

JAMES WARREN & Associates Pty Ltd

ENVIRONMENTAL CONSULTANTS



SEPP 44 ASSESSMENT

COBAKI LAKES

PREFERRED PROJECT REPORT

OCTOBER 2009

A REPORT TO LEDA MANORSTEAD PTY LTD

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1 Introduction

1.1 Background

James Warren and Associates (JWA) have been engaged by LEDA Manorstead Pty Ltd to address State Environmental Planning Policy No 44 - Koala Habitat Protection for land at Cobaki Lakes, Cobaki.

In response to the state-wide decline of Koala populations the Department of Planning has enacted SEPP - 44 Koala Habitat Protection. The Policy aims to “encourage the proper conservation and management of area of natural vegetation that provide habitat for Koalas, to ensure permanent free-living populations over their present range and to reverse the current trend of population decline.” If a SEPP 44 Assessment identifies core Koala habitat on a site, a Plan of Management is required to be prepared.

This report aims to determine if core Koala habitat occurs on the subject site and if a Koala Plan of Management is required in accordance with SEPP 44 - Koala Habitat Protection.

1.2 The Subject site

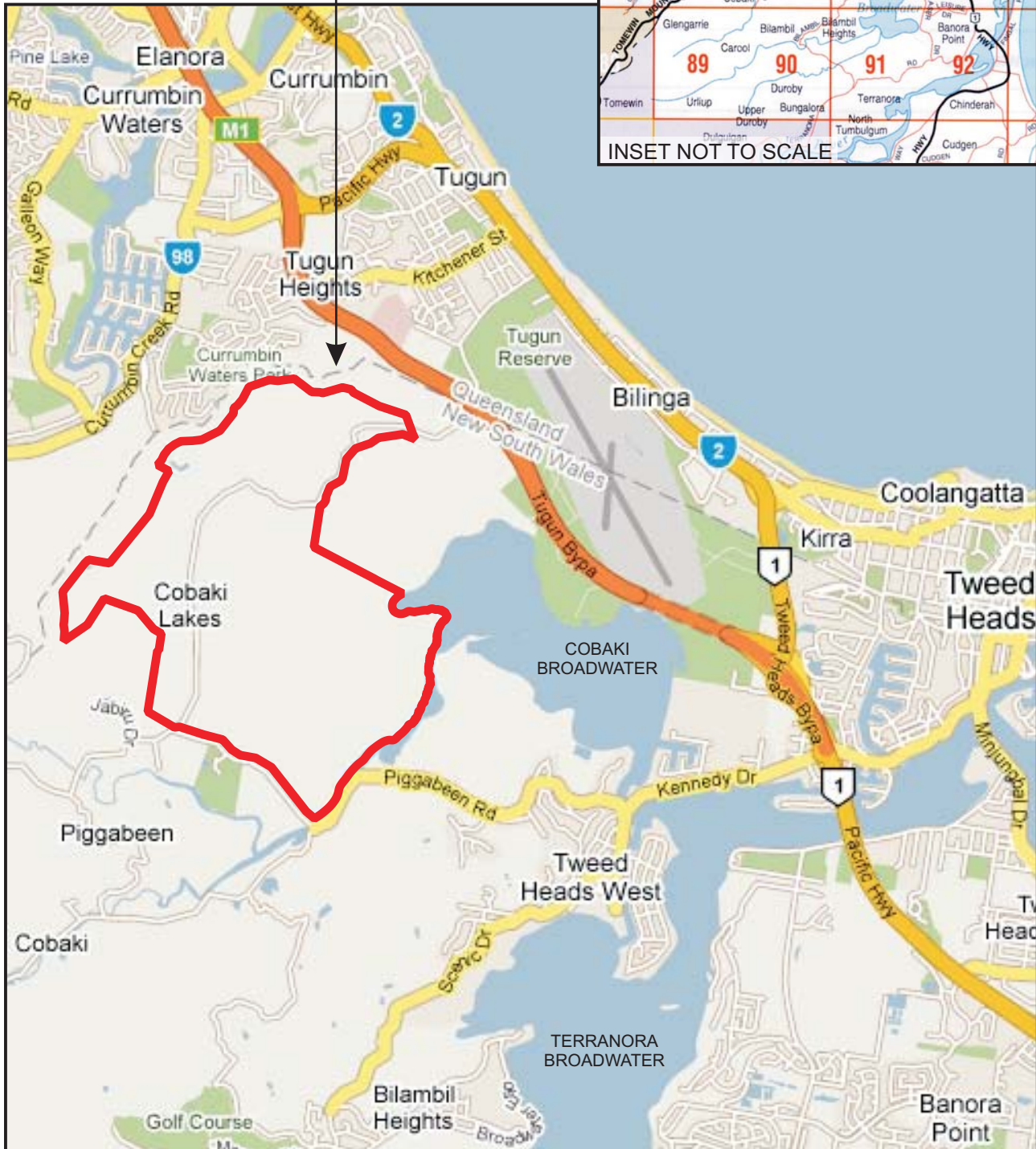
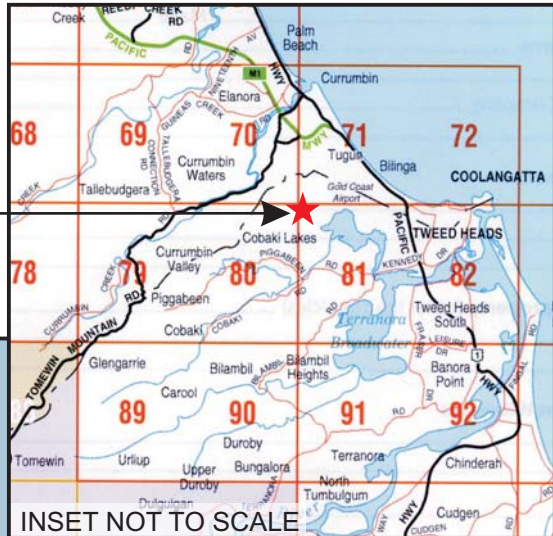
The Subject site consists of land described as Lot 1 DP 570076, Lot 2 DP 566529, Lot 1 DP 562222, Lot 1 DP 570077, Lot 1 823679, Lots 46, 54, 55, 199, 200, 201, 202, 205, 206, 209, 228 & 305 DP 755740, Cobaki Lakes, off Piggabeen Road, Tweed Heads. The site covers an area of approximately 593 hectares. The location of the subject site is shown in **FIGURE 1**.

The site lies adjacent to private landholdings to the north-west and south-east, and comprises a large portion of land cleared for agricultural purposes (i.e. grazing) throughout which a number of vegetation communities occur. Extensive clearing and subsequent slashing over the drainage basin has resulted in the recruitment of a combination of native and introduced grass species in place of native plants. Forested Crown lands which form the NSW-QLD border also form the northern and western boundary of the Cobaki Lakes site. There are no mapped State Environmental Planning Policy (SEPP) areas occurring on the site. A large area of SEPP 14 Wetland (No. 1) is located immediately west of and adjacent to Cobaki Broadwater and Cobaki Creek, in the Lower Tweed Estuary (TSC 2003). An aerial photograph of the subject site is shown in **FIGURE 2**.

Currently eighteen (18) broad vegetation associations comprising twenty-four (24) vegetation communities occur on the site. Vegetation mapping over the subject site is shown in **FIGURE 3**.



SUBJECT SITE



SOURCE: Google Maps
SCALE: 1 : 50 000 @ A4
JAMES WARREN & ASSOCIATES PTY LIMITED
Environmental Consultants

CLIENT
Leda Developments Pty Ltd
PROJECT
SEPP44 Assessment
Cobaki Lakes, Cobaki, NSW
Shire of Tweed

FIGURE 1
PREPARED: BW
DATE: 19 October 2009
FILE: 97038_KA_Locality.cdr

TITLE
LOCALITY PLAN



LEGEND

-  Cadastral Boundaries
-  Restriction on Use Area
-  Site Outline

SOURCE:
Aerial - Qasco taken April 2008 (Cobaki_Lakes.tiff)

TITLE

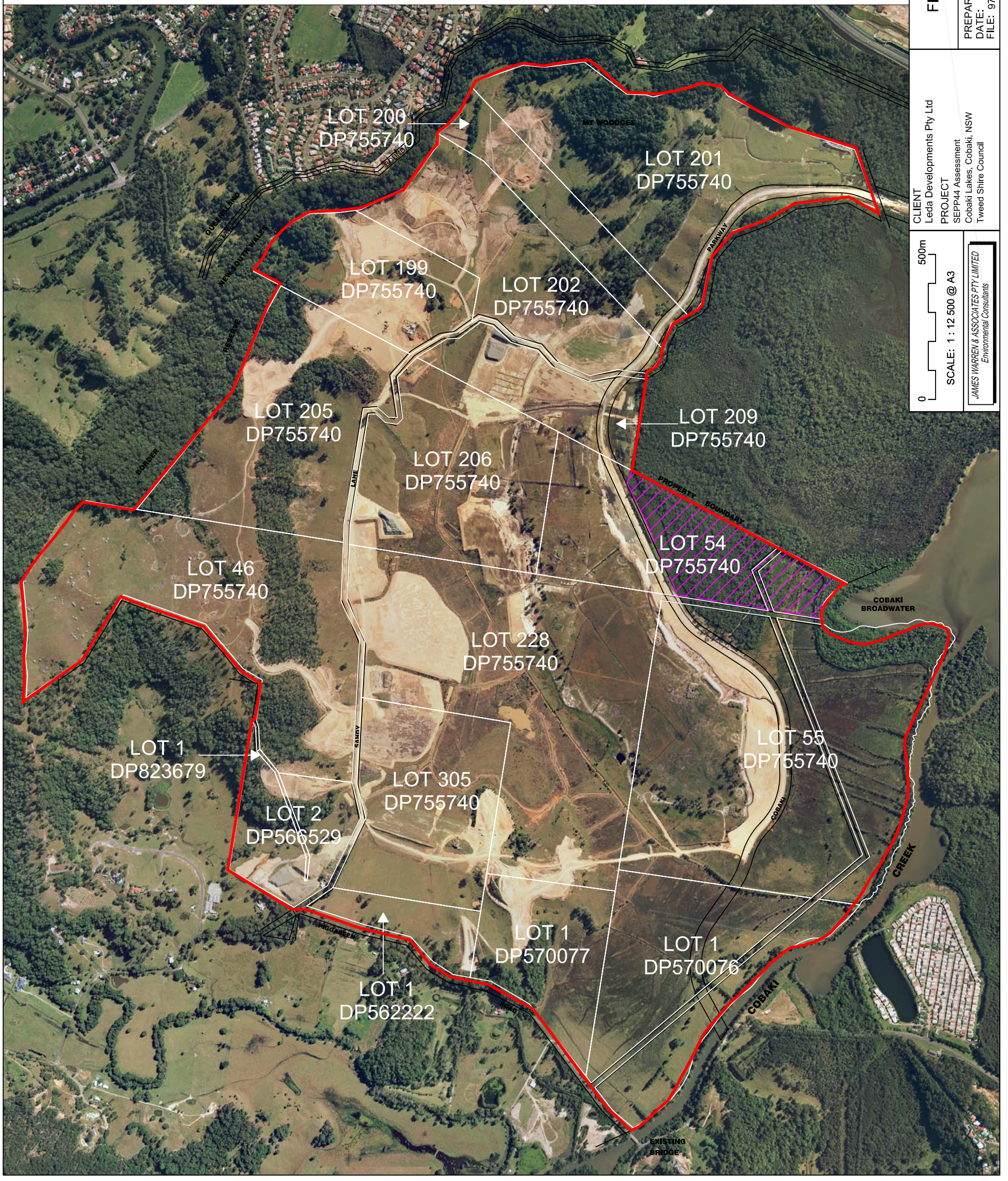
FIGURE 2

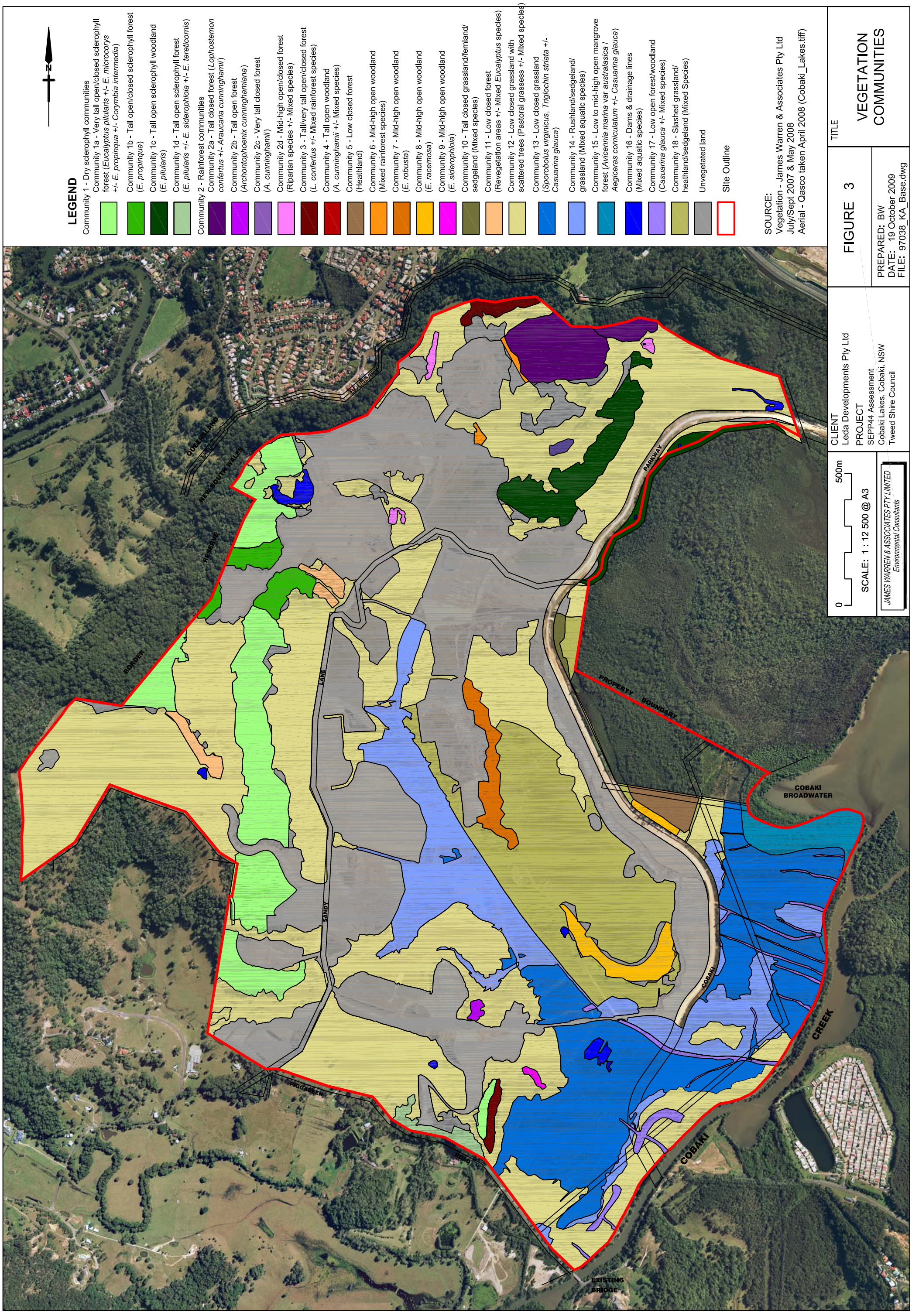
SUBJECT SITE

PREPARED: BW
DATE: 19 October 2009
FILE: 97038_KA_Base.dwg

CLIENT
Leda Developments Pty Ltd
PROJECT
SEPP44 Assessment
Cobaki Lakes, Cobaki, NSW
Tweed Shire Council

0 500m
SCALE: 1 : 12 500 @ A3
JAMES WARREN & ASSOCIATES PTY LIMITED
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LEGEND

- Community 1 - Dry sclerophyll communities
- Community 1a - Very tall open/closed sclerophyll forest (*Eucalyptus pillularis* +/- *E. microcorys* +/- *E. propinqua* +/- *Corymbia intermedia*)
- Community 1b - Tall open/closed sclerophyll forest (*E. propinqua*)
- Community 1c - Tall open sclerophyll woodland (*E. pillularis*)
- Community 1d - Tall open sclerophyll forest (*E. pillularis* +/- *E. siderophloia* +/- *E. tereticornis*)
- Community 2 - Rainforest communities
- Community 2a - Tall closed forest (*Lophostemon confertus* +/- *Araucaria cunninghamii*)
- Community 2b - Tall open forest (*Archontophoenix cunninghamiana*)
- Community 2c - Very tall closed forest (*A. cunninghamii*)
- Community 2d - Mid-high open/closed forest (Riparian species +/- Mixed species)
- Community 3 - Tall/very tall open/closed forest (*L. confertus* +/- Mixed rainforest species)
- Community 4 - Tall open woodland (*A. cunninghamii* +/- Mixed species)
- Community 5 - Low closed forest (Heathland)
- Community 6 - Mid-high open woodland (Mixed rainforest species)
- Community 7 - Mid-high open woodland (*E. robusta*)
- Community 8 - Mid-high open woodland (*E. racemosa*)
- Community 9 - Mid-high open woodland (*E. siderophloia*)
- Community 10 - Tall closed grassland/fernland/segeland (Mixed species)
- Community 11 - Low closed forest (Revegetation areas +/- Mixed *Eucalyptus* species)
- Community 12 - Low closed grassland with scattered trees (Pastoral grasses +/- Mixed species)
- Community 13 - Low closed grassland (*Sporobolus virginicus*, *Triglochin striata* +/- *Casuarina glauca*)
- Community 14 - Rushland/segeland/grassland (Mixed aquatic species)
- Community 15 - Low to mid-high open mangrove forest (*Avicennia marina* var. *australasica* / *Aegiceras corniculatum* +/- *Casuarina glauca*)
- Community 16 - Dams & drainage lines (Mixed aquatic species)
- Community 17 - Low open forest/woodland (*Casuarina glauca* +/- Mixed species)
- Community 18 - Slashed grassland/heathland/segeland (Mixed Species)
- Unvegetated land
- Site Outline

SOURCE:
Vegetation - James Warren & Associates Pty Ltd
July/Sept 2007 & May 2008
Aerial - Gasco taken April 2008 (Cobaki_Lakes.tiff)

| | |
|--|--|
| FIGURE 3 | TITLE VEGETATION COMMUNITIES |
| CLIENT Leda Developments Pty Ltd | PREPARED BY: BW |
| PROJECT SEPP44 Assessment Cobaki Lakes, Cobaki, NSW Tweed Shire Council | DATE: 19 October 2009 FILE: 97038_KA_Base.dwg |
| SCALE: 1 : 12 500 @ A3 | <div style="border: 1px solid black; padding: 2px; text-align: center;"> <small>JAMES WARREN & ASSOCIATES PTY LIMITED</small> <small>Environmental Consultants</small> </div> |
| 0 500m | |



2 SEPP 44 Koala Habitat Assessment

State Environmental Planning Policy No. 44 - Koala Habitat Protection commenced on 13 February 1995. This Policy aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:

- (a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and
- (b) by encouraging the identification of areas of core koala habitat, and
- (c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

A number of criteria in the SEPP are to be considered during an assessment of potential Koala habitat. The assessment is in the form of numerous questions with yes or no answers. If the answer to a question is yes, the assessor is required to proceed to the next question. If the answer to a question is no, the assessor is not required to proceed any further.

1. *Does the policy apply?*

Does the subject land occur in an LGA identified in Schedule 1?

The subject site occurs in the Tweed LGA, which is listed under Schedule 1.

Is the landholding to which the DA applies greater than 1 hectare in area?

Yes.

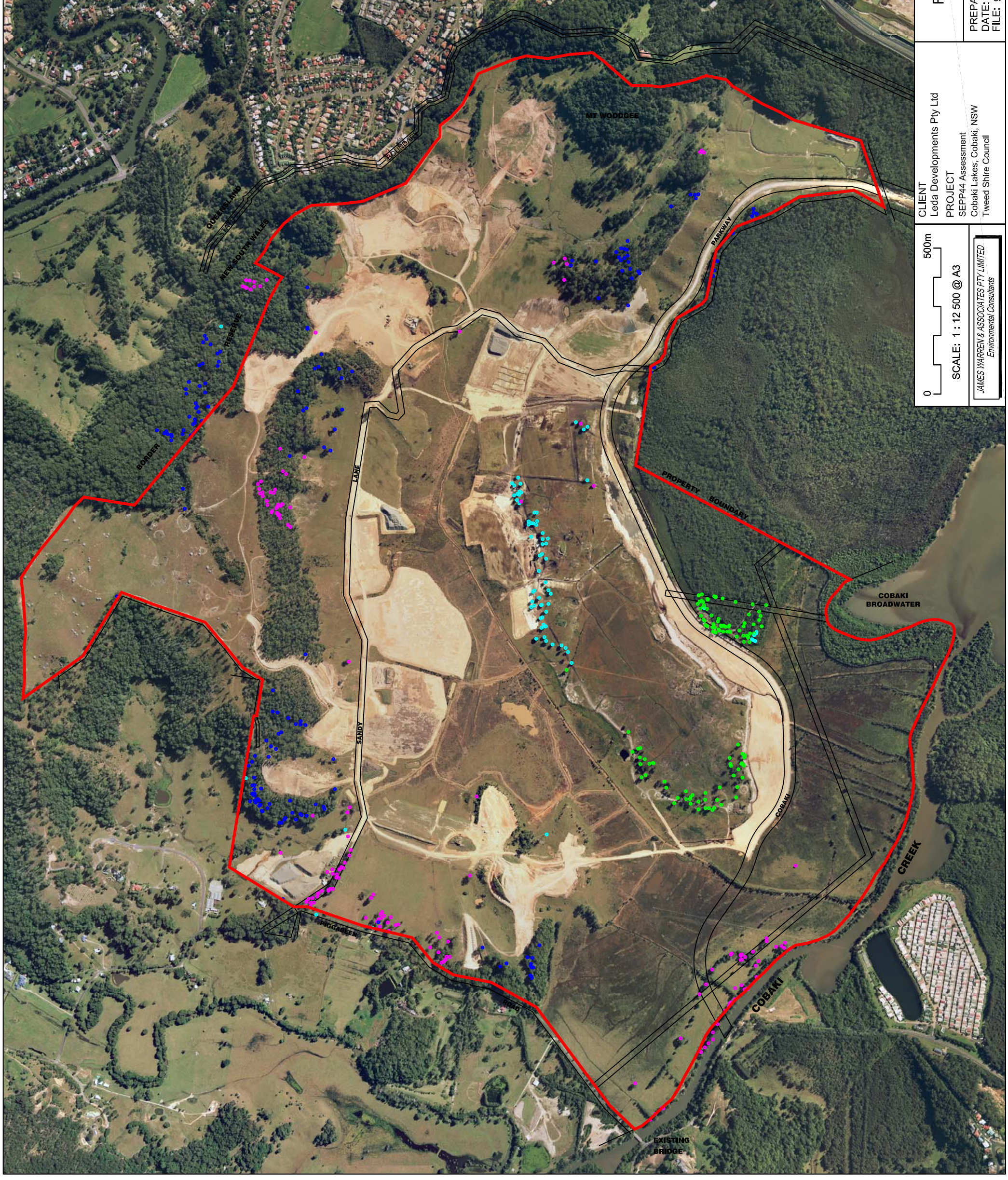
2. *Is the land potential Koala habitat?*

Does the site contain areas of native vegetation where the trees of types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component?

No. The exact number and location of trees listed under Schedule 2 which occur on the subject site has been determined (**FIGURE 4**). Details of these trees are contained in **APPENDIX 1**. In total, four hundred and sixty three (463) Koala food trees listed under Schedule 2 occur on the subject site as follows:

- One hundred and fifty six (156) Forest red gum (*Eucalyptus tereticornis*);
- One hundred and twenty nine (129) Tallowwood (*Eucalyptus microcorys*);
- Seventy three (73) Swamp Mahogany (*Eucalyptus robusta*);
- One hundred and thirteen (113) Scribbly gum (*Eucalyptus signata*).

Although the percentage of Koala food trees on the subject site was not quantitatively assessed, **FIGURE 4** clearly shows that the total number of Koala food trees is unlikely to exceed fifteen percent of the total trees present. Therefore, the subject site is not considered to contain core Koala habitat as defined under SEPP 44. A Koala Plan of Management is subsequently not required to be prepared.



LEGEND

- *Eucalyptus microcorys*
- *Eucalyptus racemosa*
- *Eucalyptus robusta*
- *Eucalyptus tereticornis*
- Site Outline

SOURCE:
 Koala Trees - James Warren & Associates Pty Ltd
 Aerial - Gasco taken April 2008 (Cobaki_Lakes.tiff)

FIGURE 4

CLIENT
 Leda Developments Pty Ltd
 PROJECT
 SEPP44 Assessment
 Cobaki Lakes, Cobaki, NSW
 Tweed Shire Council

SCALE: 1 : 12 500 @ A3
 JAMES WARREN & ASSOCIATES PTY LIMITED
 Environmental Consultants

TITLE
**IDENTIFIED
 KOALA
 FOOD TREES**

PREPARED: BW
 DATE: 19 October 2009
 FILE: 97038_KA_Base.dwg

0 500m



3 Summary and Conclusions

James Warren & Associates have been engaged by LEDA Manorstead Pty. Ltd. to prepare a SEPP 44 Assessment for land described as Lot 1 DP 570076, Lot 2 DP 566529, Lot 1 DP 562222, Lot 1 DP 570077, Lot 1 823679, Lots 46, 54, 55, 199, 200, 201, 202, 205, 206, 209, 228 & 305 DP 755740, Cobaki Lakes, off Piggabeen Road, Tweed Heads. The assessment of State Environmental Planning Policy No. 44 has determined that core Koala habitat as defined by SEPP 44 does not occur on the subject site and thus there is no requirement for the preparation of a Koala Plan of Management.



APPENDIX 1 - Koala Food Trees

| Survey No. | Species | DBH | Height |
|------------|----------------------------|---------------|------------|
| 1 | <i>E. tereticornis</i> | 1.0 | 20 |
| 2 | <i>E. tereticornis</i> | 0.8 | 20 |
| 3 | <i>E. tereticornis</i> | 1.0 | 25 |
| 4 | <i>E. tereticornis</i> | 0.6 | 20 |
| 5 | <i>E. tereticornis</i> | 1.2 | 25 |
| 6 | <i>E. tereticornis</i> | 1.0 | 25 |
| 7 | <i>E. tereticornis</i> | 0.8 | 20 |
| 8 | <i>E. tereticornis</i> | 1.0 | 20 |
| 9 | <i>E. tereticornis</i> | 1.0 | 20 |
| 10 | <i>E. tereticornis</i> | 1.0 | 25 |
| 11 | <i>E. tereticornis</i> | 1.2 | 25 |
| 12 | <i>E. tereticornis</i> | 0.8 | 20 |
| 13 | <i>E. tereticornis</i> | 0.8 | 20 |
| 14 | <i>E. tereticornis</i> | 1.3 | 20 |
| 17 | <i>E. tereticornis</i> x 3 | 2.0, 0.8, 1.5 | 20, 20, 20 |
| 18 | <i>E. tereticornis</i> | 1.5 | 20 |
| 19 | <i>E. tereticornis</i> | 1.5 | 20 |
| 20 | <i>E. tereticornis</i> | 0.8 | 20 |
| 21 | <i>E. tereticornis</i> x 2 | 1.0, 1.0 | 25, 25 |
| 22 | <i>E. tereticornis</i> | 2.0 | 25 |
| 23 | <i>E. tereticornis</i> | 1.0 | 20 |
| 24 | <i>E. tereticornis</i> | 1.5 | 20 |
| 25 | <i>E. tereticornis</i> | 1.0 | 20 |
| 26 | <i>E. tereticornis</i> | 1.5 | 20 |
| 27 | <i>E. tereticornis</i> | 1.0 | 20 |
| 28 | <i>E. tereticornis</i> | 2.1 | 25 |
| 29 | <i>E. tereticornis</i> | 0.8 | 20 |
| 30 | <i>E. tereticornis</i> | 1.0 | 20 |
| 31 | <i>E. microcorys</i> | 0.9 | 25 |
| 32 | <i>E. microcorys</i> | 1.0 | 30 |
| 33 | <i>E. microcorys</i> | 0.8 | 30 |
| 34 | <i>E. microcorys</i> | 1.7 | 20 |
| 35 | <i>E. microcorys</i> | 0.7 | 25 |
| 36 | <i>E. microcorys</i> | 0.8 | 20 |
| 37 | <i>E. microcorys</i> | 0.6 | 20 |
| 38 | <i>E. microcorys</i> | 0.8 | 25 |
| 39 | <i>E. robusta</i> | 0.6 | 20 |
| 40 | <i>E. microcorys</i> | 0.8 | 20 |
| 41 | <i>E. microcorys</i> | 0.9 | 20 |
| 42 | <i>E. microcorys</i> | 1.2 | 25 |
| 43 | <i>E. microcorys</i> | 0.6 | 18 |
| 44 | <i>E. microcorys</i> | 0.9 | 20 |
| 45 | <i>E. microcorys</i> | 1.0 | 25 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|------------------------|-----|--------|
| 46 | <i>E. microcorys</i> | 2.0 | 30 |
| 47 | <i>E. microcorys</i> | 0.8 | 20 |
| 48 | <i>E. microcorys</i> | 1.5 | 25 |
| 49 | <i>E. microcorys</i> | 1.0 | 25 |
| 50 | <i>E. microcorys</i> | 0.8 | 20 |
| 51 | <i>E. microcorys</i> | 2.0 | 25 |
| 52 | <i>E. microcorys</i> | 1.3 | 20 |
| 53 | <i>E. microcorys</i> | 0.8 | 20 |
| 54 | <i>E. microcorys</i> | 0.6 | 18 |
| 55 | <i>E. microcorys</i> | 1.3 | 25 |
| 56 | <i>E. microcorys</i> | 2.0 | 20 |
| 57 | <i>E. microcorys</i> | 1.0 | 20 |
| 58 | <i>E. microcorys</i> | 1.2 | 20 |
| 59 | <i>E. microcorys</i> | 2.0 | 25 |
| 60 | <i>E. microcorys</i> | 0.6 | 20 |
| 61 | <i>E. microcorys</i> | 0.3 | 15 |
| 62 | <i>E. microcorys</i> | 0.8 | 20 |
| 63 | <i>E. microcorys</i> | 0.4 | 15 |
| 64 | <i>E. microcorys</i> | 1.0 | 20 |
| 65 | <i>E. microcorys</i> | 0.3 | 15 |
| 66 | <i>E. microcorys</i> | 2.0 | 20 |
| 67 | <i>E. microcorys</i> | 0.6 | 15 |
| 68 | <i>E. microcorys</i> | 0.8 | 15 |
| 69 | <i>E. microcorys</i> | 0.6 | 15 |
| 70 | <i>E. microcorys</i> | 0.7 | 18 |
| 71 | <i>E. microcorys</i> | 1.0 | 20 |
| 72 | <i>E. microcorys</i> | 1.3 | 15 |
| 73 | <i>E. tereticornis</i> | 1.0 | 20 |
| 74 | <i>E. tereticornis</i> | 0.8 | 20 |
| 75 | <i>E. tereticornis</i> | 2.0 | 20 |
| 76 | <i>E. tereticornis</i> | 1.5 | 20 |
| 77 | <i>E. tereticornis</i> | 0.8 | 18 |
| 78 | <i>E. robusta</i> | 1.0 | 18 |
| 79 | <i>E. tereticornis</i> | 1.6 | 20 |
| 80 | <i>E. tereticornis</i> | 1.3 | 20 |
| 81 | <i>E. tereticornis</i> | 1.0 | 20 |
| 82 | <i>E. tereticornis</i> | 1.0 | 20 |
| 83 | <i>E. tereticornis</i> | 1.0 | 20 |
| 84 | <i>E. tereticornis</i> | 0.8 | 15 |
| 85 | <i>E. tereticornis</i> | 0.6 | 15 |
| 86 | <i>E. tereticornis</i> | 1.0 | 15 |
| 87 | <i>E. tereticornis</i> | 0.8 | 18 |
| 88 | <i>E. tereticornis</i> | 0.8 | 18 |
| 89 | <i>E. tereticornis</i> | 0.9 | 18 |
| 90 | <i>E. tereticornis</i> | 1.0 | 20 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|------------------------|-----|--------|
| 91 | <i>E. tereticornis</i> | 1.0 | 20 |
| 92 | <i>E. tereticornis</i> | 0.8 | 20 |
| 93 | <i>E. tereticornis</i> | 1.3 | 20 |
| 94 | <i>E. robusta</i> | 0.8 | 15 |
| 95 | <i>E. tereticornis</i> | 0.8 | 15 |
| 96 | <i>E. tereticornis</i> | 1.0 | 18 |
| 97 | <i>E. tereticornis</i> | 0.8 | 18 |
| 98 | <i>E. tereticornis</i> | 1.0 | 20 |
| 99 | <i>E. tereticornis</i> | 1.0 | 20 |
| 100 | <i>E. tereticornis</i> | 1.0 | 20 |
| 101 | <i>E. microcorys</i> | 0.6 | 20 |
| 102 | <i>E. microcorys</i> | 0.5 | 18 |
| 103 | <i>E. microcorys</i> | 1.0 | 20 |
| 104 | <i>E. microcorys</i> | 1.0 | 20 |
| 105 | <i>E. microcorys</i> | 0.8 | 20 |
| 106 | <i>E. microcorys</i> | 0.8 | 15 |
| 107 | <i>E. microcorys</i> | 0.3 | 15 |
| 108 | <i>E. microcorys</i> | 0.8 | 15 |
| 109 | <i>E. microcorys</i> | 1.0 | 18 |
| 110 | <i>E. microcorys</i> | 0.8 | 18 |
| 111 | <i>E. microcorys</i> | 1.0 | 20 |
| 112 | <i>E. microcorys</i> | 0.6 | 15 |
| 113 | <i>E. microcorys</i> | 1.0 | 20 |
| 114 | <i>E. microcorys</i> | 0.6 | 15 |
| 115 | <i>E. microcorys</i> | 0.8 | 15 |
| 116 | <i>E. microcorys</i> | 0.8 | 15 |
| 117 | <i>E. microcorys</i> | 0.6 | 15 |
| 118 | <i>E. microcorys</i> | 1.0 | 18 |
| 119 | <i>E. microcorys</i> | 0.8 | 18 |
| 120 | <i>E. microcorys</i> | 1.0 | 20 |
| *121 | <i>E. microcorys</i> | 0.8 | 15 |
| *122 | <i>E. microcorys</i> | 0.6 | 15 |
| 123 | <i>E. microcorys</i> | 0.6 | 15 |
| 124 | <i>E. microcorys</i> | 0.6 | 15 |
| 125 | <i>E. microcorys</i> | 0.3 | 15 |
| 126 | <i>E. tereticornis</i> | 1.0 | 20 |
| 127 | <i>E. tereticornis</i> | 1.0 | 20 |
| 128 | <i>E. tereticornis</i> | 0.3 | 15 |
| 129 | <i>E. tereticornis</i> | 1.0 | 20 |
| 130 | <i>E. tereticornis</i> | 0.5 | 15 |
| 131 | <i>E. tereticornis</i> | 1.0 | 20 |
| 132 | <i>E. tereticornis</i> | 1.0 | 20 |
| 133 | <i>E. tereticornis</i> | 0.2 | 6 |
| 134 | <i>E. tereticornis</i> | 0.8 | 12 |
| 135 | <i>E. tereticornis</i> | 0.8 | 18 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|----------------------------|----------|--------|
| 136 | <i>E. tereticornis</i> | 0.8 | 18 |
| 137 | <i>E. tereticornis</i> | 0.2 | 8 |
| 138 | <i>E. tereticornis</i> | 0.4 | 10 |
| 139 | <i>E. tereticornis</i> | 0.2 | 6 |
| 140 | <i>E. tereticornis</i> | 0.2 | 6 |
| 141 | <i>E. tereticornis</i> | 0.3 | 14 |
| 142 | <i>E. tereticornis</i> | 0.3 | 14 |
| 143 | <i>E. tereticornis</i> | 0.8 | 18 |
| 144 | <i>E. tereticornis</i> | 0.8 | 20 |
| 145 | <i>E. tereticornis</i> | 1.0 | 20 |
| 146 | <i>E. tereticornis</i> | 0.6 | 18 |
| 147 | <i>E. tereticornis</i> | 0.4 | 12 |
| 148 | <i>E. tereticornis</i> | 0.8 | 18 |
| 149 | <i>E. tereticornis</i> | 0.4 | 12 |
| 150 | <i>E. tereticornis</i> | 1.0 | 20 |
| 151 | <i>E. tereticornis</i> | 1.0 | 20 |
| 152 | <i>E. tereticornis</i> | 0.2 | 8 |
| 153 | <i>E. tereticornis</i> | 1.0 | 20 |
| 154 | <i>E. tereticornis</i> | 1.3 | 21 |
| 155 | <i>E. tereticornis</i> | 1.4 | 20 |
| 156 | <i>E. tereticornis</i> | 1.3 | 23 |
| 158 | <i>E. microcorys</i> | 2.0 | 20 |
| 159 | <i>E. tereticornis</i> | 0.4 | 12 |
| 160 | <i>E. microcorys</i> | 0.3 | 12 |
| 161 | N/A | 0.3 | 12 |
| 162 | <i>E. microcorys</i> | 1.2 | 25 |
| 163 | <i>E. microcorys</i> | 1.0 | 25 |
| 164 | <i>E. microcorys</i> | 0.3 | 16 |
| 165 | <i>E. microcorys</i> | 0.6 | 20 |
| 166 | <i>E. microcorys</i> | 0.6 | 20 |
| *167 | <i>E. microcorys</i> | 0.6 | 20 |
| 168 | <i>E. microcorys</i> | 1.0 | 20 |
| 169 | <i>E. microcorys</i> | 0.6 | 20 |
| 170 | <i>E. microcorys</i> | 0.7 | 18 |
| *171 | <i>E. microcorys</i> | 2.3 | 20 |
| 172 | <i>E. microcorys</i> | 1.2 | 20 |
| 173 | <i>E. microcorys</i> | 2.0 | 20 |
| 174 | <i>E. tereticornis</i> x 2 | 0.8, 0.6 | 18, 18 |
| 175 | <i>E. tereticornis</i> | 1.3 | 18 |
| *176 | <i>E. tereticornis</i> | 0.6 | 12 |
| 177 | <i>E. tereticornis</i> | 0.6 | 12 |
| *178 | <i>E. tereticornis</i> | 0.6 | 12 |
| 179 | <i>E. tereticornis</i> | 0.6 | 12 |
| *180 | <i>E. tereticornis</i> | 0.8 | 18 |
| *181 | <i>E. tereticornis</i> | 0.6 | 15 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|--------------------------|----------|--------|
| *182 | <i>E. tereticornis</i> | 1.0 | 20 |
| *183 | <i>E. tereticornis</i> | 0.3 | 10 |
| *184 | <i>E. tereticornis</i> | 0.2 | 6 |
| *185 | <i>E. tereticornis</i> | 0.3 | 8 |
| *186 | <i>E. robusta</i> | 0.8 | 12 |
| 187 | N/A | 0.8 | 12 |
| *188 | <i>E. microcorys</i> | 0.8 | 18 |
| *189 | <i>E. microcorys</i> | 0.4 | 18 |
| *190 | <i>E. microcorys</i> | 0.9 | 20 |
| *191 | <i>E. microcorys</i> | 0.5 | 15 |
| *192 | <i>E. microcorys</i> x 2 | 1.0, 0.4 | 20, 20 |
| *193 | <i>E. microcorys</i> | 0.5 | 20 |
| *194 | <i>E. microcorys</i> | 0.9 | 25 |
| *195 | <i>E. microcorys</i> | 1.0 | 25 |
| *196 | <i>E. microcorys</i> | 1.0 | 30 |
| *197 | <i>E. microcorys</i> | 0.2 | 20 |
| *198 | <i>E. microcorys</i> | 1.0 | 25 |
| *199 | <i>E. microcorys</i> | 1.0 | 25 |
| *200 | <i>E. microcorys</i> | 0.8 | 20 |
| *201 | <i>E. microcorys</i> | 0.6 | 20 |
| *202 | <i>E. microcorys</i> | 0.6 | 20 |
| *203 | <i>E. microcorys</i> | 0.6 | 18 |
| *204 | <i>E. microcorys</i> | 0.6 | 18 |
| *205 | <i>E. microcorys</i> | 1.2 | 25 |
| *206 | <i>E. microcorys</i> | 0.8 | 20 |
| 207 | <i>E. microcorys</i> | 0.2 | 15 |
| *208 | <i>E. microcorys</i> | 0.8 | 20 |
| *209 | <i>E. microcorys</i> | 0.4 | 15 |
| *210 | <i>E. microcorys</i> | 0.4 | 20 |
| *211 | <i>E. microcorys</i> | 0.3 | 20 |
| 212 | <i>E. microcorys</i> | 0.2 | 20 |
| 213 | <i>E. microcorys</i> | 0.3 | 20 |
| 214 | <i>E. microcorys</i> | 0.3 | 20 |
| *215 | <i>E. microcorys</i> | 1.0 | 20 |
| *216 | <i>E. microcorys</i> | 0.8 | 20 |
| *217 | <i>E. microcorys</i> | 0.6 | 20 |
| 218 | <i>E. microcorys</i> | 0.8 | 20 |
| *219 | <i>E. microcorys</i> | 0.6 | 20 |
| *220 | <i>E. microcorys</i> | 0.6 | 20 |
| *221 | <i>E. microcorys</i> | 1.8 | 30 |
| *222 | <i>E. microcorys</i> | 0.8 | 20 |
| *223 | <i>E. microcorys</i> | 0.2 | 18 |
| 224 | <i>E. tereticornis</i> | 0.8 | 18 |
| 225 | <i>E. tereticornis</i> | 0.6 | 15 |
| 226 | <i>E. tereticornis</i> | 0.6 | 15 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|------------------------|-----|--------|
| 227 | <i>E. microcorys</i> | 0.3 | 15 |
| 228 | <i>E. microcorys</i> | 0.4 | 20 |
| 229 | <i>E. microcorys</i> | 0.3 | 18 |
| 230 | <i>E. microcorys</i> | 0.4 | 20 |
| 231 | <i>E. microcorys</i> | 0.5 | 15 |
| 232 | <i>E. microcorys</i> | 0.2 | 15 |
| 233 | <i>E. microcorys</i> | 0.3 | 15 |
| 234 | <i>E. microcorys</i> | 1.0 | 18 |
| 235 | <i>E. microcorys</i> | 0.3 | 15 |
| 236 | <i>E. microcorys</i> | 0.3 | 15 |
| 237 | <i>E. microcorys</i> | 0.2 | 15 |
| 238 | <i>E. microcorys</i> | 0.3 | 15 |
| 239 | <i>E. microcorys</i> | 0.3 | 15 |
| 240 | <i>E. microcorys</i> | 0.7 | 20 |
| 241 | <i>E. microcorys</i> | 0.8 | 20 |
| 242 | <i>E. microcorys</i> | 0.5 | 18 |
| 243 | <i>E. microcorys</i> | 0.8 | 20 |
| 244 | <i>E. microcorys</i> | 0.6 | 20 |
| 245 | <i>E. microcorys</i> | 0.8 | 20 |
| 246 | <i>E. microcorys</i> | 0.5 | 20 |
| 247 | <i>E. microcorys</i> | 1.5 | 20 |
| 248 | <i>E. microcorys</i> | 1.9 | 10 |
| 249 | N/A | 1.3 | 20 |
| 250 | <i>E. tereticornis</i> | 0.5 | 15 |
| 251 | <i>E. tereticornis</i> | 1.3 | 20 |
| 252 | <i>E. tereticornis</i> | 1.0 | 20 |
| 253 | <i>E. tereticornis</i> | 1.0 | 20 |
| 254 | <i>E. microcorys</i> | 1.0 | 20 |
| 255 | <i>E. microcorys</i> | 0.4 | 20 |
| 256 | <i>E. microcorys</i> | 0.8 | 20 |
| 257 | <i>E. microcorys</i> | 0.8 | 20 |
| 258 | <i>E. microcorys</i> | 0.5 | 20 |
| 259 | <i>E. microcorys</i> | 0.5 | 20 |
| 260 | <i>E. microcorys</i> | 0.5 | 20 |
| *261 | <i>E. microcorys</i> | 0.5 | 20 |
| 262 | <i>E. microcorys</i> | 0.5 | 20 |
| 263 | <i>E. microcorys</i> | 0.4 | 18 |
| 264 | <i>E. microcorys</i> | 0.8 | 18 |
| 265 | <i>E. microcorys</i> | 0.6 | 18 |
| 266 | <i>E. microcorys</i> | 1.0 | 20 |
| 267 | <i>E. robusta</i> | 0.8 | 15 |
| 268 | <i>E. robusta</i> | 1.2 | 10 |
| 269 | <i>E. tereticornis</i> | 0.8 | 10 |
| 270 | <i>E. robusta</i> | 0.6 | 10 |
| 271 | <i>E. robusta</i> | 0.9 | 10 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|------------------------|-----|--------|
| 272 | <i>E. tereticornis</i> | 0.3 | 10 |
| 273 | <i>E. robusta</i> | 1.0 | 8 |
| 274 | <i>E. robusta</i> | 0.8 | 10 |
| 275 | <i>E. robusta</i> | 0.4 | 10 |
| 276 | <i>E. robusta</i> | 0.8 | 10 |
| 277 | <i>E. robusta</i> | 0.8 | 10 |
| 278 | <i>E. robusta</i> | 0.3 | 10 |
| 279 | <i>E. robusta</i> | 0.2 | 10 |
| 280 | <i>E. robusta</i> | 0.3 | 10 |
| 281 | <i>E. robusta</i> | 0.3 | 10 |
| 282 | <i>E. robusta</i> | 0.4 | 10 |
| 283 | <i>E. robusta</i> | 1.0 | 10 |
| 284 | <i>E. tereticornis</i> | 0.6 | 12 |
| 286 | <i>E. robusta</i> | 1.0 | 10 |
| 287 | <i>E. robusta</i> | 0.8 | 10 |
| 288 | <i>E. robusta</i> | 1.0 | 10 |
| 289 | <i>E. robusta</i> | 0.6 | 10 |
| 290 | <i>E. robusta</i> | 0.8 | 10 |
| 291 | <i>E. robusta</i> | 0.8 | 10 |
| 292 | <i>E. robusta</i> | 0.6 | 10 |
| 293 | <i>E. robusta</i> | 1.0 | 10 |
| 294 | <i>E. robusta</i> | 1.0 | 10 |
| 295 | <i>E. robusta</i> | 1.3 | 10 |
| 296 | <i>E. robusta</i> | 0.4 | 10 |
| 297 | <i>E. robusta</i> | 0.3 | 10 |
| 298 | <i>E. robusta</i> | 1.0 | 10 |
| 299 | <i>E. robusta</i> | 0.9 | 10 |
| 300 | <i>E. robusta</i> | 0.2 | 6 |
| 301 | <i>E. robusta</i> | 1.3 | 10 |
| 302 | <i>E. robusta</i> | 1.0 | 10 |
| 303 | <i>E. robusta</i> | 1.2 | 10 |
| 304 | <i>E. robusta</i> | 0.3 | 10 |
| 305 | <i>E. robusta</i> | 0.4 | 10 |
| 306 | <i>E. robusta</i> | 0.4 | 10 |
| 307 | <i>E. robusta</i> | 0.4 | 10 |
| 308 | <i>E. robusta</i> | 0.3 | 6 |
| 309 | <i>E. robusta</i> | 0.7 | 8 |
| 310 | <i>E. robusta</i> | 0.8 | 10 |
| 311 | <i>E. robusta</i> | 0.4 | 10 |
| 312 | <i>E. robusta</i> | 0.4 | 10 |
| 313 | <i>E. robusta</i> | 0.3 | 8 |
| 314 | <i>E. robusta</i> | 0.2 | 8 |
| 315 | <i>E. robusta</i> | 0.3 | 8 |
| 316 | <i>E. robusta</i> | 0.8 | 10 |
| 317 | <i>E. robusta</i> | 1.5 | 10 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|-------------------|-----|--------|
| 318 | <i>E. robusta</i> | 0.8 | 10 |
| 319 | <i>E. robusta</i> | 1.0 | 10 |
| 320 | <i>E. robusta</i> | 1.2 | 10 |
| 321 | <i>E. robusta</i> | 1.3 | 10 |
| 322 | <i>E. robusta</i> | 0.5 | 10 |
| 323 | <i>E. robusta</i> | 0.5 | 10 |
| 324 | <i>E. robusta</i> | 0.6 | 10 |
| 325 | <i>E. signata</i> | 1.5 | 18 |
| 326 | <i>E. robusta</i> | 0.8 | 10 |
| 327 | <i>E. robusta</i> | 1.0 | 10 |
| 328 | <i>E. robusta</i> | 0.4 | 8 |
| 329 | <i>E. robusta</i> | 0.6 | 10 |
| 330 | <i>E. robusta</i> | 0.3 | 8 |
| 331 | <i>E. robusta</i> | 0.5 | 8 |
| 332 | <i>E. robusta</i> | 1.0 | 8 |
| 333 | <i>E. signata</i> | 1.0 | 10 |
| 334 | <i>E. signata</i> | 0.8 | 10 |
| 335 | <i>E. signata</i> | 0.6 | 10 |
| 336 | <i>E. signata</i> | 0.6 | 10 |
| 337 | <i>E. robusta</i> | 0.4 | 10 |
| 338 | <i>E. signata</i> | 0.3 | 8 |
| 339 | <i>E. signata</i> | 0.6 | 8 |
| 340 | <i>E. signata</i> | 0.3 | 8 |
| 341 | <i>E. signata</i> | 0.3 | 8 |
| 342 | <i>E. signata</i> | 0.2 | 8 |
| 343 | <i>E. signata</i> | 0.2 | 8 |
| 344 | <i>E. signata</i> | 0.6 | 8 |
| 345 | <i>E. signata</i> | 0.6 | 8 |
| 346 | <i>E. signata</i> | 0.6 | 8 |
| 347 | <i>E. signata</i> | 0.5 | 8 |
| 348 | <i>E. signata</i> | 0.3 | 8 |
| 349 | <i>E. signata</i> | 0.4 | 10 |
| 350 | <i>E. signata</i> | 1.0 | 10 |
| 351 | <i>E. signata</i> | 0.2 | 8 |
| 352 | <i>E. signata</i> | 0.2 | 8 |
| 353 | <i>E. signata</i> | 0.2 | 8 |
| 354 | <i>E. signata</i> | 0.8 | 10 |
| 355 | <i>E. signata</i> | 0.8 | 15 |
| 356 | <i>E. signata</i> | 0.6 | 12 |
| 357 | <i>E. signata</i> | 0.3 | 8 |
| 358 | <i>E. signata</i> | 0.8 | 12 |
| 359 | <i>E. robusta</i> | 0.4 | 10 |
| 360 | <i>E. robusta</i> | 0.4 | 10 |
| 361 | <i>E. signata</i> | 0.5 | 12 |
| 362 | <i>E. robusta</i> | 0.9 | 12 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|------------------------|-----|--------|
| 363 | <i>E. robusta</i> | 1.5 | 12 |
| 364 | <i>E. robusta</i> | 0.8 | 12 |
| 365 | <i>E. robusta</i> | 0.8 | 12 |
| 366 | <i>E. robusta</i> | 0.8 | 12 |
| 367 | <i>E. signata</i> | 0.8 | 10 |
| 368 | <i>E. signata</i> | 0.6 | 10 |
| 369 | <i>E. signata</i> | 1.0 | 10 |
| 370 | <i>E. signata</i> | 0.8 | 12 |
| 371 | <i>E. signata</i> | 1.0 | 12 |
| 372 | <i>E. signata</i> | 0.8 | 10 |
| 373 | <i>E. signata</i> | 0.6 | 10 |
| 374 | <i>E. signata</i> | 1.0 | 10 |
| 375 | <i>E. signata</i> | 0.2 | 10 |
| 376 | <i>E. signata</i> | 0.3 | 10 |
| 377 | <i>E. signata</i> | 0.3 | 8 |
| 378 | <i>E. signata</i> | 0.2 | 8 |
| 379 | <i>E. signata</i> | 1.0 | 10 |
| 380 | <i>E. signata</i> | 0.8 | 10 |
| 381 | <i>E. signata</i> | 1.0 | 10 |
| 382 | <i>E. signata</i> | 0.8 | 12 |
| 383 | <i>E. signata</i> | 0.3 | 10 |
| 384 | <i>E. signata</i> | 0.4 | 10 |
| 385 | <i>E. signata</i> | 0.5 | 10 |
| 386 | <i>E. signata</i> | 0.5 | 10 |
| 387 | <i>E. signata</i> | 0.8 | 12 |
| 388 | <i>E. signata</i> | 0.8 | 10 |
| 389 | <i>E. signata</i> | 0.3 | 10 |
| 390 | <i>E. signata</i> | 0.4 | 10 |
| 391 | <i>E. signata</i> | 0.8 | 10 |
| 392 | <i>E. signata</i> | 0.6 | 10 |
| 393 | <i>E. signata</i> | 1.0 | 12 |
| 394 | <i>E. signata</i> | 1.0 | 12 |
| 395 | <i>E. signata</i> | 0.8 | 12 |
| 396 | <i>E. signata</i> | 0.8 | 12 |
| 397 | <i>E. signata</i> | 0.8 | 12 |
| 398 | <i>E. signata</i> | 0.8 | 12 |
| 399 | <i>E. signata</i> | 0.8 | 12 |
| 400 | <i>E. signata</i> | 0.3 | 10 |
| 401 | <i>E. signata</i> | 1.0 | 10 |
| 402 | <i>E. signata</i> | 0.8 | 10 |
| 403 | <i>E. signata</i> | 0.3 | 8 |
| 404 | <i>E. signata</i> | 1.0 | 10 |
| 405 | <i>E. tereticornis</i> | 0.6 | 8 |
| 406 | <i>E. tereticornis</i> | 1.5 | 20 |
| 407 | <i>E. tereticornis</i> | 1.5 | 20 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|------------------------|-----|--------|
| 408 | <i>E. tereticornis</i> | 0.6 | 20 |
| 409 | <i>E. tereticornis</i> | 0.6 | 20 |
| 410 | <i>E. tereticornis</i> | 0.6 | 20 |
| 411 | <i>E. tereticornis</i> | 1.0 | 20 |
| 412 | <i>E. tereticornis</i> | 1.3 | 20 |
| 413 | <i>E. tereticornis</i> | 1.3 | 20 |
| 414 | <i>E. tereticornis</i> | 0.6 | 20 |
| 415 | <i>E. tereticornis</i> | 0.8 | 20 |
| 416 | <i>E. tereticornis</i> | 0.8 | 20 |
| 417 | <i>E. tereticornis</i> | 0.6 | 15 |
| 418 | <i>E. tereticornis</i> | 0.4 | 15 |
| 419 | <i>E. tereticornis</i> | 0.4 | 15 |
| 420 | <i>E. tereticornis</i> | 0.4 | 15 |
| 421 | <i>E. tereticornis</i> | 0.4 | 15 |
| 422 | <i>E. tereticornis</i> | 0.4 | 15 |
| 423 | <i>E. tereticornis</i> | 2.0 | 25 |
| 424 | <i>E. tereticornis</i> | 0.4 | 20 |
| 425 | <i>E. tereticornis</i> | 0.6 | 20 |
| 426 | <i>E. tereticornis</i> | 0.6 | 20 |
| 427 | <i>E. tereticornis</i> | 0.8 | 25 |
| 428 | <i>E. tereticornis</i> | 0.8 | 25 |
| 429 | <i>E. tereticornis</i> | 0.4 | 15 |
| 430 | <i>E. tereticornis</i> | 1.0 | 20 |
| 431 | <i>E. tereticornis</i> | 1.0 | 20 |
| 432 | <i>E. tereticornis</i> | 0.8 | 20 |
| 433 | <i>E. tereticornis</i> | 0.4 | 15 |
| 434 | <i>E. tereticornis</i> | 1.0 | 20 |
| 435 | <i>E. tereticornis</i> | 1.0 | 20 |
| 436 | <i>E. tereticornis</i> | 1.0 | 20 |
| 437 | <i>E. tereticornis</i> | 1.0 | 20 |
| 438 | <i>E. tereticornis</i> | 1.0 | 20 |
| 439 | <i>E. tereticornis</i> | 0.6 | 15 |
| 440 | <i>E. tereticornis</i> | 2.0 | 20 |
| 441 | <i>E. tereticornis</i> | 1.0 | 15 |
| 442 | <i>E. tereticornis</i> | 1.2 | 25 |
| 443 | <i>E. tereticornis</i> | 1.3 | 25 |
| 444 | <i>E. tereticornis</i> | 1.0 | 25 |
| 445 | <i>E. tereticornis</i> | 1.2 | 25 |
| 446 | <i>E. tereticornis</i> | 0.8 | 20 |
| 447 | <i>E. microcorys</i> | 1.2 | 20 |
| 448 | <i>E. microcorys</i> | 0.5 | 20 |
| 449 | <i>E. microcorys</i> | 1.0 | 20 |
| 450 | <i>E. microcorys</i> | 0.5 | 20 |
| 451 | <i>E. microcorys</i> | 0.6 | 20 |
| 452 | <i>E. microcorys</i> | 2.0 | 20 |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|--------------------------|----------|--------|
| 453 | <i>E. microcorys</i> | 0.6 | 20 |
| 454 | <i>E. microcorys</i> | 0.3 | 20 |
| 455 | <i>E. microcorys</i> | 0.4 | 20 |
| 456 | <i>E. microcorys</i> x 2 | 1.0, 0.2 | 20, 20 |
| 457 | <i>E. microcorys</i> | 1.3 | 20 |
| 458 | <i>E. microcorys</i> | 0.8 | 20 |
| 459 | <i>E. microcorys</i> | 2.0 | 20 |
| 460 | <i>E. robusta</i> | 1.0 | 20 |
| 461 | <i>E. tereticornis</i> | 0.6 | 20 |
| 462 | <i>E. tereticornis</i> | 1.0 | 20 |
| 463 | <i>E. tereticornis</i> | 1.2 | 25 |
| 464 | <i>E. tereticornis</i> | 0.8 | 20 |
| 465 | <i>E. tereticornis</i> | 0.8 | 20 |
| 467 | <i>E. tereticornis</i> | 1.0 | 20 |
| 468 | <i>E. tereticornis</i> | 0.6 | 20 |
| 469 | <i>E. tereticornis</i> | 0.6 | 20 |
| 470 | <i>E. tereticornis</i> | 0.6 | 12 |
| 471 | <i>E. tereticornis</i> | 0.6 | 15 |
| 472 | <i>E. signata</i> | n/a | n/a |
| 473 | <i>E. signata</i> | n/a | n/a |
| 474 | <i>E. signata</i> | n/a | n/a |
| 475 | <i>E. signata</i> | n/a | n/a |
| 476 | <i>E. signata</i> | n/a | n/a |
| 477 | <i>E. signata</i> | n/a | n/a |
| 478 | <i>E. signata</i> | n/a | n/a |
| 479 | <i>E. signata</i> | n/a | n/a |
| 480 | <i>E. signata</i> | n/a | n/a |
| 481 | <i>E. signata</i> | n/a | n/a |
| 482 | <i>E. signata</i> | n/a | n/a |
| 483 | <i>E. signata</i> | n/a | n/a |
| 484 | <i>E. signata</i> | n/a | n/a |
| 485 | <i>E. signata</i> | n/a | n/a |
| 486 | <i>E. signata</i> | n/a | n/a |
| 487 | <i>E. signata</i> | n/a | n/a |
| 488 | <i>E. signata</i> | n/a | n/a |
| 489 | <i>E. signata</i> | n/a | n/a |
| 490 | <i>E. signata</i> | n/a | n/a |
| 491 | <i>E. signata</i> | n/a | n/a |
| 492 | <i>E. signata</i> | n/a | n/a |
| 493 | <i>E. signata</i> | n/a | n/a |
| 494 | <i>E. signata</i> | n/a | n/a |
| 495 | <i>E. signata</i> | n/a | n/a |
| 496 | <i>E. signata</i> | n/a | n/a |
| 497 | <i>E. signata</i> | n/a | n/a |
| 498 | <i>E. signata</i> | n/a | n/a |



SEPP 44 Assessment - Cobaki Lakes

| Survey No. | Species | DBH | Height |
|------------|-------------------|-----|--------|
| 499 | <i>E. signata</i> | n/a | n/a |
| 500 | <i>E. signata</i> | n/a | n/a |
| 501 | <i>E. signata</i> | n/a | n/a |
| 502 | <i>E. signata</i> | n/a | n/a |
| 503 | <i>E. signata</i> | n/a | n/a |
| 504 | <i>E. signata</i> | n/a | n/a |
| 505 | <i>E. signata</i> | n/a | n/a |
| 506 | <i>E. signata</i> | n/a | n/a |
| 507 | <i>E. signata</i> | n/a | n/a |
| 508 | <i>E. signata</i> | n/a | n/a |
| 509 | <i>E. signata</i> | n/a | n/a |
| 510 | <i>E. signata</i> | n/a | n/a |
| 511 | <i>E. signata</i> | n/a | n/a |
| 512 | <i>E. signata</i> | n/a | n/a |
| 513 | <i>E. signata</i> | n/a | n/a |
| 514 | <i>E. signata</i> | n/a | n/a |
| 515 | <i>E. signata</i> | n/a | n/a |
| 516 | <i>E. signata</i> | n/a | n/a |
| 517 | <i>E. signata</i> | n/a | n/a |
| 518 | <i>E. signata</i> | n/a | n/a |
| 519 | <i>E. signata</i> | n/a | n/a |
| 520 | <i>E. signata</i> | n/a | n/a |

* denotes specimens off site