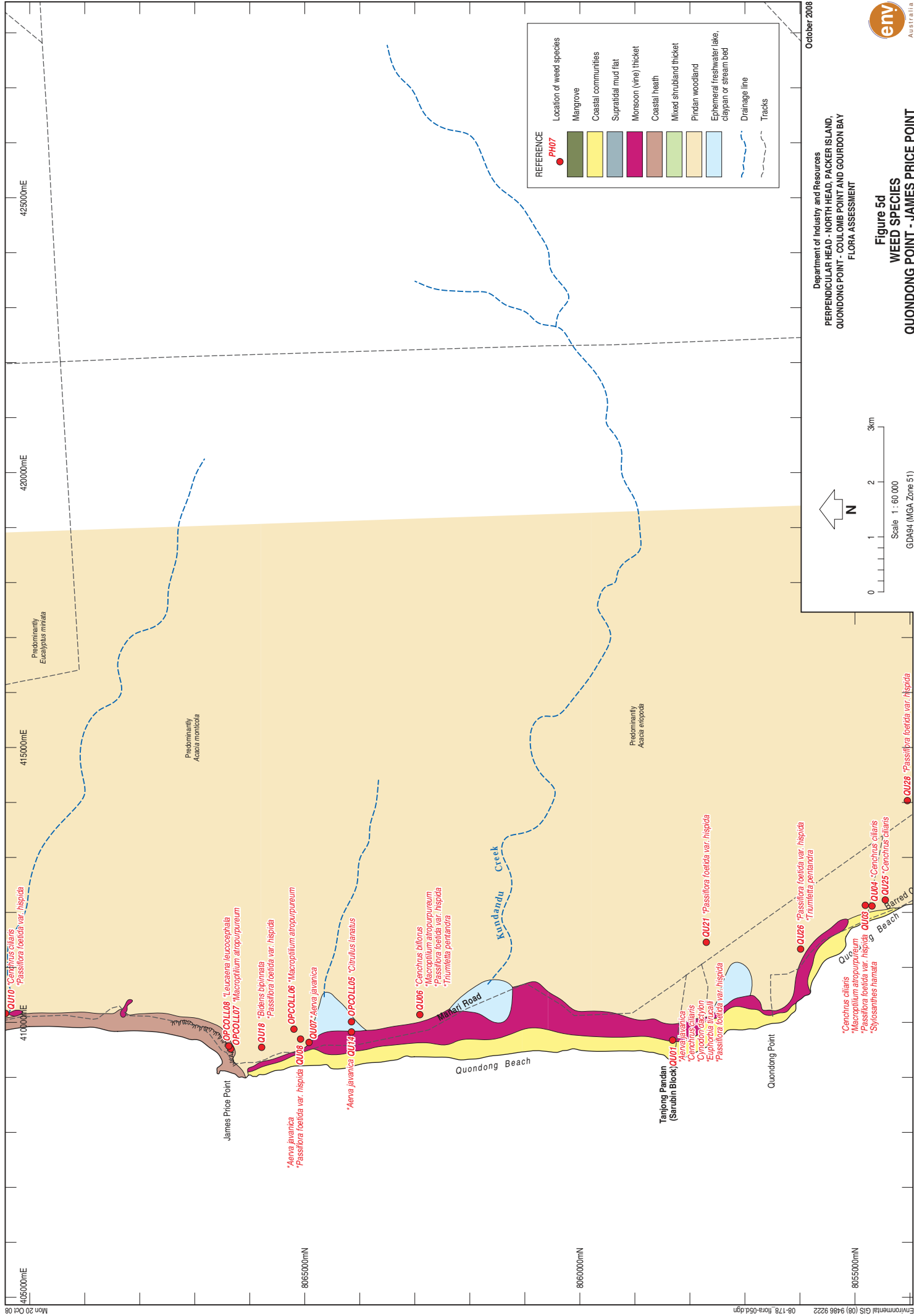
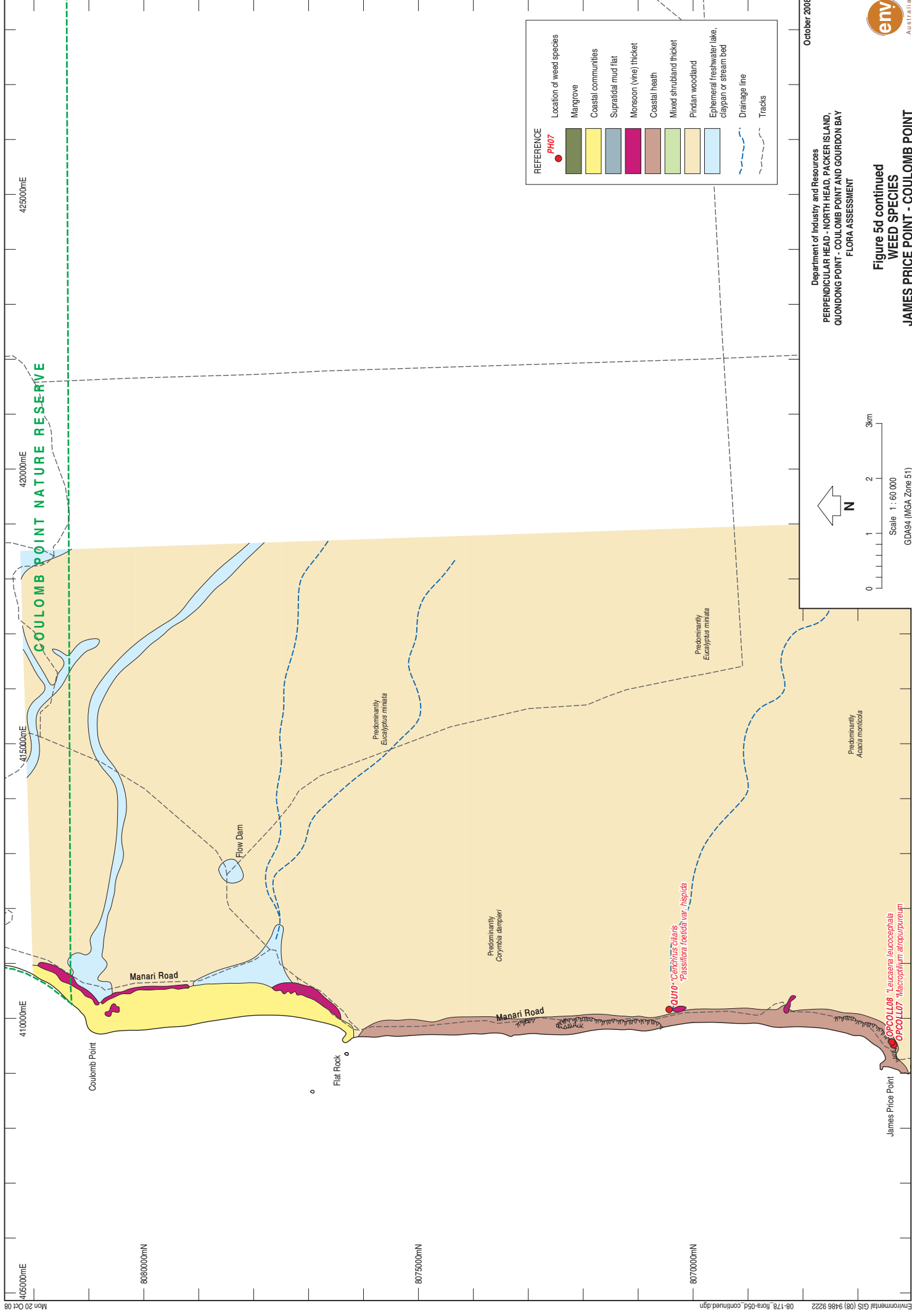


Figure 5b
WEED SPECIES
PACKER ISLAND







REFERENCE

● PH07

Location of weed species

- Mangrove
- Coastal communities
- Supratidal mud flat
- Monsoon (vine) thicket
- Coastal heath
- Mixed shrubland thicket
- Pindian woodland
- Ephemeral freshwater lake, claypan or stream bed
- Drainage line
- Tracks

October 2008

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PERPENDICULAR HEAD - NORTH HEAD, PACKER ISLAND,
QUONDONG POINT - COULOMB POINT AND GOURDON BAY
FLORA ASSESSMENT

Figure 5d continued
WEED SPECIES
JAMES PRICE POINT - COULOMB POINT

Scale 1: 60 000
GDA94 (MGA Zone 51)

0 1 2 3km

N

James Price Point

OPCOLLO8 *Leucaena leucocephala*
OPCOLLO7 *Macroptilium atropurpureum*

OUI10 *Cenchrus ciliaris*
Passiflora foetida var. *hispida*

Predominantly *Corymbia dampieri*

Predominantly *Eucalyptus miniata*

Predominantly *Acacia monilicola*

Predominantly *Eucalyptus miniata*

Manari Road

Flow Dam

Coulomb Point

Manari Road

Flat Rock

COULOMB POINT NATURE RESERVE

405000mE 410000mE 415000mE 420000mE 425000mE

8070000mN 8075000mN 8080000mN

APPENDIX A

POTENTIALLY OCCURRING FLORA SPECIES OF CONSERVATION SIGNIFICANCE

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB- QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX A

Potentially-Occurring Flora Species of Conservation Significance

Species	WC Act	DEC Priority
<i>Keraudrenia exastia</i>	DRF	
<i>Aphyllodium parvifolium</i>		P1
<i>Cullen candidum</i>		P1
<i>Glycine pindanica</i>		P1
<i>Goodenia byrnesii</i>		P1
<i>Ipomoea</i> sp. A Kimberley Flora (LJ Penn 84)		P1
<i>Nicotiana heterantha</i>		P1
<i>Tephrosia andrewii</i>		P1
<i>Tetragonia coronata</i>		P1
<i>Trachymene oleracea</i> subsp. <i>sedimenta</i>		P1
<i>Alysicarpus suffruticosus</i>		P2
<i>Blumea pungens</i>		P2
<i>Gomphrena cucullata</i>		P2
<i>Gomphrena pusilla</i>		P2
<i>Nymphoides beaglensis</i>		P2
<i>Pterocaulon</i> sp. A Kimberley Flora (BJ Carter 599)		P2
<i>Acacia glaucocaesia</i>		P3
<i>Alysicarpus major</i>		P3
<i>Aphyllodium glossocarpum</i>		P3
<i>Fimbristylis sieberiana</i>		P3
<i>Fuirena incrassata</i>		P3
<i>Goodenia sepalosa</i> var. <i>glandulosa</i>		P3

Species	WC Act	DEC Priority
<i>Keraudrenia katatona</i>		P3
<i>Phyllanthus aridus</i>		P3
<i>Pityrodia obliqua</i>		P3
<i>Stylidium costulatum</i>		P3
<i>Triodia acutispicula</i>		P3
<i>Pittosporum moluccanum</i>		P4

WC: Wildlife Conservation Act 1950 (WA)

DEC Priority: Department of Environment and Conservation Priority Flora List

DRF: Declared Rare Flora

Search coordinates:

NW corner: 16.18.56.60S / 122.44.25.87E

NE corner: 16.56.50.35S / 123.10.56.11E

SW corner: 18.30.20.48S / 121.46.35.49E

SE corner: 18.52.03.89S / 122.34.31.43E

APPENDIX B

FLORA SURVEY QUADRAT LOCATIONS

PERPENDICULAR HEAD–NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX B1

Flora Survey Quadrat Locations at Perpendicular Head-North Head

Site Number	# Easting	# Northing
PH01	455249	8144257
PH02	454674	8143311
PH03	453530	8142934
PH04	452804	8142191
PH05	457571	8140509
PH06	455424	8141105
PH07	462043	8139271
PH08	453903	8140416
PH09	453962	8140401
PH10	456039	8143367
PH11	456680	8141988
PH12	457864	8139376
PH13	461343	8141190
PH14	451675	8139052
PH15	451946	8138844
PH16	451500	8139138
PH17	464401	8143234
PH18	462966	8142670
PH19	462940	8142541
PH20	463777	8142830
PH21	460521	8142525
PH22	460923	8142457
PH23	459376	8143439
PH24	459325	8143753
PH25	454421	8145799
PH26	469365	8143514
PH27	469369	8143516
PH28	470263	8143359
PH29	470308	8143531
PH30	455097	8146211

Site Number	# Easting	# Northing
PH31	454949	8145753
PH32	457350	8143493
PH33	460039	8142284
PH34	461363	8142026
PH35	455096	8139927
PH36	454704	8141302
PH37	463535	8138881
PH38	466247	8140078
PH39	466728	8142229
PH40	466988	8144808
PH41	456520	8144134
PH42	454269	8142697
PH43	454763	8142405
PH44	459462	8139967
PH45	465921	8138541
PH46	455337	8144164
PH47	454926	8143266
PH48	464691	8138524
PH49	466094	8141840
PH50	465460	8142324

Geocentric 1994 (GDA94), Zone 51K

APPENDIX B2

Flora Survey Quadrat Locations at Packer Island

Site Number	# Easting	# Northing
PC01	477276	8164395
PC02	477350	8164367
PC03	477472	8163377
PC04	476862	8163654
PC05	477478	8163617
PC06	476479	8162669
PC07	477819	8164480
PC08	476555	8164125
PC09	477115	8165364
PC10	477026	8164498
PC11	477103	8166608
PC12	477209	8164631
PC13	476375	8166766
PC14	476388	8166951
PC15	477399	8168318
PC16	478830	8169091
PC17	477142	8167246
PC18	477341	8166071
PC19	477661	8166906
PC20	478117	8166865
PC21	478760	8167374
PC22	479364	8168008
PC23	480118	8168522
PC24	480250	8167830
PC25	481249	8167961
PC26	481851	8166912
PC27	483470	8167625
PC28	484861	8168417
PC29	481925	8160582
PC30	482405	8162089
PC31	481822	8163555
PC32	482157	8164994
PC33	482153	8166203

Site Number	# Easting	# Northing
PC34	484576	8174590
PC35	485246	8174694
PC36	488190	8173014
PC37	486346	8172505
PC38	477258	8164070
PC39	477275	8164228
PC40	476979	8165712
PC41	478317	8167192
PC42	478684	8167917
PC43	482121	8167771
PC44	482651	8167690
PC45	484951	8160551
PC46	483421	8160533
PC47	483688	8168382
PC48	482829	8168371
PC49	483287	8168200
PC50	482003	8168492

Geocentric 1994 (GDA94), Zone 51K

APPENDIX B3

Flora Survey Quadrat Locations at Gourdon Bay

Site Number	# Easting	# Northing
GB01	384996	7958019
GB02	384874	7958078
GB03	384734	7958106
GB04	384639	7958159
GB05	377170	7958560
GB06	377208	7958868
GB07	377265	7959031
GB08	377782	7958460
GB09	377885	7958675
GB10	375904	7959553
GB11	374968	7958087
GB12	374856	7958041
GB13	375827	7956332
GB14	375903	7956471
GB15	374812	7953150
GB16	374854	7953250
GB17	374822	7953198
GB18	375370	7954114
GB19	373826	7953094
GB20	374037	7953236
GB21	374220	7953138
GB22	375175	7954969
GB23	375121	7955046
GB24	375079	7955227
GB25	372847	7954744
GB26	373162	7955269
GB27	374063	7956726
GB28	374906	7959004
GB29	385574	7958416
GB30	385554	7958363
GB31	386321	7959403
GB32	378523	7953810
GB33	378544	7955523
GB34	378298	7957165

Site Number	# Easting	# Northing
GB35	376644	7959594
GB36	376867	7959961
GB37	375167	7959576
GB38	375175	7957687
GB39	386684	7959644
GB40	387540	7960291
GB41	385991	7953019
GB42	385994	7953267

Geocentric 1994 (GDA94), Zone 51K

APPENDIX B4

Flora Survey Quadrat Locations at Coulomb-Quondong

Site Number	# Easting	# Northing
QU01	409498	8058255
QU02	409738	8058219
QU03	411947	8054752
QU04	411933	8054630
QU05	413260	8054554
QU06	409956	8062849
QU07	409449	8064864
QU08	409511	8065017
QU09	409812	8066552
QU10	409978	8070437
QU11	410021	8069929
QU12	410191	8068379
QU13	410056	8067977
QU14	409643	8064091
QU15	409567	8064077
QU16	410328	8058312
QU17	409977	8067093
QU18	409363	8065724
QU19	410635	8060714
QU20	410155	8059714
QU21	411277	8057643
QU22	412438	8056001
QU23	412028	8054857
QU24	412070	8054308
QU25	412041	8054388
QU26	411148	8055927
QU27	411363	8055644
QU28	413849	8053986
QU29	412869	8055360
QU30	410277	8058948

Geocentric 1994 (GDA94), Zone 51K

APPENDIX C

SAMPLE FIELD SHEET

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX C Sample Field Sheet



FIELD SHEET – FLORA SURVEYS

Job code:	Site:	Date:	Recorder:
Location:			

Size:	GPS: Datum: WP: E: N: Zone: WP: E: N:	Photo:
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Habitat:
Aspect: N NW W SW S SE E NE N/A

Soil:						
Rock type:						
<table border="1"> <tr> <td>Bare ground:</td> <td>%</td> <td>Litter cover:</td> <td>% Logs</td> <td>%Twigs</td> <td>% Lvs</td> </tr> </table>	Bare ground:	%	Litter cover:	% Logs	%Twigs	% Lvs
Bare ground:	%	Litter cover:	% Logs	%Twigs	% Lvs	

Veg Condition:	Excellent	Very Good	Good	Poor	Very Poor	Completely Degraded
Disturbance type:						
Age since fire:	Recent (<2yrs)	Young (2-5yrs)	Mod (5-10yrs)	Old (>10yrs)	Very Old (Never?)	

Notes:

Vegetation:

Species	Coll No.	Cover	Height	Notes

APPENDIX D

FLORA SPECIES INVENTORY

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX D1

Perpendicular Head-North Head Flora Species Inventory

Family	Species Name
Acanthaceae	<i>Dicliptera armata</i>
Aizoaceae	<i>Sesuvium portulacastrum</i>
Aizoaceae	<i>Trianthema pilosa</i>
Amaranthaceae	<i>Achyranthes aspera</i>
	<i>Amaranthus undulatus</i>
	<i>Gomphrena canescens</i>
	<i>Gomphrena canescens</i> subsp. <i>canescens</i>
	<i>Hemichroa diandra</i>
	<i>Ptilotus corymbosus</i>
	<i>Ptilotus exaltatus</i>
	<i>Ptilotus lanatus</i>
	<i>Ptilotus lanatus</i> var. <i>lanatus</i>
	<i>Ptilotus polystachyus</i> var. <i>polystachyus</i>
	* <i>Aerva javanica</i>
Apiaceae	<i>Trachymene</i> aff. <i>didiscoides</i>
	<i>Trachymene didiscoides</i>
Apocynaceae	<i>Carissa lanceolata</i>
	<i>Wrightia saligna</i>
Asclepiadaceae	<i>Cynanchum carnosum</i>
	<i>Cynanchum pedunculatum</i>
	<i>Gymnanthera oblonga</i>
	<i>Marsdenia angustata</i>
	<i>Marsdenia viridiflora</i>
	<i>Tylophora cinerascens</i>
Asteraceae	<i>Pterocaulon sphacelatum</i>
Avicenniaceae	<i>Avicennia marina</i>

Family	Species Name
Bignoniaceae	<i>Dolichandrone heterophylla</i>
Bombacaceae	<i>Camptostemon schultzei</i>
Boraginaceae	<i>Ehretia saligna</i>
	<i>Heliotropium foliatum</i>
	<i>Heliotropium ovalifolium</i>
	<i>Heliotropium tenuifolium</i>
	<i>Trichodesma zeylanicum</i> var. <i>latiseptum</i>
Burseraceae	<i>Canarium australium</i>
Caesalpiniaceae	<i>Bauhinia cunninghamii</i>
	<i>Chamaecrista moorei</i>
	<i>Chamaecrista symonii</i>
	<i>Erythrophleum chlorostachys</i>
	<i>Senna costata</i>
	<i>Senna surattensis</i> subsp. <i>sulfurea</i>
	<i>Senna timoriensis</i>
Capparaceae	<i>Capparis jacobsonii</i>
	<i>Capparis lasiantha</i>
	<i>Cleome cleomoides</i>
	<i>Cleome viscosa</i>
Caryophyllaceae	<i>Polycarpaea corymbosa</i>
	<i>Polycarpaea longiflora</i>
Chenopodiaceae	<i>Halosarcia indica</i>
	<i>Halosarcia indica</i> subsp. <i>?julacea</i>
	<i>Neobassia astrocarpa</i>
	<i>Salsola tragus</i>
Combretaceae	<i>Terminalia ?canescens</i>
	<i>Terminalia canescens</i>
	<i>Terminalia ferdinandiana</i>
	<i>Terminalia petiolaris</i>
Convolvulaceae	<i>Bonamia linearis</i>

Family	Species Name
	<i>Evolvulus alsinoides</i>
	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>
	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>
	<i>Ipomoea coptica</i>
	<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>
	<i>Jacquemontia paniculata</i>
	<i>Jacquemontia pannosa</i>
	<i>Jacquemontia</i> sp.
	<i>Polymeria ambigua</i>
	<i>Xenostegia tridentata</i>
Cucurbitaceae	<i>Cucumis maderaspatanus</i>
Cyperaceae	? <i>Fimbristylis</i> sp.
	<i>Bulbostylis barbata</i>
	<i>Cyperus conicus</i>
	<i>Cyperus javanicus</i>
	<i>Cyperus viscidulus</i>
	<i>Fimbristylis cymosa</i>
	<i>Fimbristylis depauperata</i>
	<i>Fimbristylis sericea</i>
	<i>Scleria</i> aff. <i>brownii</i>
Ebenaceae	<i>Diospyros maritima</i>
Euphorbiaceae	<i>Microstachys chamaelea</i>
	<i>Breynia cernua</i>
	<i>Croton habrophyllus</i>
	<i>Euphorbia</i> ? <i>alsiniflora</i>
	<i>Euphorbia comans</i>
	<i>Euphorbia schultzii</i>
	<i>Excoecaria ovalis</i>
	<i>Flueggea virosa</i>
	<i>Phyllanthus exilis</i>

Family	Species Name
	<i>Phyllanthus maderaspatensis</i>
	<i>Sauropus trachyspermus</i>
	<i>Microstachys chamaelea</i>
Goodeniaceae	<i>Goodenia sepalosa</i>
	<i>Scaevola taccada</i>
	<i>Velleia panduriformis</i>
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>
	<i>Gyrostemon tepperi</i>
Haloragaceae	<i>Gonocarpus leptothecus</i>
Lauraceae	<i>Cassytha capillaris</i>
	<i>Cassytha filiformis</i>
Lecythidaceae	<i>Planchonia careya</i>
Loranthaceae	<i>Amyema benthamii</i>
	<i>Lysiana spathulata</i>
Malvaceae	<i>Abutilon indicum</i> var. <i>australiense</i>
	<i>Abutilon otocarpum</i>
	<i>Gossypium australe</i>
	<i>Gossypium rotundifolium</i>
	<i>Hibiscus leptocladus</i>
	<i>Hibiscus apodus</i>
	* <i>Sida cordifolia</i>
Menispermaceae	<i>Tinospora smilacina</i>
Mimosaceae	<i>Acacia colei</i> var. <i>colei</i>
	<i>Acacia hippuroides</i>
	<i>Acacia monticola</i>
	<i>Acacia monticola</i> x <i>tumida</i>
	<i>Acacia neurocarpa</i>
	<i>Acacia tumida</i>
Moraceae	<i>Ficus aculeata</i>
Myoporaceae	<i>Myoporum montanum</i>

Family	Species Name
Myrtaceae	<i>Calytrix exstipulata</i>
	<i>Corymbia bella</i>
	<i>Corymbia flavescens</i>
	<i>Corymbia greeniana</i>
	<i>Corymbia polycarpa</i>
	<i>Eucalyptus miniata</i>
	<i>Eucalyptus tectifica</i>
	<i>Lithomyrtus retusa</i>
	<i>Lophostemon grandiflorus</i>
	<i>Melaleuca alsophila</i>
	<i>Melaleuca viridiflora</i>
	<i>Osbornia octodonta</i>
Oleaceae	<i>Jasminum didymum</i>
	<i>Jasminum didymum</i> subsp. <i>didymum</i>
	<i>Jasminum didymum</i> subsp. <i>lineare</i>
Opiliaceae	<i>Opilia amentacea</i>
Pandanaceae	<i>Pandanus spiralis</i>
Papilionaceae	<i>Alysicarpus ?schomburgkii</i>
	<i>Abrus precatorius</i>
	<i>Cajanus marmoratus</i>
	<i>Canavalia rosea</i>
	<i>Crotalaria brevis</i>
	<i>Crotalaria crispata</i>
	<i>Crotalaria cunninghamii</i>
	<i>Crotalaria medicaginea</i>
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>
	<i>Desmodium filiforme</i>
	<i>Galactia tenuiflora</i>
	<i>Glycine pindanica</i>
	<i>Glycine tomentella</i>

Family	Species Name
	<i>Indigofera colutea</i>
	<i>Indigofera hirsuta</i>
	<i>Indigofera linifolia</i>
	<i>Indigofera monophylla</i>
	<i>Indigofera trita</i>
	<i>Sesbania cannabina</i>
	<i>Tephrosia leptoclada</i>
	<i>Tephrosia remotiflora</i>
	<i>Tephrosia rosea</i>
	<i>Tephrosia rosea</i> var. <i>rosea</i>
	<i>Tephrosia simplicifolia</i>
	<i>Tephrosia</i> sp.
	<i>Vigna lanceolata</i> var. <i>filiformis</i>
	<i>Zornia chaetophora</i>
	<i>Zornia prostrata</i>
	* <i>Stylosanthes hamata</i>
Passifloraceae	* <i>Passiflora foetida</i>
Plumbaginaceae	<i>Aegialitis annulata</i>
Poaceae	? <i>Brachyachne convergens</i>
	<i>Aristida holathera</i> var. <i>holathera</i>
	<i>Aristida hygrometrica</i>
	<i>Chrysopogon pallidus</i>
	<i>Cymbopogon ambiguus</i>
	<i>Cymbopogon bombycinus</i>
	<i>Cymbopogon procerus</i>
	<i>Enneapogon pallidus</i>
	<i>Enneapogon polyphyllus</i>
	<i>Eragrostis cumingii</i>
	<i>Eriachne ciliata</i>
	<i>Eriachne obtusa</i>

Family	Species Name
	<i>Eriachne semiciliata</i>
	<i>Heteropogon contortus</i>
	<i>Leptochloa fusca</i> subsp. <i>fusca</i>
	<i>Panicum decompositum</i>
	<i>Paspalum scrobiculatum</i>
	<i>Schizachyrium fragile</i>
	<i>Setaria apiculata</i>
	<i>Sorghum ecarinatum</i>
	<i>Sorghum stipoideum</i>
	<i>Spinifex longifolius</i>
	<i>Sporobolus virginicus</i>
	<i>Triodia bitextura</i>
	<i>Triodia schinzii</i>
	<i>Whiteochloa airoides</i>
	<i>Xerochloa imberbis</i>
	<i>Yakirra pauciflora</i>
	* <i>Cenchrus ciliaris</i>
Polygalaceae	<i>Polygala tepperi</i>
Portulacaceae	<i>Calandrinia quadrivalvis</i>
	<i>Portulaca bicolor</i>
	<i>Portulaca filifolia</i>
Proteaceae	<i>Grevillea pyramidalis</i>
	<i>Grevillea pyramidalis</i> subsp. <i>pyramidalis</i>
	<i>Grevillea refracta</i>
	<i>Hakea arborescens</i>
	<i>Hakea macrocarpa</i>
	<i>Persoonia falcata</i>
Rhamnaceae	<i>Ventilago viminalis</i>
Rhizophoraceae	<i>Ceriops tagal</i>
Rubiaceae	<i>Gardenia pyriformis</i> subsp. <i>keartlandii</i>

Family	Species Name
	<i>Oldenlandia kochiae</i>
	<i>Spermacoce breviflora</i>
	<i>Spermacoce occidentalis</i>
	<i>Synaptantha scleranthoides</i>
Santalaceae	<i>Exocarpos latifolius</i>
	<i>Santalum lanceolatum</i>
Sapindaceae	<i>Distichostemon hispidulus</i> var. ? <i>phyllopterus</i>
	<i>Atalaya variifolia</i>
	<i>Distichostemon hispidulus</i>
	<i>Dodonaea platyptera</i>
Sapotaceae	<i>Sersalisia sericea</i>
Scrophulariaceae	<i>Buchnera urticifolia</i>
Solanaceae	<i>Solanum cunninghamii</i>
Sterculiaceae	<i>Brachychiton diversifolius</i>
	<i>Melhania oblongifolia</i>
	<i>Waltheria indica</i>
Tiliaceae	<i>Corchorus pumilio</i>
	<i>Corchorus</i> sp.
	<i>Triumfetta breviaculea</i>
Typhaceae	<i>Typha domingensis</i>
Ulmaceae	<i>Celtis australiensis</i>
Verbenaceae	<i>Clerodendrum floribundum</i>
	<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>
	<i>Clerodendrum tomentosum</i>
	<i>Clerodendrum tomentosum</i> var. <i>tomentosum</i>
	* <i>Phyla nodiflora</i>
	<i>Premna acuminata</i>
Violaceae	<i>Hybanthus aurantiacus</i>
Zygophyllaceae	<i>Tribulopsis angustifolia</i>
	* <i>Tribulus terrestris</i>

APPENDIX D2

Packer Island Flora Species Inventory

Family	Species Name
Acanthaceae	<i>Dicliptera armata</i>
Aizoaceae	<i>Sesuvium portulacastrum</i>
	<i>Trianthema pilosa</i>
Amaranthaceae	<i>Achyranthes aspera</i>
	<i>Amaranthus undulatus</i>
	<i>Gomphrena canescens</i>
	<i>Gomphrena diffusa</i> subsp. <i>arenicola</i>
	<i>Gomphrena pusilla</i>
	<i>Hemichroa diandra</i>
	<i>Ptilotus corymbosus</i>
	<i>Ptilotus lanatus</i> var. <i>lanatus</i>
	* <i>Gomphrena celosioides</i>
Apocynaceae	<i>Wrightia saligna</i>
Asclepiadaceae	<i>Cynanchum carnosum</i>
	<i>Cynanchum pedunculatum</i>
	<i>Gymnanthera oblonga</i>
	<i>Marsdenia angustata</i>
	<i>Marsdenia geminata</i>
	<i>Marsdenia viridiflora</i> subsp. <i>tropica</i>
	<i>Tylophora cinerascens</i>
Asparagaceae	<i>Asparagus racemosus</i>
Asteraceae	<i>Pluchea rubelliflora</i>
	<i>Pterocaulon ?sphacelatum</i>
	<i>Pterocaulon</i> sp. A Kimberley Flora (B.J. Carter 599)
	<i>Pterocaulon sphacelatum</i>
Avicenniaceae	<i>Avicennia marina</i> subsp. <i>marina</i>
Bignoniaceae	<i>Dolichandrone heterophylla</i>
Bombacaceae	<i>Camptostemon schultzei</i>

Family	Species Name
Boraginaceae	<i>Ehretia saligna</i>
	<i>Heliotropium tenuifolium</i>
Burseraceae	<i>Canarium australianum</i> var. <i>velutinum</i>
Caesalpiniaceae	<i>Bauhinia cunninghamii</i>
	<i>Caesalpinia major</i>
	<i>Erythrophleum chlorostachys</i>
	<i>Senna costata</i>
Capparaceae	<i>Capparis lasiantha</i>
	<i>Capparis sepiaria</i>
	<i>Cleome tetrandra</i>
	<i>Cleome viscosa</i>
Caryophyllaceae	<i>Polycarpaea longiflora</i>
Celastraceae	<i>Maytenus cunninghamii</i>
Chenopodiaceae	<i>Halosarcia halocnemoides</i> subsp. <i>halocnemoides</i>
	<i>Halosarcia halocnemoides</i> subsp. <i>tenuis</i>
	<i>Halosarcia indica</i> subsp. <i>leiostachya</i>
	<i>Neobassia astrocarpa</i>
	<i>Salsola</i> sp.
	<i>Suaeda arbusculoides</i>
Combretaceae	<i>Lumnitzera racemosa</i>
	<i>Terminalia canescens</i>
	<i>Terminalia ferdinandiana</i>
	<i>Terminalia hadleyana</i>
	<i>Terminalia petiolaris</i>
Commelinaceae	<i>Murdannia graminea</i>
Convolvulaceae	<i>Bonamia linearis</i>
	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>
	<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>
	<i>Jacquemontia paniculata</i>

Family	Species Name
	<i>Jacquemontia</i> sp.
	<i>Polymeria ambigua</i>
Cucurbitaceae	<i>Cucumis maderaspatanus</i>
	* <i>Citrullus lanatus</i>
Cyperaceae	<i>Bulbostylis barbata</i>
	<i>Cyperus bifax</i>
	<i>Cyperus blakeanus</i>
	<i>Cyperus bulbosus</i>
	<i>Fimbristylis cymosa</i>
	<i>Fimbristylis depauperata</i>
	<i>Fimbristylis nuda</i>
	<i>Fimbristylis nutans</i>
	<i>Fimbristylis sericea</i>
	<i>Fimbristylis simplex</i>
	<i>Fimbristylis</i> sp.
	<i>Scleria</i> aff. <i>brownii</i>
Droseraceae	<i>Drosera broomensis</i>
Ebenaceae	<i>Diospyros humilis</i>
Euphorbiaceae	<i>Microstachys chamaelea</i>
	<i>Breynia cernua</i>
	<i>Bridelia tomentosa</i>
	<i>Croton habrophyllus</i>
	<i>Euphorbia coghlanii</i>
	<i>Euphorbia mitchelliana</i>
	<i>Euphorbia myrtilloides</i>
	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>
	<i>Phyllanthus exilis</i>
	<i>Sauropus trachyspermus</i>
Goodeniaceae	<i>Goodenia sepalosa</i> var. <i>sepalosa</i>

Family	Species Name
	<i>Scaevola taccada</i>
	<i>Velleia panduriformis</i>
Gyrostemonaceae	<i>Gyrostemon tepperi</i>
Haloragaceae	<i>Gonocarpus leptothecus</i>
Hernandiaceae	<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i>
Lauraceae	<i>Cassytha filiformis</i>
Lecythidaceae	<i>Planchonia careya</i>
Loranthaceae	<i>Lysiana spathulata</i>
Malvaceae	<i>Abutilon otocarpum</i>
	<i>Gossypium rotundifolium</i>
	<i>Sida rohlenae</i> subsp. <i>occidentalis</i>
	<i>Thespesia populneoides</i>
Menispermaceae	<i>Tinospora smilacina</i>
Menyanthaceae	<i>Nymphoides indica</i>
Mimosaceae	<i>Acacia colei</i> var. <i>colei</i>
	<i>Acacia hippuroides</i>
	<i>Acacia tumida</i> var. <i>tumida</i>
Moraceae	<i>Ficus aculeata</i> var. <i>indecora</i>
	<i>Ficus virens</i> var. <i>virens</i>
Myrtaceae	<i>Corymbia bella</i>
	<i>Corymbia flavescens</i>
	<i>Corymbia greeniana</i>
	<i>Corymbia polycarpa</i>
	<i>Eucalyptus miniata</i>
	<i>Eucalyptus tectifera</i>
	<i>Melaleuca alsophila</i>
	<i>Melaleuca argentea</i>
	<i>Osbornia octodonta</i>
Nyctaginaceae	<i>Boerhavia gardneri</i>

Family	Species Name
Orchidaceae	<i>Cymbidium canaliculatum</i>
Pandanaceae	<i>Pandanus spiralis</i>
Papilionaceae	<i>Abrus precatorius</i>
	<i>Cajanus marmoratus</i>
	<i>Canavalia rosea</i>
	<i>Crotalaria brevis</i>
	<i>Crotalaria crispata</i>
	<i>Crotalaria cunninghamii</i>
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>
	<i>Galactia tenuiflora</i>
	<i>Glycine pindanica</i>
	<i>Glycine tomentella</i>
	<i>Indigofera colutea</i>
	<i>Indigofera linifolia</i>
	<i>Rhynchosia minima</i>
	<i>Tephrosia remotiflora</i>
	<i>Tephrosia rosea</i> var. <i>rosea</i>
	<i>Tephrosia</i> aff. <i>oblongata</i>
	<i>Zornia</i> aff. <i>chaetophora</i>
Passifloraceae	<i>Adenia heterophylla</i> subsp. <i>australis</i>
	* <i>Passiflora foetida</i>
Plumbaginaceae	<i>Aegialitis annulata</i>
	<i>Plumbago zeylanica</i>
Poaceae	<i>Aristida holathera</i> var. <i>holathera</i>
	<i>Aristida hygrometrica</i>
	<i>Aristida inaequiglumis</i>
	<i>Chrysopogon pallidus</i>
	<i>Cymbopogon ambiguus</i>
	<i>Cymbopogon procerus</i>

Family	Species Name
	<i>Digitaria bicornis</i>
	<i>Enteropogon dolichostachyus</i>
	<i>Eragrostis cumingii</i>
	<i>Eragrostis setifolia</i>
	<i>Eriachne avenacea</i>
	<i>Eriachne obtusa</i>
	<i>Eriachne semiciliata</i>
	<i>Heteropogon contortus</i>
	<i>Schizachyrium fragile</i>
	<i>Setaria apiculata</i>
	<i>Sorghum ecarinatum</i>
	<i>Sorghum stipoideum</i>
	<i>Spinifex longifolius</i>
	<i>Sporobolus virginicus</i>
	<i>Themeda</i> sp.
	<i>Triodia schinzii</i>
	<i>Xerochloa imberbis</i>
	<i>Yakirra australiensis</i> var. <i>intermedia</i>
	<i>Yakirra pauciflora</i>
	* <i>Cenchrus ciliaris</i>
Polygalaceae	<i>Polygala tepperi</i>
Portulacaceae	<i>Calandrinia quadrivalvis</i>
	<i>Calandrinia strophiolata</i>
	<i>Portulaca filifolia</i>
	<i>Portulaca napiformis</i>
Proteaceae	<i>Grevillea pyramidalis</i>
	<i>Grevillea refracta</i> subsp. <i>refracta</i>
	<i>Hakea arborescens</i>
	<i>Hakea macrocarpa</i>

Family	Species Name
Rhizophoraceae	<i>Rhizophora stylosa</i>
Rubiaceae	<i>Gardenia pyriformis</i> subsp. <i>keartlandii</i>
	<i>Psydrax attenuata</i>
	<i>Psydrax pendulina</i>
	<i>Spermacoce breviflora</i>
	<i>Spermacoce occidentalis</i>
Rutaceae	<i>Luvunga monophylla</i>
Santalaceae	<i>Exocarpos latifolius</i>
	<i>Santalum lanceolatum</i>
Sapindaceae	<i>Atalaya variifolia</i>
	<i>Distichostemon hispidulus</i> var. <i>phyllopterus</i>
	<i>Dodonaea platyptera</i>
Sapotaceae	<i>Sersalisia sericea</i>
	<i>Mimusops elengi</i>
Scrophulariaceae	<i>Buchnera ramosissima</i>
	<i>Buchnera urticifolia</i>
Solanaceae	<i>Solanum cunninghamii</i>
Sterculiaceae	<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>
	<i>Melhania oblongifolia</i>
	<i>Waltheria indica</i>
Tiliaceae	<i>Corchorus pumilio</i>
	<i>Grewia breviflora</i>
	<i>Triumfetta simulans</i>
Ulmaceae	<i>Celtis australiensis</i>
Verbenaceae	<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>
	* <i>Phyla nodiflora</i>
	<i>Premna acuminata</i>
Violaceae	<i>Hybanthus aurantiacus</i>

APPENDIX D3

Gourdon Bay Flora Species Inventory

Family	Species Name
Aizoaceae	<i>Trianthema pilosa</i>
	<i>Trianthema</i> sp.
	<i>Trianthema triquetra</i>
Amaranthaceae	<i>Alternanthera angustifolia</i>
	<i>Amaranthus</i> sp.
	<i>Hemichroa diandra</i>
	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
	<i>Ptilotus polystachyus</i> var. <i>polystachyus</i>
	<i>Ptilotus</i> sp.
	* <i>Aerva javanica</i>
Apocynaceae	<i>Carissa lanceolata</i>
Asclepiadaceae	<i>Marsdenia angustata</i>
	<i>Marsdenia viridiflora</i>
Asteraceae	<i>Pluchea</i> sp.
	<i>Pluchea tetranthera</i>
	<i>Pterocaulon</i> sp. A Kimberley Flora (B.J. Carter 599)
	<i>Pterocaulon sphacelatum</i>
Avicenniaceae	<i>Avicennia marina</i>
Bignoniaceae	<i>Dolichandrone heterophylla</i>
Bombacaceae	<i>Camptostemon schultzei</i>
Boraginaceae	<i>Ehretia saligna</i>
	<i>Heliotropium</i> sp.
	<i>Heliotropium tenuifolium</i>
	<i>Trichodesma zeylanicum</i>
Caesalpiniaceae	<i>Bauhinia cunninghamii</i>
	<i>Erythrophleum chlorostachys</i>
	<i>Senna costata</i>
	<i>Senna notabilis</i>

Family	Species Name
	<i>Senna oligoclada</i>
Capparaceae	<i>Capparis lasiantha</i>
	<i>Capparis umbonata</i>
	<i>Cleome viscosa</i>
Chenopodiaceae	<i>Atriplex</i> sp.
	<i>Halosarcia halocnemoides</i> subsp. <i>halocnemoides</i>
	<i>Halosarcia halocnemoides</i> subsp. <i>tenuis</i>
	<i>Neobassia astrocarpa</i>
	<i>Salsola tragus</i>
	<i>Suaeda arbusculoides</i>
Chloanthaceae	<i>Newcastelia cladotricha</i>
Combretaceae	<i>Terminalia ferdinandiana</i>
Convolvulaceae	<i>Bonamia</i> sp.
	<i>Evolvulus alsinoides</i>
	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>
	<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i>
	<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>
	<i>Jacquemontia paniculata</i>
	<i>Jacquemontia pannosa</i>
	<i>Polymeria</i> sp.
	<i>Xenostegia tridentata</i>
Cucurbitaceae	<i>Cucumis maderaspatanus</i>
Cyperaceae	<i>Bulbostylis barbata</i>
	<i>Fimbristylis cymosa</i>
Euphorbiaceae	<i>Adriana urticoides</i>
	<i>Euphorbia</i> sp.
	<i>Flueggea virosa</i>
	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>
	<i>Mallotus nesophilus</i>

Family	Species Name
	<i>Microstachys chamaelea</i>
Goodeniaceae	<i>Goodenia scaevolina</i>
	<i>Goodenia</i> sp.
	<i>Scaevola parvifolia</i>
	<i>Scaevola parvifolia</i> subsp. <i>parvifolia</i>
	<i>Scaevola spinescens</i>
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>
Hernandiaceae	<i>Gyrocarpus americanus</i>
	<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i>
Lauraceae	<i>Cassytha capillaris</i>
	<i>Cassytha filiformis</i>
Loranthaceae	<i>Amyema benthamii</i>
	<i>Amyema thalassia</i>
	<i>Lysiana spathulata</i>
Malvaceae	<i>Abutilon otocarpum</i>
	<i>Gossypium australe</i>
	<i>Hibiscus apodus</i>
	<i>Hibiscus</i> sp.
	<i>Sida</i> sp.
Menispermaceae	<i>Tinospora smilacina</i>
Mimosaceae	<i>Acacia adoxa</i> var. <i>subglabra</i>
	<i>Acacia bivenosa</i>
	<i>Acacia colei</i>
	<i>Acacia colei</i> var. <i>colei</i>
	<i>Acacia coriacea</i>
	<i>Acacia eriopoda</i>
	<i>Acacia hilliana</i>
	<i>Acacia monticola</i>
	<i>Acacia monticola</i> x <i>stellaticeps</i>

Family	Species Name
	<i>Acacia platycarpa</i>
	<i>Acacia stellaticeps</i>
	<i>Acacia tumida</i>
Moraceae	<i>Ficus aculeata</i>
Myoporaceae	<i>Myoporum montanum</i>
Myrtaceae	<i>Corymbia flavescens</i>
	<i>Corymbia greeniana</i>
	<i>Corymbia zygophylla</i>
	<i>Melaleuca alsophila</i>
Nyctaginaceae	<i>Boerhavia gardneri</i>
Oleaceae	<i>Jasminum didymum</i> subsp. <i>didymum</i>
	<i>Jasminum didymum</i> subsp. <i>lineare</i>
Papilionaceae	<i>Abrus precatorius</i>
	<i>Aeschynomene indica</i>
	<i>Aphyllodium parvifolium</i>
	<i>Canavalia rosea</i>
	<i>Crotalaria cunninghamii</i>
	<i>Crotalaria medicaginea</i>
	<i>Cullen martinii</i>
	<i>Indigofera colutea</i>
	<i>Indigofera hirsuta</i>
	<i>Indigofera linifolia</i>
	<i>Indigofera monophylla</i>
	<i>Indigofera</i> sp.
	<i>Jacksonia aculeata</i>
	<i>Rhynchosia minima</i>
	<i>Tephrosia remotiflora</i>
	<i>Tephrosia rosea</i>
	<i>Tephrosia rosea</i> var. <i>clementii</i>

Family	Species Name
	<i>Tephrosia rosea</i> var. <i>rosea</i>
	<i>Tephrosia</i> sp.
	* <i>Stylosanthes hamata</i>
Plumbaginaceae	<i>Muellerolimon salicorniaceum</i>
Poaceae	<i>Aristida</i> sp.
	<i>Chrysopogon pallidus</i>
	<i>Chrysopogon</i> sp.
	<i>Enneapogon pallidus</i>
	<i>Enneapogon</i> sp.
	<i>Eragrostis eriopoda</i>
	<i>Eragrostis setifolia</i>
	<i>Eriachne obtusa</i>
	<i>Eriachne semiciliata</i>
	<i>Panicum effusum</i>
	Poaceae sp.
	<i>Setaria apiculata</i>
	<i>Spinifex longifolius</i>
	<i>Sporobolus virginicus</i>
	<i>Triodia bitextura</i>
	<i>Triodia microstachya</i>
	<i>Triodia</i> sp.
	<i>Whiteochloa</i> sp.
	<i>Xerochloa imberbis</i>
	<i>Yakirra australiensis</i>
	* <i>Cenchrus ciliaris</i>
Polygalaceae	<i>Polygala tepperi</i>
Portulacaceae	<i>Portulaca</i> sp.
Proteaceae	<i>Grevillea pyramidalis</i>
	<i>Grevillea refracta</i>

Family	Species Name
	<i>Grevillea wickhamii</i>
	<i>Hakea arborescens</i>
	<i>Hakea macrocarpa</i>
Rhamnaceae	<i>Ventilago viminalis</i>
Rhizophoraceae	<i>Bruguiera exaristata</i>
	<i>Ceriops tagal</i>
	<i>Rhizophora stylosa</i>
Rubiaceae	<i>Gardenia pyriformis</i> subsp. <i>keartlandii</i>
	<i>Spermacoce auriculata</i>
Santalaceae	<i>Santalum lanceolatum</i>
Sapindaceae	<i>Atalaya hemiglauca</i>
	<i>Distichostemon hispidulus</i>
Solanaceae	<i>Solanum dioicum</i>
	<i>Solanum diversiflorum</i>
	<i>Solanum</i> sp.
Sonneratiaceae	<i>Sonneratia alba</i>
Sterculiaceae	<i>Melhania oblongifolia</i>
	<i>Rulingia loxophylla</i>
	<i>Waltheria indica</i>
Tiliaceae	<i>Corchorus pumilio</i>
	<i>Corchorus walcottii</i>
	<i>Grewia breviflora</i>
	<i>Grewia retusifolia</i>
	<i>Triumfetta carteri</i>
Verbenaceae	<i>Clerodendrum tomentosum</i>
	<i>Premna acuminata</i>
Zygophyllaceae	<i>Tribulus occidentalis</i>

APPENDIX D4

Coulomb-Quondong Flora Species Inventory

Family	Species Name
Acanthaceae	<i>Dicliptera armata</i>
	<i>Hypoestes floribunda</i>
Aizoaceae	<i>Trianthema pilosa</i>
Amaranthaceae	<i>Achyranthes aspera</i>
	* <i>Aerva javanica</i>
	<i>Amaranthus pallidifolius</i>
	<i>Gomphrena ?brachystylis</i>
	<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>
	<i>Ptilotus lanatus</i> var. <i>lanatus</i>
	<i>Ptilotus polystachyus</i> var. <i>polystachyus</i>
Apocynaceae	<i>Carissa lanceolata</i>
Asclepiadaceae	<i>Gymnanthera oblonga</i>
	<i>Marsdenia angustata</i>
	<i>Marsdenia viridiflora</i> subsp. <i>tropica</i>
	<i>Sarcostemma viminale</i> subsp. <i>?brunonianum</i>
	<i>Tylophora cinerascens</i>
Asteraceae	* <i>Bidens bipinnata</i>
	<i>Pterocaulon ?sphacelatum</i>
	<i>Pterocaulon sphacelatum</i>
Bignoniaceae	<i>Dolichandrone heterophylla</i>
	<i>Ehretia saligna</i>
	<i>Heliotropium foliatum</i>
	<i>Trichodesma zeylanicum</i>
	<i>Trichodesma zeylanicum</i> var. <i>latisepalum</i>
Byblidaceae	<i>Byblis rorida</i>
Caesalpiniaceae	<i>Bauhinia cunninghamii</i>
	<i>Caesalpinia major</i>
	<i>Erythrophleum chlorostachys</i>

Family	Species Name
	<i>Petalostylis cassioides</i>
	<i>Senna costata</i>
	<i>Senna curvistyla</i>
	<i>Senna notabilis</i>
Capparaceae	<i>Capparis ?umbonata</i>
	<i>Capparis lasiantha</i>
	<i>Cleome viscosa</i>
Caryophyllaceae	<i>Polycarpaea longiflora</i>
Combretaceae	<i>Terminalia ?hadleyana</i>
	<i>Terminalia ferdinandiana</i>
	<i>Terminalia petiolaris</i>
Commelinaceae	<i>Murdannia graminea</i>
Convolvulaceae	<i>Evolvulus alsinoides</i> var. <i>decumbens</i>
	<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>
	<i>Jacquemontia paniculata</i>
	<i>Polymeria ambigua</i>
Cucurbitaceae	* <i>Citrullus lanatus</i>
	<i>Cucumis maderaspatanus</i>
Cyperaceae	<i>Bulbostylis barbata</i>
	<i>Fimbristylis cymosa</i>
	<i>Fimbristylis sericea</i>
Ebenaceae	<i>Diospyros humilis</i>
Euphorbiaceae	<i>Bridelia tomentosa</i>
	<i>Croton habrophyllus</i>
	<i>Euphorbia alsiniflora</i>
	<i>Euphorbia coghlanii</i>
	* <i>Euphorbia tirucalli</i>
	<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>
	<i>Microstachys chamaelea</i>
	<i>Sauropus trachyspermus</i>

Family	Species Name
Goodeniaceae	<i>Velleia panduriformis</i>
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>
	<i>Gyrostemon tepperi</i>
Haloragaceae	<i>Gonocarpus leptothecus</i>
Hernandiaceae	<i>Gyrocarpus americanus</i>
Lauraceae	<i>Cassytha filiformis</i>
Lecythidaceae	<i>Planchonia careya</i>
Loranthaceae	<i>Amyema benthamii</i>
	<i>Lysiana spathulata</i>
Malvaceae	<i>Abutilon ?hannii</i>
	<i>Abutilon indicum</i> var. <i>australiense</i>
	<i>Abutilon otocarpum</i>
	<i>Gossypium australe</i>
	<i>Gossypium rotundifolium</i>
	<i>Herissantia crispa</i>
	<i>Hibiscus geranioides</i>
	<i>Hibiscus leptocladus</i>
	<i>Sida rohlenae</i> subsp. <i>occidentalis</i>
	<i>Sida</i> sp. B Kimberley Flora (A.A. Mitchell 2745)
Menispermaceae	<i>Tinospora smilacina</i>
Mimosaceae	<i>Acacia ?monticola</i> x <i>stigmatophylla</i>
	<i>Acacia adoxa</i> var. <i>adoxo</i>
	<i>Acacia colei</i> var. <i>colei</i>
	<i>Acacia eriopoda</i>
	<i>Acacia hippuroides</i>
	<i>Acacia monticola</i>
	<i>Acacia platycarpa</i>
	<i>Acacia tumida</i> var. <i>tumida</i>
	* <i>Leucaena leucocephala</i>
Moraceae	<i>Ficus aculeata</i> var. <i>indecora</i>

Family	Species Name
Myoporaceae	<i>Myoporum montanum</i>
Myrtaceae	? <i>Corymbia polycarpa</i>
	<i>Calytrix exstipulata</i>
	<i>Corymbia bella</i>
	<i>Corymbia flavescens</i>
	<i>Corymbia greeniana</i>
	<i>Corymbia polycarpa</i>
	<i>Corymbia zygophylla</i>
	<i>Eucalyptus bella</i>
	<i>Eucalyptus miniata</i>
	<i>Melaleuca dealbata</i> subsp. <i>glabrescens</i>
	<i>Myrtella retusa</i>
Nyctaginaceae	<i>Boerhavia</i> sp.
Oleaceae	? <i>Jasminum</i> sp.
	<i>Jasminum didymum</i>
Opiliaceae	<i>Opilia amentacea</i>
Orchidaceae	<i>Cymbidium canaliculatum</i>
Papilionaceae	? <i>Crotalaria medicaginea</i>
	<i>Abrus precatorius</i>
	<i>Cajanus marmoratus</i>
	<i>Canavalia rosea</i>
	<i>Crotalaria crispata</i>
	<i>Crotalaria cunninghamii</i>
	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>
	<i>Cullen martinii</i>
	<i>Desmodium filiforme</i>
	<i>Indigofera colutea</i>
	<i>Indigofera linifolia</i>
	<i>Indigofera linnaei</i>
	<i>Indigofera monophylla</i>

Family	Species Name
	<i>*Macroptilium atropurpureum</i>
	<i>*Stylosanthes hamata</i>
	<i>Tephrosia ?crocea</i>
	<i>Tephrosia crocea</i>
	<i>Tephrosia rosea</i> var. <i>rosea</i>
	<i>Zornia prostrata</i> var. <i>prostrata</i>
Passifloraceae	<i>*Passiflora foetida</i> var. <i>hispida</i>
Pittosporaceae	<i>Pittosporum moluccanum</i>
Poaceae	<i>?Acrachne racemosa</i>
	<i>?Urochloa piligera</i>
	<i>Aristida holathera</i> var. <i>holathera</i>
	<i>Aristida hygrometrica</i>
	<i>*Cenchrus biflorus</i>
	<i>*Cenchrus ciliaris</i>
	<i>Chrysopogon ?pallidus</i>
	<i>Cymbopogon ambiguus</i>
	<i>Cymbopogon procerus</i>
	<i>*Cynodon dactylon</i>
	<i>Digitaria bicornis</i>
	<i>Enneapogon pallidus</i>
	<i>Enteropogon dolichostachyus</i>
	<i>Eragrostis ?exigua</i>
	<i>Eragrostis eriopoda</i>
	<i>Eragrostis setifolia</i>
	<i>Eriachne semiciliata</i>
	<i>Heteropogon contortus</i>
	<i>Panicum decompositum</i>
	<i>Poaceae</i> sp.
	<i>Schizachyrium fragile</i>
	<i>Setaria apiculata</i>

Family	Species Name
	<i>Sorghum</i> sp.
	<i>Spinifex longifolius</i>
	<i>Sporobolus australasicus</i>
	<i>Triodia ?schinzii</i>
	<i>Whiteochloa airoides</i>
	<i>Yakirra australiensis</i> var. <i>australiensis</i>
	<i>Yakirra australiensis</i> var. <i>intermedia</i>
Portulacaceae	<i>Calandrinia strophilata</i>
Proteaceae	<i>Grevillea pyramidalis</i>
	<i>Grevillea refracta</i> subsp. <i>refracta</i>
	<i>Hakea arborescens</i>
	<i>Hakea macrocarpa</i>
	<i>Persoonia falcata</i>
Rhamnaceae	<i>Ventilago viminalis</i>
Rubiaceae	? <i>Psydrax attenuata</i>
	<i>Gardenia pyriformis</i> subsp. <i>keartlandii</i>
	<i>Oldenlandia kochiae</i>
	<i>Pavetta kimberleyana</i>
	<i>Spermacoce breviflora</i>
	<i>Synaptantha scleranthoides</i>
Rutaceae	<i>Glycosmis trifoliata</i>
Santalaceae	<i>Exocarpos latifolius</i>
	<i>Santalum lanceolatum</i>
Sapindaceae	<i>Distichostemon hispidulus</i> var. <i>aridus</i>
Sapotaceae	<i>Mimusops elengi</i>
	<i>Sersalisia sericea</i>
Scrophulariaceae	<i>Buchnera urticifolia</i>
Solanaceae	<i>Solanum cunninghamii</i>
Sterculiaceae	<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>
	<i>Melhanianthus oblongifolia</i>

Family	Species Name
	<i>Waltheria indica</i>
Tiliaceae	<i>Corchorus pumilio</i>
	<i>Grewia breviflora</i>
	<i>Grewia retusifolia</i>
	<i>Triumfetta ?simulans</i>
	<i>Triumfetta breviaculeata</i>
	* <i>Triumfetta pentandra</i>
Ulmaceae	<i>Celtis philippensis</i>
Verbenaceae	<i>Clerodendrum floribundum</i> var. <i>ovatum</i>
	<i>Clerodendrum tomentosum</i>
	<i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i>
	<i>Premna acuminata</i>
	<i>Vitex glabrata</i>
Violaceae	<i>Hybanthus aurantiacus</i>
Zygophyllaceae	<i>Tribulopsis angustifolia</i>

APPENDIX E

FLORA SPECIES MATRIX

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

ENW (2008b)	Vegetation Community	Type	†	PH01	PH02	PH03	PH04	PH05	PH06	PH07	PH08	PH09	PH10	PH11	PH12	PH13	PH14	PH15	PH16	PH17	PH18	PH19	PH20	PH21	PH22	PH23	PH24	CH	EW	EW	EW	EW	PH29	PH30	PH31	PH32	PH33	PH34	PH35	PH36	PH37	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW</
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* MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket



Species Matrix

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pinland Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pinland Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

ENV (2008b)	Vegetation Community	Type	†	PW	PW	PH42	PH43	PH44	PH45	PH46	PH47	PH48	PH49	PH50
<i>Abrus precatorius</i>														
<i>Abutilon indicum</i> var. <i>australiense</i>										1%				
<i>Abutilon otocarpum</i>											2%			
<i>Acacia colei</i> var. <i>colei</i>	1%									1%	4%			2%
<i>Acacia hippuroides</i>												3%	+	1%
<i>Acacia monticola</i>														
<i>Acacia monticola</i> x <i>lumida</i>														
<i>Acacia neurocarpa</i>										3%				
<i>Acacia tumida</i>	25%	10%	10%	10%						16%	3%	1%	15%	
<i>Achyranthes aspera</i>														
<i>Aegialitis amulata</i>														
<i>Aerva javanica</i>														
<i>Amaranthus undulatus</i>														
<i>Amyntha benhamii</i>										+				
<i>Aristida holathera</i> var. <i>holathera</i>	20%	5%									5%			45%
<i>Aristida hygrometrica</i>					65%									
<i>Atalaya variifolia</i>					2%									
<i>Avicennia marina</i>														
<i>Bauhinia cunninghamii</i>	1%				1%	1%	1%	2%						1%
<i>Bonania linearis</i>														
<i>Brachychiton diversifolius</i>					1%							2%		2%
<i>Breynia cernua</i>													1%	+
<i>Buchneria urticifolia</i>					+									+
<i>Bulbostylis barbata</i>											1%			
<i>Cajanus mammosus</i>														
<i>Calandrinia quadrivalvis</i>					+	1%						nc		+
<i>Calyx exstipulata</i>														
<i>Camptostemon schultzei</i>														
<i>Canarium australicum</i>														
<i>Canavalia rosea</i>														
<i>Caparris jacobsii</i>														
<i>Caparris lasiantha</i>										+				
<i>Carissa lanceolata</i>														
<i>Cassipoua capillaris</i>	5%													
<i>Cassipoua filiformis</i>														
<i>Cenchrus ciliaris</i>										4%				
<i>Ceripias tagal</i>														
<i>Chamaecrista moorei</i>												+		
<i>Chamaecrista symonii</i>														
<i>Chrysopogon pallidus</i>				5%					40%					
<i>Gleome cleomoides</i>				+										
<i>Gleome viscosa</i>														
<i>Glerodendrium floribundum</i>					1%	3%								
<i>Glerodendrium floribundum</i> var. <i>coriaceum</i>														+
<i>Glerodendrium tomentosum</i>										+				
<i>Glerodendrium tomentosum</i> var. <i>tomentosum</i>														
<i>Gonocarpus cotinifolius</i>				1%										
<i>Gorcholus pumilio</i>	2%	1%	+									3%	1%	
<i>Gorcholus</i> sp.														
<i>Corymbia bella</i>	+													
<i>Corymbia flavescent</i>														
<i>Corymbia greeniana</i>	3%				5%						2%	3%	5%	
<i>Corymbia polycarpa</i>				10%								3%		
<i>Crotalaria brevis</i>				3%									+	
<i>Crotalaria crispata</i>														
<i>Crotalaria cunninghamii</i>				1%	+							4%	2%	3%
<i>Crotalaria medicaginea</i>										3%	+			
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>													+	
<i>Croton habrophyllus</i>														
<i>Cucumis maderaspatanus</i>	+			+	+									+
<i>Cymbopogon ambiguus</i>														
<i>Cymbopogon bombicinus</i>														
<i>Cymbopogon procereus</i>														
<i>Cynanchum carnosum</i>												1%		
<i>Cynanchum pedunculatum</i>												3%	12%	

† MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1

Perpendicular Head-North Head

Species Matrix

NAME		PW	PW	PW	PW	PW	PW	PW	PW
ENV (2008b)	Vegetation Community Type *								
Cyperus conicus									
Cyperus javanicus									
Cyperus viscidulus							13%		
Desmodium illirorne									
Dicliptera armata		3%	1%						
Diospyros maritima									
Distichostemon hispidulus			+		11%			3%	2%
Dodonaea platyphora									6%
Dorichandrone heterophylla		10%			4%			2%	1%
Ehretia saligna									
Erasmia ciliata									
Eriacine obtusa		60%							
Eriacine semiciliata									2%
Erythrophileum chlorostachys									
Eucalyptus miniata								30%	10%
Eucalyptus tectifica		5%					5%		
Euphorbia ransiflora									
Euphorbia comans									
Euphorbia schultzei									
Evolvulus alsinoides									
Evolvulus alsinoides var. decumbens		1%							
Evolvulus alsinoides var. villosicalyx									
Excoecaria ovalis									
Excocarpus latifolius									
Ficus aculeata									
Fimbristylis cymosa									
Fimbristylis depauperata									
Fimbristylis sericea									
?Fimbristylis sp.									
Flueggea virosa		2%							
Galactia tenuifolia									
Gardenia pruriiformis subsp. kearlandii									
Glycine plicidanka									
Glycine tonietella									
Gomphrena canescens									
Gomphrena canescens subsp. canescens		1%	+					+	
Gonocarpus leptothecus									
Goodenia sepalosa									
Gossypium australe									
Gossypium rotundifolium		+							
Grevillea pyramidalis									
Grevillea pyramidalis subsp. pyramidalis		2%							
Grevillea refracta									
Gynnanthera oblonga									
Gyrostemon tepperi									
Hakea arborescens									
Hakea macrocarpa		1%							
Halosarcia indica									
Halosarcia indica subsp. ? julacea									
Heliotropium foliatum									
Heliotropium ovalifolium									
Heliotropium tenuifolium									
Hemichroa diandra									
Heteropogon contortus									
Hibiscus apodus									
Hibiscus leptocladius									
Hybanthus aurantiacus									
Indigofera colutea									
Indigofera hirsuta									
Indigofera linifolia									
Indigofera monophylla		+							
Indigofera trita									

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pinland Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

ENV (2008b)	NAME	PH42	PH43	PH44	PH45	PH46	PH47	PH48	PH49	PH50
Vegetation Community	Type †	PW	PW	PW	PW	EW	PW	PW	PW	PW
<i>Ipomoea coccinea</i>										
<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>										
<i>Jacquemonitia paniculata</i>					1%					
<i>Jacquemonitia pannosa</i>										
<i>Jacquemonitia</i> sp.		10%		+				2%		
<i>Jasminum didymum</i>										
<i>Jasminum didymum</i> subsp. <i>didymum</i>										
<i>Jasminum didymum</i> subsp. <i>lineare</i>										
<i>Leptochloa fusca</i> subsp. <i>fusca</i>										
<i>Lithomyrtus retusa</i>										
<i>Lophostemon grandiflorus</i>										
<i>Lysiana spathulata</i>										
<i>Marsdenia angustata</i>								1%		
<i>Marsdenia viridiflora</i>										
<i>Meibomia discophylla</i>						30%	50%			
<i>Meibomia viridiflora</i>										
<i>Meibomia oblongifolia</i>						1%				
<i>Microstachys chamaelea</i>		+					+			
<i>Mycoporum montanum</i>										
<i>Neobassia astrocarpa</i>							2%			
<i>Ocotea kochiae</i>		1%								
<i>Opilia americana</i>										
<i>Osbornia octodonta</i>										
<i>Pandanus spiralis</i>										
<i>Panicum decompositum</i>							2%			
<i>Paspalum scrobiculatum</i>										
<i>Passiflora foetida</i>		+			3%	1%				
<i>Persoonia falcata</i>										
<i>Phyllanthus nodiflorus</i>										

† MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

ENV (2008b)	NAME	PH42	PH43	PH44	PH45	PH46	PH47	PH48	PH49	PH50
Vegetation Community Type †		PW	PW	PW	PW	EW	PW	PW	PW	PW
<i>Phyllanthus exilis</i>										
<i>Phyllanthus maderaspatensis</i>										
<i>Planchonia careya</i>					1%					
<i>Polycarphaa corymbosa</i>				4%	+					
<i>Polycarphaa longiflora</i>										
<i>Polygala tepperi</i>										
<i>Polymnia ambigua</i>								+		
<i>Portulaca bicolor</i>										
<i>Portulaca filifolia</i>										+
<i>Premna acuminata</i>		1%		1%	+				1%	+
<i>Pterocaulon sphacelatum</i>			+			+		1%		
<i>Piliotus corymbosus</i>			1%							
<i>Piliotus exaltatus</i>										
<i>Piliotus lanatus</i>										
<i>Piliotus lanatus</i> var. <i>lanatus</i>										
<i>Piliotus polystachyus</i> var. <i>polystachyus</i>							+			
<i>Salsola tragus</i>										
<i>Santalum lanceolatum</i>	+		1%			2%			+	+
<i>Sauropus trachyspermus</i>										
<i>Scaevola taccada</i>										
<i>Schizachyrium fragile</i>			3%							
<i>Sciera aff. brownii</i>										
<i>Senna costata</i>		1%								
<i>Senna surattensis</i> subsp. <i>sulturea</i>										
<i>Senna timoriensis</i>										
<i>Sesbania cannabina</i>						+	+			
<i>Sesuvium portulacastrum</i>										
<i>Setaria apiculata</i>		2%	4%	5%						
<i>Sida cordifolia</i>										
<i>Solanum cunninghamii</i>	1%	1%	1%						1%	
<i>Sorghum ecarinatum</i>				45%						
<i>Sorghum stipodeum</i>										
<i>Spermatocoe breviflora</i>										
<i>Spermatocoe occidentalis</i>								2%		
<i>Spinifex longifolius</i>										
<i>Sporobolus virginicus</i>							4%			
<i>Stylosanthes hamata</i>					1%	+				

† MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E1
Perpendicular Head-North Head
Species Matrix

ENV (2008b)	NAME	PH42	PH43	PH44	PH44	PH45	PH46	PH47	PH48	PH49	PH50
Vegetation Community	Type †	PW	PW	PW	PW	EW	PW	PW	PW	PW	PW
<i>Synaplantha scleranthoides</i>											
<i>Tephrosia leptoclada</i>											
<i>Tephrosia remolliflora</i>											
<i>Tephrosia rosea</i>											
<i>Tephrosia rosea</i> var. <i>rosea</i>											
<i>Tephrosia simplicifolia</i>											
<i>Tephrosia</i> sp.											
<i>Terminalia ?canescens</i>											
<i>Terminalia canescens</i>											
<i>Terminalia ferdinandiana</i>											
<i>Terminalia petiolaris</i>											
<i>Thiospora smilacina</i>											
<i>Trachymene</i> aff. <i>didiscoides</i>											
<i>Trachymene didiscoides</i>											
<i>Trianthema pilosa</i>											
<i>Tribulopsis angustifolia</i>											
<i>Tribulus terrestris</i>											
<i>Trichodesma zeylanicum</i> var. <i>latisepalum</i>											
<i>Triodia bixetura</i>											
<i>Triodia schinzii</i>											
<i>Triumfetta brevicaulea</i>											
<i>Tyophora cerascens</i>											
<i>Typha domingensis</i>											
<i>Velleia panduriformis</i>											
<i>Ventilago viminalis</i>											
<i>Vigna lanceolata</i> var. <i>filiformis</i>											
<i>Waltheria indica</i>											
<i>Whiteocheia airoides</i>											
<i>Wrightia saligna</i>											
<i>Xenostegia tridentata</i>											
<i>Xerochloa imberbis</i>											
<i>Yakira pauciflora</i>											
<i>Zornia chaelephora</i>											
<i>Zornia prostrata</i>											

† MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX E2
Packer Island
Species Matrix

NAME	ENV (2008b) Vegetation Community Type ¹																							
	MF	MF	VT	MT	VT	CC	PW	CC	M	MT	EW	MF	CC	CC	CC	M	MT	PW	MF	EW	PW	PW	PW	PW
<i>Abrus precatorius</i>	+		1%																					
<i>Abutilon olocarpum</i>	+						+													5%			+	
<i>Acacia colei</i> var. <i>colei</i>							15%								2%									
<i>Acacia hippuroides</i>																								
<i>Acacia tumida</i> var. <i>tumida</i>				60%			10%			50%			70%	+				80%				3%	40%	30%
<i>Achyranthes aspera</i>	+	+																						
<i>Adenia heterophylla</i> subsp. <i>australis</i>																								
<i>Aegialitis annulata</i>																								
<i>Amaranthus undulatus</i>													+				+							
<i>Aristida holathera</i> var. <i>holathera</i>																								
<i>Aristida hygrometrica</i>							5%											5%		2%				40%
<i>Aristida inaequalis</i>																								1%
<i>Asparagus racemosus</i>																								
<i>Atalaya vanillola</i>							+																	
<i>Avicennia marina</i> subsp. <i>marina</i>	+							20%		2%					2%									
<i>Bauhinia cunninghamii</i>							5%											1%				5%	2%	1%
<i>Boerhaavia gardneri</i>																								
<i>Bonania linearis</i>																		+						+
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>							+											+						+
<i>Breytia cuneata</i>																								
<i>Bredia tomentosa</i>				1%																				
<i>Buchnera ramosissima</i>							+																	
<i>Buchnera urticifolia</i>																								
<i>Bulbostylis barbata</i>																								
<i>Caesalpinia major</i>				+																				
<i>Caesalus nomenclatus</i>																								
<i>Calandrinia quadrivalvis</i>																								
<i>Calandrinia strophiloides</i>																								
<i>Campocostemon schultzei</i>																								
<i>Canarium australianum</i> var. <i>velutinum</i>																								
<i>Canavalia rosea</i>																								
<i>Capparis lasiantha</i>																								
<i>Capparis septaria</i>																								
<i>Cassipouia filiformis</i>																								
<i>Celtis australiensis</i>				7%																				
<i>Cenchrus ciliaris</i>																								
<i>Chrysopogon pallidus</i>																								
<i>Citrus lanatus</i>				+																				
<i>Cleome tetrandra</i>				+						+														
<i>Cleome viscosa</i>																								
<i>Clerodendrum floribundum</i> var. <i>coriaceum</i>	+																							
<i>Corchorus pumilio</i>							15%											2%				1%	+	1%
<i>Corymbia bella</i>																								
<i>Corymbia flavescent</i>																								
<i>Corymbia greeniana</i>							10%																	
<i>Corymbia polycarpa</i>							+																	
<i>Crotalaria brevis</i>																								
<i>Crotalaria crispata</i>																								
<i>Crotalaria cuneiformis</i>																								
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>																								
<i>Croton habrophyllus</i>																								
<i>Cucumis maderaspatanus</i>																								
<i>Cymbidium canaliculatum</i>																								
<i>Cymbopogon ambiguus</i>																								+

¹ MF= Supra Tida Mudflat, VT=Vine Thicket, CC=Coastal Communities, N=Mangroves, EW=Ephemeral Waterways, PW=Pindan Woodland, MT=Mixed Shrubland Thicket

APPENDIX E2
Packer Island
Species Matrix

[†] MF= Supra Tida Mudflat, VT=Vine Thicket, CC=Coastal Communities, M=Mangroves, EW=Ephemeral Waterways, PW=Pinland Woodland, MT=Mixed Shrubland Thicket

APPENDIX E2

Packer Island

Species Matrix

† MF= Supra Tida Mudflat, VT=Vine Thicket, CC=Coastal Communities, M=Mangroves, EW=Ephemeral Waterways, PW=Pindan Woodland, MT=Mixed Shrubland Thicket

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX E2
Packer Island
Species Matrix

NAME	PC01	PC02	PC03	PC04	PC05	PC06	PC07	PC08	PC09	PC10	PC11	PC12	PC13	PC14	PC15	PC16	PC17	PC18	PC19	PC20	PC21	PC22	PC23	PC24	PC25
ENV (2008b) Vegetation Community Type ¹	MF	MF	VT	MT	VT	CC	PW	CC	M	MT	EW	MF	CC	CC	CC	M	MT	PW	MF	EW	PW	PW	PW	PW	PW
<i>Santalum lanceolatum</i>		3%		10%			+			+				1%			1%	10%				+	1%	1%	
<i>Sauropus trachyspermus</i>																									
<i>Scaevola taccada</i>							2%					2%						1%					5%	+	10%
<i>Schizachyrium fragile</i>																									
<i>Scleria aff. brownii</i>																									
<i>Senna costata</i>																									
<i>Sesuvium portulacastrum</i>		+				2%						1%	+						+						
<i>Setaria apiculata</i>		+					3%						2%							+		1%	5%	1%	1%
<i>Sida rohlenae</i> subsp. <i>occidentalis</i>							+																		
<i>Solanum cunninghamii</i>							+											+						+	+
<i>Sorghum ecarinatum</i>																									
<i>Sorghum stipoides</i>																									
<i>Spermacoce breviflora</i>							+	2%						+									+	5%	2%
<i>Spermacoce occidentalis</i>																									
<i>Spinifex longifolius</i>				10%		7%		7%		60%			65%		60%										
<i>Sporobolus virginicus</i>	2%					+			+								1%	80%	60%						
<i>Suaeda arbusculoides</i>							+																		
<i>Tephrosia remotiflora</i>										2%															
<i>Tephrosia rosea</i> var. <i>rosea</i>	+	+	7%																						
<i>Tephrosia</i> sp.															+										
<i>Terminalia canescens</i>																									
<i>Terminalia ferdinandiana</i>																									
<i>Terminalia hadleyana</i>	+																								
<i>Terminalia perideris</i>	+	5%			+																				
<i>Themeda</i> sp.																									
<i>Thespesia populneoides</i>																									
<i>Tinospora smilacina</i>				2%	+				+				2%	+						+					
<i>Trianthema pilosa</i>																									
<i>Triodia schinzii</i>																									
<i>Triumfetta simulans</i>													10%		3%										
<i>Tylophora cinerascens</i>				1%	+					+															
<i>Veltheia panduriformis</i>																									
<i>Waltheria indica</i>							+																		
<i>Wrightia saligna</i>	+				+																				
<i>Xerochloa imberbis</i>						+																			
<i>Yakira australiensis</i> var. <i>intermedia</i>	+																								
<i>Yakira pauciflora</i>																									

¹ MF= Supra Tida Mudflat, VT=Vine Thicket, CC=Coastal Communities, M=Mangroves, EW=Ephemeral Waterways, PW=Pindan Woodland, MT=Mixed Shrubland Thicket

PERPENDICULAR HEAD–NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX E2

Packer Island
Species Matrix

NAME	PC26	PC27	PC28	PC29	PC30	PC31	PC32	PC33	PC34	PC35	PC36	PC37	PC38	PC39	PC40	PC41	PC42	PC43	PC44	PC45	PC46	PC47	PC48	PC49	PC50
ENV (2008b) Vegetation Community Type ¹	PW	PW	PW	PW	PW	PW	PW	PW	CC	MT	M	VT	VT	EW	MF	MF	M	EW	PW	PW	PW	MF	MT	EW	VT
<i>Abrus precatorius</i>												2%	2%												+
<i>Abutilon obovatum</i>												+													
<i>Acacia colei</i> var. <i>colei</i>	+		1%					5%											+		1%				+
<i>Acacia hippuroides</i>							20%																		
<i>Acacia tumida</i> var. <i>tumida</i>	15%	20%	25%	2%		1%	2%	10%		40%		1%	+						7%	1%	1%			85%	1%
<i>Adiantum aspera</i>																									
<i>Adiantum heterophyllum</i> subsp. <i>australis</i>																									
<i>Aegagropilus annulatus</i>											+												2%		
<i>Amaranthus undulatus</i>																									
<i>Aristida holathera</i> var. <i>holathera</i>																									
<i>Aristida hygrometrica</i>	40%					1%	5%	30%	7%										10%	20%	30%			+	
<i>Aristida inaequalis</i>																									
<i>Asparagus racemosus</i>	+		3%																						
<i>Atalapha variifolia</i>																									
<i>Avicennia marina</i> subsp. <i>marina</i>						1%	+		1%										1%	+	+				+
<i>Baobab cunninghamii</i>	1%	5%				1%		5%			35%						5%		3%	+	1%		5%		7%
<i>Boerhaavia gardenii</i>												4%													
<i>Bonania linearis</i>	+	+	+			+	+													+	+				+
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>	+	1%	1%	1%	1%	+	+	1%											1%						
<i>Breynia cernua</i>						+	+																		
<i>Bridelia tomentosa</i>												+													
<i>Buchnera ramosissima</i>						+																			
<i>Buchnera urticifolia</i>	+	1%				1%				+									+	+	+				
<i>Bubostylis barbata</i>												2%													
<i>Caesalpinia major</i>																									
<i>Calanthe marmoratus</i>																									
<i>Calandrinia quadrivalvis</i>																									
<i>Calandrinia strophilata</i>						+	+	+	+										+	+	+			+	
<i>Campoclonium schultzei</i>																									
<i>Canarium australianum</i> var. <i>veidii</i>												+													
<i>Canavalia rosea</i>											+														
<i>Capparis lasiantha</i>												1%													
<i>Capparis septaria</i>																									+
<i>Cassipouita filiformis</i>		+																							
<i>Celtis australis</i>												1%	1%												
<i>Cenchrus ciliaris</i>	1%																								
<i>Chrysogonon pallidus</i>	60%					30%	20%	1%	80%			3%								3%	5%				
<i>Citrus lanatus</i>																									
<i>Cleome tetrandra</i>						+				+										+					
<i>Cleome viscosa</i>										+															
<i>Clodendrum floribundum</i> var. <i>coriaceum</i>	+	+				1%		+	+																
<i>Corchorus pumilo</i>	2%		1%			1%	+	2%											+	+	+				
<i>Corymbia bella</i>																			3%						
<i>Corymbia flavescent</i>						20%	7%	5%	2%	1%									3%	5%	2%				
<i>Corymbia greeniana</i>	2%																								
<i>Corymbia polycarpa</i>	2%					2%	5%	1%	1%											+	2%				
<i>Crotalaria brevis</i>	+					1%		30%	3%	1%															
<i>Crotalaria crispata</i>																									
<i>Crotalaria cuneata</i>																									
<i>Crotalaria cunninghamii</i>										5-10%														+	
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>																									
<i>Croton habrophyllus</i>																									
<i>Cucumis maderaspatanus</i>																									
<i>Cymbidium canaliculatum</i>																									
<i>Cymbopogon ambiguus</i>	1%																								1%

¹ MF= Supra Tida Mudflat, VT=Vine Thicket, CC=Coastal Communities, N=Mangroves, EW=Ephemeral Waterways, PW=Pindan Woodland, MT=Mixed Shrubland Thicket

† MF= Supra Tida Mudflat, VT=Vine Thicket, CC=Coastal Communities, M=Mangroves, EW=Ephemeral Waterways, PW=Pindan Woodland, MT=Mixed Shrubland Thicket

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX E2
Packer Island
Species Matrix

	NAME																								
	ENV (2008b) Vegetation Community Type ¹																								
	PC28	PC27	PC28	PC29	PC30	PC31	PC32	PC33	PC34	PC35	PC36	PC37	PC38	PC39	PC40	PC41	PC42	PC43	PC44	PC45	PC46	PC47	PC48	PC49	PC50
	PW	PW	PW	PW	PW	PW	PW	PW	PW	CC	MT	M	VT	VT	EW	MF	M	EW	PW	PW	PW	MF	MT	EW	VT
<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i>																									
<i>Gyrostemon tepperi</i>														+											
<i>Hakea arborescens</i>																									
<i>Hakea macrocarpa</i>																									
<i>Halosarcia halconemoides</i> subsp. <i>halconemoides</i>																									
<i>Halosarcia halconemoides</i> subsp. <i>tenuis</i>																									
<i>Halosarcia indica</i> subsp. <i>leiotachya</i>																									
<i>Heliotropium tenuifolium</i>																									
<i>Hemichroa diandra</i>																									
<i>Heteropogon contortus</i>																									
<i>Hybanthus aurantiacus</i>																									
<i>Indigofera colutea</i>																									
<i>Indigofera linifolia</i>																									
<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>																									
<i>Jacquemontia paniculata</i>																									
<i>Jacquemontia</i> sp.																									
<i>Lumnitzera racemosa</i>																									
<i>Luvunga monophylla</i>																									
<i>Lysiana spathulata</i>																									
<i>Marsdenia angustata</i>																									
<i>Marsdenia geminata</i>																									
<i>Marsdenia viridiflora</i> subsp. <i>tropica</i>																									
<i>Maytenus cunninghamii</i>																									
<i>Meibomia alsophila</i>																									
<i>Meibomia argentea</i>																									
<i>Melaleuca oblongifolia</i>																									
<i>Mimosa elengi</i>																									
<i>Murdannia graminea</i>																									
<i>Neobassia astrocarpa</i>																									
<i>Nymphoides indica</i>																									
<i>Osbornia octodonta</i>																									
<i>Pandanus spiralis</i>																									
<i>Passiflora foetida</i>																									
<i>Phyllanthus nodiflora</i>																									
<i>Phyllanthus exilis</i>																									
<i>Planchonia careya</i>																									
<i>Pluchea rubelliflora</i>																									
<i>Plumbago zeylanica</i>																									
<i>Polycarpea longiflora</i>																									
<i>Polypodium tepperi</i>																									
<i>Polypodium ambigua</i>																									
<i>Portulaca litorea</i>																									
<i>Portulaca napolensis</i>																									
<i>Portulaca napiformis</i>																									
<i>Premna acuminata</i>																									
<i>Psychotria attenuata</i>																									
<i>Psychotria pendulifolia</i>																									
<i>Pterocaulon ? sphacelatum</i>																									
<i>Pterocaulon</i> sp. A Kimberley Flora (B.J. Carter 599)																									
<i>Pterocaulon sphacelatum</i>																									

¹ MF= Supra Tide Mudflat, VT=Vine Thicket, CC=Coastal Communities, N= Mangroves, EW=Ephemeral Waterways, PW=Pindan Woodland, MT=Mixed Shrubland Thicket



PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX E2
Packer Island
Species Matrix

NAME	ENV (2008b) Vegetation Community Type ⁱ																								
	PC26	PC27	PC28	PC29	PC30	PC31	PC32	PC33	PC34	PC35	PC36	PC37	PC38	PC39	PC40	PC41	PC42	PC43	PC44	PC45	PC46	PC47	PC48	PC49	PC50
	PW	PW	PW	PW	PW	PW	PW	PW	CC	MT	M	VT	VT	EW	MF	MF	M	EW	PW	PW	PW	MF	MT	EW	VT
<i>Santalum lanceolatum</i>	+			1%	+															+					1%
<i>Sauropus trachyspermus</i>																									
<i>Scaevola taccada</i>																									
<i>Schizachyrium fragile</i>		5%	2%		1%	3%		+											3%					+	
<i>Scleria aff. brownii</i>			2%																						
<i>Senna costata</i>	+																								
<i>Sesuvium portulacastrum</i>																									
<i>Setaria apiculata</i>	1%	+	+								+														
<i>Sida rohlenae</i> subsp. <i>occidentalis</i>		+	+																					+	
<i>Solanum cunninghamii</i>	+	+	+	+	+	+	+	+												+	+			1%	
<i>Sorghum ecarinatum</i>																									
<i>Sorghum stipoides</i>									20%																
<i>Spermatocoe breviflora</i>	3%	5%	2%	2%	2%	3%	1%												1%	1%	2%				
<i>Spermatocoe occidentalis</i>	+				+																+				
<i>Spinifex longifolius</i>									30%	15%															
<i>Sporobolus virginicus</i>	+										+			1%	+										1%
<i>Suaeda arbusculoides</i>																									
<i>Tephrosia remotiflora</i>		+							+				+						+						
<i>Tephrosia rosea</i> var. <i>rosea</i>																									
<i>Tephrosia</i> sp.																									
<i>Terminalia canescens</i>																									
<i>Terminalia ferdinandiana</i>		1%																	3%	1%					
<i>Terminalia hadleyana</i>																									
<i>Terminalia periderans</i>																									
<i>Themeda</i> sp.													+												
<i>Thespesia populneoides</i>																									
<i>Tinospora smilacina</i>	+	+			+				+			+	+	+										+	
<i>Trianthema pilosa</i>																									
<i>Triodia schinzii</i>							3%													+					
<i>Triumfetta simulans</i>																									
<i>Tylophora cinerascens</i>													+												
<i>Veltheia panduriformis</i>																									
<i>Waltheria indica</i>																									
<i>Wrightia saligna</i>	+	+	+	+	+		+	+					+							+	+			+	+
<i>Xerochloa imberbis</i>																									
<i>Xerochloa imberbis</i>				5%			2%						+					20%							
<i>Yakiria australiensis</i> var. <i>intermedia</i>					1%																				
<i>Yakiria pauciflora</i>						2%	2%														+				

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APPENDIX E3
Gourdon Bay
Species Matrix

ENV (2008b)	NAME	GB01	GB02	GB03	GB04	GB05	GB06	GB07	GB08	GB09	GB10	GB11	GB12	GB13	GB14	GB15	GB16	GB17	GB18	GB19
	Vegetation Community Type †	CT	CT	CC	CC	CT	CT	CT	CT	CT	CC	MF	MF	PS	MF	MF	MF	MF	PS	M
<i>Abrus precatorius</i>																				
<i>Abutilon obovatum</i>			+							+										
<i>Acacia adoxa</i> var. <i>subglabra</i>							1%													
<i>Acacia bivenosa</i>																				
<i>Acacia coleii</i>																				
<i>Acacia coleii</i> var. <i>coleii</i>																				
<i>Acacia coriacea</i>																				
<i>Acacia eriopoda</i>																				
<i>Acacia hilliana</i>																				
<i>Acacia monticola</i>																				
<i>Acacia monticola</i> x <i>stellaticeps</i>																				
<i>Acacia platycarpa</i>																				
<i>Acacia stellaticeps</i>																				
<i>Acacia tumida</i>																				
<i>Adriana urticoides</i>																				
<i>Aerva javanica</i>																				
<i>Aeschynomene indica</i>																				
<i>Alsemanthera angustifolia</i>																				
<i>Anacardium</i> sp.																				
<i>Anyema benthamii</i>																				
<i>Anyema thelassia</i>																				
<i>Apodyctium parvifolium</i>																				
<i>Ascidia</i> sp.																				
<i>Asialaya henriclausa</i>																				
<i>Atropis</i> sp.																				
<i>Avicennia marina</i>																				
<i>Bauhinia cunninghamii</i>																				
<i>Boerhaavia gardneri</i>																				
<i>Boronia</i> sp.																				
<i>Bruguiera exaristata</i>																				
<i>Bulbostylis barbata</i>																				
<i>Campostemon schultzei</i>																				
<i>Canavalia rosea</i>																				
<i>Capparis lasiantha</i>																				
<i>Capparis umbonata</i>																				
<i>Carissa lanceolata</i>																				
<i>Cassipoua capillaris</i>																				
<i>Cassipoua filiformis</i>																				
<i>Cenchrus ciliaris</i>																				
<i>Cenchrus tagal</i>																				
<i>Chrysopogon pallidus</i>																				
<i>Chrysopogon</i> sp.																				
<i>Cleome viscosa</i>																				
<i>Clerodendrum tomentosum</i>																				
<i>Codonocarpus cotinifolius</i>																				
<i>Corchorus pumilio</i>																				
<i>Corchorus walcottii</i>																				
<i>Corymbia flavescent</i>																				
<i>Corymbia greeniana</i>																				
<i>Corymbia zygophylla</i>																				
<i>Crotalaria cunninghamii</i>																				
<i>Crotalaria medicaginea</i>																				
<i>Cucumis melo</i>																				
<i>Cullen maritimum</i>																				
<i>Distichlis spicata</i>																				
<i>Dolichandrone heterophylla</i>																				
<i>Enneapogon saligna</i>																				
<i>Enneapogon pallidus</i>																				
<i>Enneapogon</i> sp.																				
<i>Eragrostis eriopoda</i>																				

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APPENDIX E3
Gourdon Bay
Species Matrix

ENV (2008b)	NAME	GE01	GB02	GB03	GB04	GB05	GB06	GB07	GB08	GB09	GB10	GB11	GB12	GB13	GB14	GB15	GB16	GB17	GB18	GB19
	Vegetation Community Type †	CT	CT	CC	CC	CT	CT	CT	CT	CT	CC	MF	MF	PS	MF	MF	MF	PS	MF	M
<i>Engrossia selifolia</i>												6%								
<i>Eriachne obtusa</i>																				
<i>Eriachne semiciliata</i>																				
<i>Erythrophloeum chlorostachys</i>											1%									
<i>Euphorbia</i> sp.		5%		1%	2%														+	
<i>Excoecaria aspidodes</i>																				
<i>Excoecaria alsinoides</i> var. <i>decumbens</i>						10%			+											
<i>Excoecaria alsinoides</i> var. <i>villosicalyx</i>																				
<i>Ficus aculeata</i>		2%								+										
<i>Fimbristylis cynosu</i>																				
<i>Flueggea virosa</i>																				
<i>Flueggea virosa</i> subsp. <i>melanthesoides</i>				+		+		+											+	
<i>Gardenia pyriformis</i> subsp. <i>keatlandii</i>																				
<i>Goodenia scaevola</i>																				
<i>Goodenia</i> sp.																				
<i>Gossypium australe</i>						+	+												nc	
<i>Grevillea pyramidalis</i>																				
<i>Grevillea refracta</i>																				
<i>Grevillea wickhamii</i>		30%																	+	
<i>Grewia breviflora</i>										+										
<i>Grewia retusifolia</i>						+	+													
<i>Gyrocarpus americanus</i>		1%									1%									
<i>Gyrocarpus americanus</i> subsp. <i>pachyphyllus</i>																				
<i>Hakea anacardens</i>						1%	+								2%					
<i>Hakea microcarpa</i>		+				+	+		1%	+									+	
<i>Halosarcia halconemoides</i> subsp. <i>halconemoides</i>																				
<i>Halosarcia halconemoides</i> subsp. <i>tenius</i>																1%				
<i>Heliotropium</i> sp.						5%														
<i>Heliotropium tenuifolium</i>																				
<i>Hemichroa diandra</i>												+								
<i>Hibiscus apodus</i>																				
<i>Hibiscus</i> sp.		+				+	+	+											1%	
<i>Indigofera colutea</i>																				
<i>Indigofera hirsuta</i>																				
<i>Indigofera linifolia</i>								+	1%	+	1%								+	
<i>Indigofera monophylla</i>																				
<i>Indigofera</i> sp.									1%	+					2%				+	
<i>Ipomoea pes-caprae</i> subsp. <i>brasiliensis</i>						30%														
<i>Jacksonia aculeata</i>																				
<i>Jacquemontia paniculata</i>		+																		
<i>Jacquemontia pinnosa</i>																				
<i>Jasminum didymum</i> subsp. <i>didymum</i>								+	+	4%										
<i>Jasminum didymum</i> subsp. <i>lineare</i>										1%									1%	
<i>Lysiana spathulata</i>																				
<i>Malcolus nesophilus</i>																				
<i>Marsdenia angustata</i>																				
<i>Marsdenia viridiflora</i>		+																		
<i>Meibomia alsophila</i>																				
<i>Melaleuca oblongifolia</i>																				
<i>Microstachys chamaelea</i>																				
<i>Muellierolimon salicorniaceum</i>																				
<i>Myoporum montanum</i>																				
<i>Nebassia astrocarpa</i>						1%						20%								
<i>Newcastella diadictcha</i>																				
<i>Panicum effusum</i>																				
<i>Pluchea</i> sp.																				
<i>Pluchea taranthra</i>																				
POACEAE sp.																				
<i>Polygala tepperi</i>												1%								
<i>Polynema</i> sp.																				
<i>Portulaca</i> sp.																				

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APPENDIX E3
Gourdon Bay
Species Matrix

ENV (2008b) Vegetation Community Type †	GE01	GB02	GB03	GB04	GB05	GB06	GB07	GB08	GB09	GB10	GB11	GB12	GB13	GB14	GB15	GB16	GB17	GB18	GB19
	CT	CT	CC	CC	CT	CT	CT	CT	CT	CC	MF	MF	PS	MF	MF	MF	PS	PS	M
<i>Premia acuminata</i>					+								1%				1%		
<i>Pterocaulon</i> sp. A Kibberley Flora (B.J. Carter 599)													1%						
<i>Pterocaulon sphacelatum</i>																			
<i>Ptilotus exaltatus</i> var. <i>exaltatus</i>				+															
<i>Ptilotus polystachyus</i> var. <i>polystachyus</i>	+								+										
<i>Ptilotus</i> sp.																			
<i>Rhizophora stylosa</i>																			15-20%
<i>Rhynchosia minima</i>	+		+		+	1%	+	+			+						+		
<i>Rulingia loxophylla</i>																			
<i>Salsola tregus</i>																			
<i>Santalum lanceolatum</i>	1%		+		+	2%	1%	+	1%										
<i>Scaevola parvifolia</i>	1%																		
<i>Scaevola parvifolia</i> subsp. <i>parvifolia</i>																			
<i>Scaevola spinescens</i>		1%					+										10%		
<i>Senna costata</i>																			
<i>Senna notabilis</i>	+				+													1%	
<i>Senna oligocladia</i>																			
<i>Sesuvium apiculata</i>					+		+	+											
<i>Sida</i> sp.					+	+	2%	+	1%									+	
<i>Solanum diolium</i>																			
<i>Solanum diversiflorum</i>	2%																		
<i>Solanum</i> sp.											+								
<i>Sonneratia alba</i>																			10%
<i>Spermatocoe auriculata</i>					+														
<i>Spinifex longifolius</i>			+	5%				+					+		1%		5%		
<i>Sporobolus virginicus</i>										50%					2%		5%		
<i>Stylosanthes hamata</i>					1%														
<i>Suaeda arbusculoides</i>															1%				
<i>Tephrosia renatiflora</i>	+				+	2%	5%							5%					
<i>Tephrosia rosea</i>											30%								
<i>Tephrosia rosea</i> var. <i>clementii</i>		+	+	+		+						2%	+			1%			
<i>Tephrosia rosea</i> var. <i>rosea</i>	1%																		
<i>Tephrosia</i> sp.		nc																	
<i>Terminalia ferdinandiana</i>	1%					1%	+		+										
<i>Tinospora smilacina</i>																			
<i>Tinospora pilosa</i>					20%	5%	+	2%	5%										
<i>Trianthema</i> sp.																			
<i>Trianthema triquetra</i>										15%									
<i>Triulus occidentalis</i>										23%					1%				
<i>Trichodesma zeylanicum</i>																			
<i>Tridax blexura</i>																			
<i>Tridax microstachya</i>																			70%
<i>Tridax</i> sp.	5%		20%	10%	20%	5%	50%	40%	20%	20%									
<i>Triumfetta carteri</i>	+																		
<i>Verillago viminalis</i>																			
<i>Waltheria indica</i>					+	+			+										
<i>Whiteochloa</i> sp.						5%	+												
<i>Xenostegia tridentata</i>																			
<i>Xerochloa imberbis</i>											10%				1%				
<i>Yakima australensis</i>																			

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APPENDIX E3
Gourdon Bay
Species Matrix

NAME		ENV (2008b) Vegetation Community Type [†]																						
GB20	GB21	GB22	GB23	GB24	GB25	GB26	GB27	GB28	GB29	GB30	GB31	GB32	GB33	GB34	GB35	GB36	GB37	GB38	GB39	GB40	GB41	GB42		
M	M	M	M	M	CC	CC	MF	CC	PS	PS	CH	PS	PS	PS	CT	CC	CC	CH	CH	CH	PS	PS		
<i>Abrus precatorius</i>								+														+		
<i>Adulion otocarpum</i>																						+		
<i>Acacia adoxa</i> var. <i>subglabra</i>					5%	10%	2%								+	50%					+			
<i>Acacia bivenosa</i>																								
<i>Acacia coleii</i>																								
<i>Acacia coleii</i> var. <i>coleii</i>									1%						+						+	+		
<i>Acacia coriacea</i>															+									
<i>Acacia eriopoda</i>															+									
<i>Acacia hilliana</i>																								
<i>Acacia monticola</i>															1%	20%								
<i>Acacia monticola</i> x <i>sieilaticeps</i>										+					+						10%	40%		
<i>Acacia platycarpa</i>																								
<i>Acacia stellaticeps</i>									10%	2%	1%				+					90%	80%			
<i>Acacia tumida</i>						40%	2%		2%	1%	1%				1%	10%	+							
<i>Adriana urticoides</i>																	+							
<i>Aerva javanica</i>																								
<i>Aeschynomene indica</i>																						+		
<i>Alternanthera argusifolia</i>								+							+							+		
<i>Amaranthus</i> sp.																								
<i>Amynia benthamii</i>																								
<i>Amynia thalassia</i>	+		1%	+	5%								+								+			
<i>Aphyllatum parvifolium</i>													2%											
<i>Aristida</i> sp.													40%	1%	2%									
<i>Atalaya hemiglaucia</i>																						1%		
<i>Atriplex</i> sp.								+																
<i>Aucennia marina</i>																								
<i>Bauhinia cunninghamii</i>	20%		15%	20%	20%				+	1%		5%	+	+	+						+	5%		
<i>Boerhavia gardneri</i>																								
<i>Bonania</i> sp.									2%					1%										
<i>Bruguiera exaristata</i>	+		30-40%																					
<i>Bulbosylis barbata</i>																					+			
<i>Camptostemon schultzei</i>													2%											
<i>Canavalia rosea</i>						1%											30%							
<i>Capparis lasiantha</i>								+							+						+			
<i>Capparis umbonata</i>																								
<i>Carissa lanceolata</i>															+						+			
<i>Cassipouita capillaris</i>																								
<i>Cassipouita filiformis</i>									+						1%						+			
<i>Cenchrus ciliaris</i>						+	1%	65%											10%					
<i>Cenchrus tagal</i>																								
<i>Chrysopogon pallidus</i>	5%								2%	2%	+	40%	+											
<i>Chrysopogon</i> sp.																								
<i>Cleome viscosa</i>																								
<i>Clerodendrum tonnentosum</i>																								
<i>Codonocarpus cotinifolius</i>																						5%		
<i>Corchorus pulmo</i>																								
<i>Corchorus walcottii</i>																								
<i>Corymbia flavescens</i>															+							+		
<i>Corymbia greeniana</i>															2%									
<i>Corymbia zygochilla</i>									+					+	+									
<i>Crotalaria cunninghamii</i>									1%															
<i>Crotalaria medicaginea</i>																								
<i>Cucumis maderaspatanus</i>																					+			
<i>Cullen martinii</i>																						+		
<i>Distichostemon hispidulus</i>									+						+									
<i>Dolichandrone heterophylla</i>															1%	+	+							
<i>Ehretia saligna</i>															1%	+					+	+		
<i>Erneaopogon pallidus</i>																								
<i>Erneaopogon</i> sp.																					+	+		
<i>Eragrostis eriopoda</i>																								

[†] CT=Coastal Swale Thicket, CC=Coastal Communities, MF=Supra Tida Mudflats, PS=Pindan Shrubland, M=Mangroves, CH=Coastal Heath

APPENDIX E3
Gourdon Bay
Species Matrix[illegible]

[†] CT=Coastal Swale Thicket, CC=Coastal Communities, MF=Supra Tida Mudflats, PS=Pindan Shrubland, M=Mangroves, CH=Coastal Heath

APPENDIX E4
Coulomb-Quondong
Species Matrix

ENV (2008b) Vegetation Community Type [†]	QU01	QU02	QU03	QU04	QU05	QU06	QU07	QU08	QU09	QU10	QU11	QU12	QU13	QU14	QU15	QU16	QU17	QU18	QU19	QU20	QU21	QU22	QU23	QU24	QU25	QU26	QU27	QU28	QU29	QU30
? <i>Acrochne racemosa</i>										4%				+					+											
? <i>Corymbia polycarpa</i>																														
? <i>Crotalaria medicaginea</i>																														
? <i>Jasminum</i> sp.																														
? <i>Psychotria attenuata</i>																														
? <i>Urochloa pilgera</i>																														
<i>Abrus precatorius</i>		1%												+																
<i>Abutilon</i> ? <i>Phanini</i>																														
<i>Abutilon indicum</i> var. <i>australense</i>																														
<i>Abutilon obovatum</i>																														
<i>Acacia</i> ? <i>monticola</i> x <i>sigmatophylla</i>																														
<i>Acacia adoxa</i> var. <i>adoxa</i>																														
<i>Acacia coleii</i> var. <i>coleii</i>																														
<i>Acacia eriopoda</i>																														
<i>Acacia hipocauloides</i>																														
<i>Acacia monticola</i>																														
<i>Acacia platycarpa</i>																														
<i>Acacia lucida</i> var. <i>lucida</i>																														
<i>Adiantum</i> ? <i>aspera</i>																														
<i>Aerva javanica</i>																														
<i>Amaranthus undulatus</i>																														
<i>Amynia benthamii</i>																														
<i>Anisida holthra</i> var. <i>holthra</i>																														
<i>Anisida hygrometrica</i>																														
<i>Bauhinia cunninghamii</i>																														
<i>Bidens bipinnata</i>																														
<i>Boerhaavia</i> sp.																														
<i>Brachychiton diversifolius</i> subsp. <i>diversifolius</i>																														
<i>Brickellia tomentosa</i>																														
<i>Buchnera urticifolia</i>																														
<i>Bulbostylis barbata</i>																														
<i>Bydlis rotunda</i>																														
<i>Cassipouia major</i>																														
<i>Calanthe maritima</i>																														
<i>Calandrinia strobilata</i>																														
<i>Calceolaria</i> ? <i>stipitata</i>																														
<i>Canavalia rosea</i>																														
<i>Capparis</i> ? <i>umbonata</i>																														
<i>Capparis lasiantha</i>																														
<i>Cassia lanceolata</i>																														
<i>Cassytha filiformis</i>																														
<i>Celtis australis</i>																														
<i>Cenchrus biflorus</i>																														
<i>Cenchrus ciliaris</i>																														
<i>Chrysopsis</i> ? <i>palidus</i>																														
<i>Citrullus lanatus</i>																														
<i>Cleome viscosa</i>																														
<i>Clerodendrum floribundum</i> var. <i>ovatum</i>																														
<i>Clerodendrum tomentosum</i>																														
<i>Clerodendrum tomentosum</i> var. <i>lanceolatum</i>																														
<i>Codonocarpus collinus</i>																														
<i>Cochlospermum</i> ? <i>palidus</i>																														
<i>Corymbia bella</i>																														
<i>Corymbia flavescentis</i>																														
<i>Corymbia greeniana</i>																														
<i>Corymbia polycarpa</i>																														
<i>Corymbia zygomorpha</i>																														
<i>Crotalaria crispata</i>																														
<i>Crotalaria cunninghamii</i>																														
<i>Crotalaria medicaginea</i> var. <i>neglecta</i>																														
<i>Croton habrophyllus</i>																														
<i>Cucumis maderaspertus</i>																														
<i>Cullen maritimi</i>																														
<i>Cymbidium canaliculatum</i>																														
<i>Cymbopogon ambiguus</i>																														
<i>Cymbopogon procerus</i>																														
<i>Cynodon dactylon</i>																														

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket



APPENDIX E4
Coulomb-Quondong
Species Matrix

[illegible]

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX E4
Coulomb-Quondong
Species Matrix

[illegible]

[†] MF=Supra Tidal Mudflat, EW=Ephemeral Waterways, PW=Pindan Woodland, M=Mangroves, CC=Coastal Communities, MT=Mixed Shrubland Thicket, CH=Coastal Heath, VT=Vine Thicket

APPENDIX F

LOCATIONS OF FLORA SPECIES OF CONSERVATION SIGNIFICANCE

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB- QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX F1

Location of Flora Species of Conservation Significance at Perpendicular Head- North Head

Taxa	Site Number	# Easting	# Northing
Priority Species			
<i>Glycine pindanica</i> (Priority 1)	PH03	453530	8142934
	PH05	457571	8140509
	PH10	456039	8143367
	PH13	461343	8141190
	PH35	455096	8139927
	PH36	454704	8141302
	PH37	463535	8138881
Species of Interest			
<i>Acacia monticola</i> x <i>tumida</i> (hybrid form, not yet formally described)	PHOP23	454579	8147186
<i>Capparis jacobsonii</i> (range extension)	PH08	453623	8148559
<i>Crotalaria crispata</i> (range extension)	PH03	453530	8142934
	PH04	452804	8142191
	PH05	457571	8140509
	PH07	462043	8139271
	PH11	456680	8141988
	PH13	461343	8141190
	PH15	451946	8138844
	PH19	462940	8142541
	PH20	463777	8142830
	PH21	460521	8142525
	PH22	460923	8142457
	PH23	459376	8143439

Taxa	Site Number	# Easting	# Northing
	PH24	459325	8143753
	PH25	454421	8145799
	PH28	470263	8143359
	PH31	454949	8145753
	PH32	457350	8143493
	PH33	460039	8142284
	PH35	455096	8139927
	PH36	454704	8141302
	PH37	463535	8138881
	PH38	466247	8140078
	PH40	466988	8144808
	PH44	459462	8139967
	PH45	465921	8138541
	PH46	455337	8144164
	PH48	464691	8138524
	PH49	466094	8141840
	PH50	465460	8142324
<i>Cymbopogon bombycinus</i> (possible range extension)	PH18	462966	8142670
<i>Cyperus javanicus</i> (range extension)	PH47	454926	8143266
<i>Cyperus viscidulus</i> (range extension)	PH05	457571	8140509
<i>Enneapogon polyphyllus</i> (possible range extension)	PH15	451946	8138844
	PH16	451500	8139138
<i>Euphorbia schultzei</i> (range extension)	PH09	453962	8140401
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> (range extension)	PH10	456039	8143367
	PH11	456680	8141988
	PH36	454704	8141302
<i>Paspalum scrobiculatum</i> (possible range extension)	PH26	469365	8143514
<i>Spermacoce breviflora</i> (range extension)	PH05	457571	8140509

Taxa	Site Number	# Easting	# Northing
extension)	PH12	457864	8139376
	PH13	461343	8141190
	PH25	454421	8145799
<i>Trachymene</i> aff. <i>didiscoides</i> (unusual leaf form)	PH48	464691	8138524

Australian Geocentric 1994 (GDA94), Zone 51K

APPENDIX F2

Location of Flora Species of Conservation Significance at Packer Island

Taxa	Site Number	# Easting	# Northing
Priority Species			
<i>Glycine pindanica</i> (Priority 1)	PC22	479364	8168008
<i>Gomphrena pusilla</i> (Priority 2)	PC12	477209	8164631
	PC14	476388	8166951
	PC17	477142	8167246
	PC19	477661	8166906
	PC20	478117	8166865
	PC39	477275	8164228
<i>Pterocaulon</i> sp. A Kimberley Flora (B.J. Carter 599) (Priority 2)	PC13	476375	8166766
Species of Interest			
<i>Avicennia marina</i> subsp. <i>marina</i> (range extension)	PC01	477276	8164395
	PC09	477115	8165364
	PC11	477103	8166608
	PC16	478830	8169091
	PC36	488190	8173014
	PC42	478684	8167917
	PC48	482829	8168371
<i>Crotalaria crispata</i> (range extension)	PC13	476375	8166766
	PC15	477399	8168318
	PC29	481925	8160582
	PC34	484576	8174590
	PC45	484951	8160551
	PC49	483287	8168200
<i>Eriachne avenacea</i> (possible range extension)	PC07	477819	8164480
	PC18	477341	8166071
	PC22	479364	8168008

Taxa	Site Number	# Easting	# Northing
	PC23	480118	8168522
	PC26	481851	8166912
	PC27	483470	8167625
	PC44	482651	8167690
<i>Fimbristylis simplex</i> (range extension)	PC24	480250	8167830
	PC30	482405	8162089
	PC32	482157	8164994
	PC45	484951	8160551
	PC46	483421	8160533
<i>Gomphrena canescens</i> (unusually large flowers)	PC29	481925	8160582
	PC45	484951	8160551
<i>Heliotropium tenuifolium</i> (range extension)	PC26	481851	8166912
	PC44	482651	8167690
<i>Scleria aff. brownii</i> (possible regional significance – further taxonomic work required)	PC28	484861	8168417
<i>Spermacoce breviflora</i> (range extension)	PC07	477819	8164480
	PC08	476555	8164125
	PC15	477399	8168318
	PC23	480118	8168522
	PC24	480250	8167830
	PC25	481249	8167961
	PC26	481851	8166912
	PC27	483470	8167625
	PC28	484861	8168417
	PC29	481925	8160582
	PC30	482405	8162089
	PC32	482157	8164994
	PC33	482153	8166203
	PC44	482651	8167690

Taxa	Site Number	# Easting	# Northing
	PC45	484951	8160551
	PC46	483421	8160533
<i>Tephrosia aff. oblongata</i> (range extension, specimens with unusual venation)	PC15	477399	8168318
<i>Zornia aff. chaetophora</i> (unusual leaf form and habit)	PC26	481851	8166912

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APPENDIX F3

Location of Flora Species of Conservation Significance at Gourdon Bay

Taxa	Site Number	# Easting	# Northing
Priority Species			
<i>Aphyllodium parvifolium</i> (Priority 1)	GB31	386321	7959403
	GB32	378523	7953810
	GB41	385991	7953019
<i>Pterocaulon</i> sp. A Kimberley Flora (B.J. Carter 599) (Priority 2)	GB13	375827	7956332
	GB14	375903	7956471
	GB17	374822	7953198
Species of Interest			
<i>Acacia hilliana</i> (range extension)	OPCOLDA02	378240	7952382
<i>Acacia monticola</i> x <i>stellaticeps</i> (hybrid form, not yet formally described)	GB35	376644	7959594
<i>Acacia stellaticeps</i> (range extension)	GB01	384996	7958019
	GB10	375904	7959553
	GB18	375370	7954114
	GB29	385574	7958416
	GB31	386321	7959403
	GB32	378523	7953810
	GB34	378298	7957165
	GB35	376644	7959594
	GB39	386684	7959644
	GB40	387540	7960291
<i>Corchorus walcottii</i> (range extension)	GB01	384996	7958019
	GB03	384734	7958106
	GB05	377170	7958560
	GB06	377208	7958868
	GB07	377265	7959031
	GB09	377885	7958675

Taxa	Site Number	# Easting	# Northing
	GB14	375903	7956471
	GB18	375370	7954114
	GB31	386321	7959403
	GB32	378523	7953810
	GB33	378544	7955523
	GB39	386684	7959644
	GB41	385991	7953019
<i>Evolvulus alsinoides</i> var. <i>villosicalyx</i> (range extension)	GB09	377885	7958675
<i>Panicum effusum</i> (possible range extension)	GB26	373162	7955269
	GB28	374906	7959004
<i>Scaevola spinescens</i> (range extension)	GB02	384874	7958078
	GB07	377265	7959031
	GB17	374822	7953198
	GB39	386684	7959644
	GB40	387540	7960291
<i>Spermacoce auriculata</i> (possible range extension)	GB05	377170	7958560
	GB35	376644	7959594
<i>Triodia bitextura</i> (possible range extension)	GB18	375370	7954114
	GB33	378544	7955523
	GB34	378298	7957165
	GB36	378867	7959961
	GB37	375167	7959576
	GB40	387540	7960291

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APPENDIX F4

Location of Flora Species of Conservation Significance at Coulomb-Quondong

Taxa	Site Number	# Easting	# Northing
Priority Species			
<i>Pittosporum moluccanum</i> (Priority 4)	OPCOLL04	409523	8064060
Species of Interest			
<i>?Acrachne racemosa</i> (range extension)	QU14	409643	8064091
<i>Acacia ?monticola</i> x <i>stigmatophylla</i> (hybrid form, not yet formally described)	QU12	410191	8068379
<i>Celtis australiensis</i> (range extension)	QU02	409738	8058219
	QU08	409511	8065017
	QU10	409978	8070437
	QU14	409643	8064091
	QU15	409567	8064077
	QU20	410155	8059714
<i>Crotalaria crispata</i> (range extension)	QU01	409498	8058255
	QU03	411947	8054752
<i>Diospyros humilis</i> (range extension)	QU02	409738	8058219
	QU08	409511	8065017
	QU13	410056	8067977
	QU14	409643	8064091
	QU18	409363	8065724
	QU20	410155	8059714
	QU26	411148	8055927
<i>Enteropogon dolichostachyus</i> (range extension)	QU26	411148	8055927
<i>Oldenlandia kochiae</i> (range extension)	QU11	410021	8069929
	QU29	412869	8055360
<i>Parsonsia kimberleyensis</i> (range extension, further collection required)	QU02	409738	8058219

Taxa	Site Number	# Easting	# Northing
<i>Petalostylis cassioides</i> (local distribution poorly known)	QU21	411277	8057643
<i>Senna curvistyla</i> (range extension)	QU05	413260	8054554
	QU22	412438	8056001
<i>Spermacoce breviflora</i> (range extension)	QU05	413260	8054554
	QU09	409812	8066552
	QU10	409978	8070437
	QU12	410191	8068379
	QU13	410056	8067977
	QU16	410328	8058312
	QU17	409977	8067093
	QU21	411277	8057643
	QU22	412438	8056001
	QU28	413849	8053986
	QU29	412869	8055360
	QU30	410277	8058948
<i>Vitex glabrata</i> (range extension)	QU15	409567	8064077

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APPENDIX G

HABITAT PHOTOGRAPHS FOR PRIORITY FLORA SPECIES

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB- QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX G

Habitat Photographs for Priority Flora Species

Aphyllodium parvifolium (Priority 1)



Coastal plain at Gourdon Bay – Quadrat GB31



Pindan sandplain at Gourdon Bay – Quadrat GB32

***Glycine pindanica* (Priority 1)**



Coastal *Pandanus* forest at Perpendicular Head-North Head – Quadrat PH03



Pindan sandplain at Perpendicular Head-North Head – Quadrat PH13



Eucalyptus miniata rocky hilltop woodland at Perpendicular Head-North Head –
Quadrat PH37

***Gomphrena pusilla* (Priority 2)**



Sand dunes at Packer Island – Quadrat PC17



Grassy sandplain at Packer Island – Quadrat PC19



Samphire flat at Packer Island – Quadrat PC12



Melaleuca woodland at Packer Island – Quadrat PC39

***Pterocaulon* sp. A Kimberley Flora (B.J. Carter 599) (Priority 2)**



Coastal dunes at Packer Island – Quadrat PC13



Grassy plain at Gourdon Bay – Quadrat GB14



Limestone outcrop at Gourdon Bay – Quadrat GB17

***Pittosporum moluccanum* (Priority 4)**



Coastal sand dune at Coulomb-Quondong – Quadrat QU15

APPENDIX H

LOCATIONS OF WEED SPECIES

PERPENDICULAR HEAD-NORTH HEAD, PACKER ISLAND, COULOMB-QUONDONG AND GOURDON BAY FLORA ASSESSMENT

APPENDIX H1

Locations of Weed Species at Perpendicular Head-North Head

Taxa	Site Number	# Easting	# Northing
<i>*Aerva javanica</i>	OPCOLL	455421	8145199
	OPCOLL	450770	8137152
<i>*Cenchrus ciliaris</i>	PH12	457864	8139376
	PH16	451500	8139138
	PH18	462966	8142670
	PH25	454421	8145799
	PH46	455337	8144164
<i>*Passiflora foetida</i>	PH03	453530	8142934
	PH04	452804	8142191
	PH06	455424	8141105
	PH10	456039	8143367
	PH22	460923	8142457
	PH25	454421	8145799
	PH27	469369	8143516
	PH28	470263	8143359
	PH30	455097	8146211
	PH31	454949	8145753
	PH34	461363	8142026
	PH35	455096	8139927
	PH40	466988	8144808
	PH41	456520	8144134
	PH43	454763	8142405
	PH46	455337	8144164
	PH47	454926	8143266

Taxa	Site Number	# Easting	# Northing
<i>*Phyla nodiflora</i>	PH26	469365	8143514
	PH27	469369	8143516
	PH28	470263	8143359
	PH29	470308	8143531
<i>*Sida cordifolia</i>	PH07	462043	8139271
<i>* Stylosanthes hamata</i>	PH46	455337	8144164
	PH47	454926	8143266
<i>*Tribulus terrestris</i>	OPCOLL	451222	8139407

Australian Geocentric 1994 (GDA94), Zone 51K

APPENDIX H2

Locations of Weed Species at Packer Island

Taxa	Site Number	# Easting	# Northing
<i>*Cenchrus ciliaris</i>	PC27	483470	8167625
<i>*Citrullus lanatus</i>	PC04	476862	8163654
<i>*Gomphrena celosioides</i>	PC04	476862	8163654
	PC10	477026	8164498
<i>*Passiflora foetida</i>	PC11	477103	8166608
	PC13	476375	8166766
	PC21	478760	8167374
<i>*Phyla nodiflora</i>	PC08	476555	8164125

Australian Geocentric 1994 (GDA94), Zone 51K

APPENDIX H3

Locations of Weed Species at Gourdon Bay

Taxa	Site Number	# Easting	# Northing
* <i>Aerva javanica</i>	GB06	377208	7958868
	GB10	375904	7959553
	GB26	373162	7955269
	GB37	375167	7959576
* <i>Cenchrus ciliaris</i>	GB06	377208	7958868
	GB08	377782	7958460
	GB09	377885	7958675
	GB11	374968	7958087
	GB12	374856	7958041
	GB13	375827	7956332
	GB14	375903	7956471
	GB17	374822	7953198
	GB18	375370	7954114
	GB25	372847	7954744
	GB26	373162	7955269
	GB27	374063	7956726
	GB38	395175	7957687
	GB39	386684	7959644
* <i>Stylosanthes hamata</i>	GB05	377170	7958560

Australian Geocentric 1994 (GDA94), Zone 51K

APPENDIX H4

Locations of Weed Species at Coulomb-Quondong

Taxa	Site Number	# Easting	# Northing
<i>*Aerva javanica</i>	QU01	409498	8058255
	QU07	409449	8064864
	QU08	409511	8065017
	QU14	409643	8064091
<i>*Bidens bipinnata</i>	QU18	409363	8065724
<i>*Cenchrus biflorus</i>	QU06	409956	8062849
<i>*Cenchrus ciliaris</i>	QU01	409498	8058255
	QU03	411947	8054752
	QU04	411933	8054630
	QU10	409978	8070437
	QU25	412041	8054388
<i>*Citrullus lanatus</i>	OPCOLL05	409643	8064091
<i>*Cynodon dactylon</i>	QU01	409498	8058255
<i>*Euphorbia tirucalli</i>	QU01	409498	8058255
<i>*Leucaena leucocephala</i>	OPCOLL08	409202	8066322
<i>*Macroptilium atropurpureum</i>	QU03	411947	8054752
	QU06	409956	8062849
	OPCOLL06	409509	8065137
	OPCOLL07	409149	8066286
<i>*Passiflora foetida</i> var. <i>hispida</i>	QU01	409498	8058255
	QU03	411947	8054752
	QU06	409956	8062849
	QU08	409511	8065017
	QU10	409978	8070437
	QU18	409363	8065724
	QU21	411277	8057643
	QU26	411148	8055927

Taxa	Site Number	# Easting	# Northing
	QU28	413849	8053986
<i>*Stylosanthes hamata</i>	QU03	411947	8054752
<i>*Triumfetta pentandra</i>	QU06	409956	8062849
	QU26	411148	8055927

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