

Maitland City Council

DRAFT

**Update to Ecological Significance of the
Natural Vegetation of Maitland LGA,
Mapped in 2003**

September 2009

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Mapped in 2003**

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Maitland City Council

Project Director:	Travis Peake	
Project Manager:	Liza Hill	
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2/20 The Boulevard
PO Box 838
Toronto NSW 2283

Ph: 02 4950 5322
Fax: 02 4950 5737
Email: mail@umwelt.com.au
Website: www.umwelt.com.au

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1.0 Introduction

This report provides an outline of work undertaken to update the ecological significance assessment of vegetation mapped and described in Maitland Local Government Area (LGA) by Hill (2003). Hill (2003) carried out systematic survey and mapping of natural vegetation in Maitland LGA and provided Maitland City Council (the Council) with comprehensive ecological information for strategic planning purposes. The Council is currently preparing its draft LEP 2011 and requires an update to the ecological significance assessment of native vegetation communities and remnants in the LGA.

Flora was sampled by Hill (2003) at 55 field survey sites, and 13 native vegetation communities were described and mapped based on the results of the survey and subsequent analyses. At the completion of Hill (2003), three of these 13 vegetation communities were listed on the NSW *Threatened Species Conservation Act 1995* (TSC Act) as endangered ecological communities (EECs) and three were nominated for listing as EECs (see **Table 1.1**). In addition, one community that was listed as an EEC on the TSC Act was believed to be extinct in Maitland LGA. Currently, this community, Lowland Rainforest on Floodplain, is still believed to be extinct in the LGA.

Ecological significance assessment of extant vegetation in Maitland LGA was carried out by Hill (2003) based on the results of vegetation survey and mapping and literature review. The results of this assessment were presented in Hill (2003) in two components: (1) Community-level and (2) Landscape-level (Hill 2003, pp. 49-52). The community level assessment incorporated five measurements of vegetation ecological significance: (1) Presence of a currently listed EEC on the TSC Act; (2) Presence of a vegetation community likely to meet the criteria for listing as threatened under the TSC Act or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); (3) Presence of important ecosystem/vegetation type, including riparian vegetation and/or a naturally occurring wetland; (4) Reservation level of vegetation community at regional level; and (5) Percentage of pre-1750 vegetation community remaining in region.

Several vegetation communities have been listed as threatened ecological communities (TECs) under the TSC Act since the completion of Hill (2003). Consequently, the community-level assessment provided by Hill (2003) is no longer completely relevant. The Council requires this assessment to be updated to reflect changes to threatened ecological community listings on the TSC Act, which will be incorporated into the Draft Maitland Local Environment Plan (LEP) 2011.

Vulnerable Ecological Communities (VECs) and Critically Endangered Ecological Communities (CEECs) were added to Part 2 of Schedule 5 of the TSC Act as a result of the *Threatened Species Legislation Amendment Act 2004*.

The implications of a VEC differ slightly from those of CEECs and EECs, in that an assessment of significance (7 part test) in accordance with the *Environmental Planning and Assessment Act 1979* (EPA Act) is not required for a VEC. As such, the VEC does not provide legislative protection for a community, but rather highlights its conservation significance and the potential risk of the community becoming endangered in the future should it continue to be threatened. Notwithstanding this, VECs are relevant to the preparation of environmental planning instruments under Section 26 of the EPA Act.

Table 1.1 lists relevant EECs that were listed or nominated at the completion of Hill (2003) and **Table 1.2** lists relevant TECs – those that are known or likely to occur in Maitland LGA - that have been listed on the TSC Act since the completion of this work.

Table 1.1 – Legal Status of Vegetation Communities in Maitland LGA as of September 2003

Maitland Vegetation Community (Hill 2003)	Equivalent EEC listed on the TSC Act	Status on TSC Act	Status on EPBC Act
Hunter Valley Dry Rainforest (Unit 1)	n/a	Nominated	not listed
Alluvial Tall Moist Forest (Unit 2)	n/a	Nominated	not listed
Alluvial River Oak Forest (Unit 3)	none		
Hunter Valley Moist Forest (Unit 4)	none		
Central Hunter Riparian Forest (Unit 5)	none		
Seaham Spotted Gum Forest (Unit 6)	none		
Lower Hunter Spotted Gum – Ironbark Forest (Unit 7)	n/a	Nominated	not listed
Hunter Stringybark Spotted Gum Open Forest (Unit 8)	none		
Hunter Lowlands Redgum Forest Variant (Unit 9)	Hunter Lowland Redgum Forest in the NSW North Coast and Sydney Basin	EEC	not listed
Hunter Lowlands Redgum Moist Forest (Unit 10)	Hunter Lowland Redgum Forest in the NSW North Coast and Sydney Basin	EEC	not listed
Kurri Sand Swamp Woodland (Unit 11)	Kurri Sand Swamp Woodland in the Sydney Basin Bioregion	EEC	not listed
Swamp Oak Alluvial Forest (Unit 12)	none		
Freshwater Wetland Complex (Unit 13)	none		
Lowland Rainforest on Floodplain (probably extinct in Maitland LGA)	Lowland Rainforest on Floodplain	EEC	not listed

Notes: EEC = Endangered Ecological Community

TSC Act Status – the “nominated” communities have reportedly been nominated for listing on the TSC Act, although as of September 2003 no preliminary determination had been made.

Table 1.2 – Threatened Ecological Communities Relevant to Maitland LGA August 2009

Threatened Ecological Community	Status on TSC Act	Status on EPBC Act
Lower Hunter Dry Rainforest in the Sydney Basin and NSW North Coast Bioregions of NSW	VEC	not listed
River-Flat Eucalypt Forest in the Sydney Basin Bioregion	EEC	not listed
Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin Bioregion	EEC	not listed
Hunter Lowland Redgum Forest in the Sydney Basin and NSW North Coast Bioregion	EEC	not listed
Kurri Sand Swamp Woodland in the Sydney Basin Bioregion	EEC	not listed
Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions	EEC	not listed
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion (Probably Extinct In Maitland LGA)	EEC	not listed
Freshwater on Floodplain Sydney Basin and South East Corner Bioregions	EEC	not listed

Notes: EEC = Endangered Ecological Community

VEC = Vulnerable Ecological Community

2.0 Method

2.1 Assessment of Status on the TSC Act

The conformation and/or equivalency of vegetation units mapped in Maitland LGA by Hill (2003), to threatened ecological communities (TECs) that are currently listed under the TSC Act was assessed. This assessment was carried out using a number of attributes. Details of vegetation communities provided by Hill (2003) and the NSW Scientific Committee (2008a, b, c, d, e and f) were compared to identify similarities between the two sources. In particular, floristic makeup, vegetation structure, habitat (soils, aspect, elevation etc) and location were reviewed. The following attributes of communities described in Hill (2003) were compared to the relevant TEC profile:

- total number and proportion of plant taxa recorded that are characteristic of the TEC;
- dominance of plant taxa in each strata that are characteristic of the TEC;
- existence of vegetation structure that is characteristic of the TEC;
- occurrence within the characteristic habitat and/or situation of the TEC;
- occurrence within the described location of the TEC; and
- other important attributes of the TEC.

The conformation of the Maitland units to the TECs was determined based on the results of this analysis and the field knowledge of the author (Liza Hill).

The work described herein involved only a desktop assessment, with no further (to Hill 2003) survey and mapping of vegetation carried out.

2.2 Update of Ecological Significance Modelling

Hill (2003) used criteria provided by Landsberg, which has since been superseded by new, though largely equivalent, criteria in DEWHA (2009). **Table 2.1** outlines the ecological assessment categories applied to the update of ecological significance for Maitland LGA, using the DEWHA (2009) criteria.

Table 2.1 has been produced using Table 4.1 in Hill (2003 p. 36) with alterations made to the categories to reflect changes introduced in the *Threatened Species Legislation Amendment Act 2004* (see **Section 4**): namely the inclusion into Category A of three sub-categories (A1, A2 and A3) that allow for separate targeting of the three levels of listings available for TECs. Although there are currently no CEECs in Maitland LGA, category A1 has been included to facilitate any such future determinations.

The reservation level of communities at a regional level and their consistency with criteria in DEWHA (2009) was assessed based on review of recent relevant literature including Peake (2006) and DECC (2009) and intuitive assessment by the author.

Table 2.1 - Ecological Assessment Categories Applied in Maitland LGA at the Community-Level

Category	Details
Community-level (Features of Vegetation Communities/Polygons):	
A1	Listed CEEC on the TSC Act or EPBC Act
A2	Listed EEC on the TSC Act or EPBC Act
A3	Listed VEC on the TSC Act or EPBC Act
B	Is not listed on the TSC Act or EPBC Act, <i>BUT</i> Meets Criteria 1 (C); 1 (E), 1 (V), <i>OR</i> Meets Criteria 2(VR) AND Reservation Level Very Low, <i>OR</i> Meets Criteria 2(R) AND Reservation Level Very Low, <i>OR</i> Meets Criteria 2(L) AND Reservation Level Very Low
C	Is not listed on the TSC Act or EPBC Act, <i>BUT</i> Meets Criteria 2(R) AND Reservation Level Low or better, <i>OR</i> Meets Criteria 2(L) AND Reservation Level Low or better, <i>OR</i> Important Ecosystem/Vegetation Type Present
D	EPBC Criteria nil and reservation level moderate or better

Note: Criteria refer to EPBC Act criteria for listing TEC that is provided in DEWHA (2009):

1 (C) = Critically Endangered, very severe decline of 95% or more of original distribution.

1 (E) = Endangered, severe decline of 90-95% of original distribution.

1 (V) = Vulnerable, substantial decline of 70-90% of original distribution.

2 (VR) = Very Restricted with demonstrable threat in the immediate future; total area of occupancy is < 1,000 ha, or total extent of occurrence is < 10,000 ha or patch sizes generally < 10 ha.

2 (R) = Restricted with demonstrable threat in the near future; total area of occupancy is 1,000-10,000 ha, or total extent of occurrence is 10,000-100,000 ha or patch sizes generally 10-100 ha.

2 (L) = Limited with demonstrable threat in the medium term; total area of occupancy is 10,000-100,000 ha, or total extent of occurrence is 100,000-1,000,000 ha.

3.0 Results

Eight vegetation communities which were mapped in Maitland LGA by Hill (2003) are equivalent to TECs listed under the TSC Act. Seven are EECs and one is a VEC. Additionally, one community that is most likely extinct in Maitland LGA, Lowland Rainforest on Floodplain, is equivalent to an EEC. No vegetation communities are equivalent to TECs listed under the EPBC Act. **Table 3.1** summarises these results and details of the assessment are provided in **Section 3.2**. **Table 1.2** provides the full names of the TECs.

In accordance with the method provided in **Table 3.1**, seven vegetation communities fit into Category A2 and one fits into A3. Two fit into category B and the remaining three communities fit into category C. There are no Category D communities due to the low reservation level and limited geographical extent (and therefore higher conservation significance) of communities that occur in Maitland LGA. **Table 3.2** illustrates the updated ecological assessment categories of vegetation communities.

Vegetation mapped in Maitland LGA was updated to reflect the results shown in **Table 3.2**. This mapping has been provided the Council as a digital MapInfo file.

Table 3.1 – Threatened Ecological Communities in Maitland LGA as of August 2009

Maitland Vegetation Community (Hill 2003)	Threatened Ecological Community listed on the TSC Act	Status on TSC Act	Status on EPBC Act
Hunter Valley Dry Rainforest (Unit 1)	Lower Hunter Dry Rainforest	VEC	not listed
Alluvial Tall Moist Forest (Unit 2)	River-flat Eucalypt Forest	EEC	not listed
Alluvial River Oak Forest (Unit 3)	-		not listed
Hunter Valley Moist Forest (Unit 4)	-		
Central Hunter Riparian Forest (Unit 5)	-		not listed
Seaham Spotted Gum Forest (Unit 6)	-		
Lower Hunter Spotted Gum – Ironbark Forest (Unit 7)	Lower Hunter Spotted Gum – Ironbark Forest	EEC	not listed
Hunter Stringybark Spotted Gum Open Forest (Unit 8)	-		
Hunter Lowlands Redgum Forest Variant (Unit 9)	Hunter Lowland Redgum Forest	EEC	not listed
Hunter Lowlands Redgum Moist Forest (Unit 10)	Hunter Lowland Redgum Forest	EEC	not listed
Kurri Sand Swamp Woodland (Unit 11)	Kurri Sand Swamp Woodland	EEC	not listed
Swamp Oak Alluvial Forest (Unit 12)	Swamp Oak Estuarine Forest	EEC	not listed
Freshwater Wetland Complex (Unit 13)	Freshwater Wetland	EEC	not listed
Lowland Rainforest on Floodplain (probably extinct in Maitland LGA)	Lowland Rainforest on Floodplain	EEC	not listed

Table 3.2 – Ecological Assessment Categories at the Community-level of Vegetation Communities in Maitland LGA

Maitland Vegetation Community (Hill 2003)	Category in Hill (2003)	New Category	Reason for new categorisation
Hunter Valley Dry Rainforest (Unit 1)	B	A3	Equals VEC
Alluvial Tall Moist Forest (Unit 2)	B	A2	Equals EEC
Alluvial River Open Alluvial Forest (Unit 3)	C	B	Meets Criteria 1 (E) and 2 (R); Regional reservation low-nil
Hunter Valley Moist Forest (Unit 4)	C	C	Meets Criteria 2 (L); Regional reservation low-moderate
Central Hunter Riparian Forest (Unit 5)	C	B	Meets Criteria 1 (C)
Seaham Spotted Gum Forest (Unit 6)	C	C	Meets Criteria 2 (R); Regional reservation low
Lower Hunter Spotted Gum – Ironbark Forest (Unit 7)	B	A2	Equals EEC
Hunter Stringybark Spotted Gum Open Forest (Unit 8)	C	C	Meets Criteria 2 (L); Regional reservation low
Hunter Lowlands Redgum Forest Variant (Unit 9)	A	A2	Equals EEC
Hunter Lowlands Redgum Moist Forest (Unit 10)	A	A2	Equals EEC
Kurri Sand Swamp Woodland (Unit 11)	A	A2	Equals EEC
Swamp Oak Alluvial Forest (Unit 12)	C	A2	Equals EEC
Freshwater Wetland Complex (Unit 13)	C	A2	Equals EEC
Lowland Rainforest on Floodplain (probably extinct in Maitland LGA)	A	A2	Equals EEC

4.0 Discussion

4.1 Hunter Valley Dry Rainforest (Unit 1)

Hunter Valley Dry Rainforest (Unit 1) described by Hill (2003) is consistent with the VEC, Lower Hunter Valley Dry Rainforest (NSW Scientific Committee 2008a). The VEC listing for the Lower Hunter Valley Dry Rainforest comprises 59 flora species which characterise the VEC. Of these 59 species, the Hunter Valley Dry Rainforest within Maitland LGA supports 45 species, which equates to 76.3% of the VEC list of characteristic species and 37.9% of total species recorded in Unit 1. This demonstrates a strong correlation between the two communities.

In addition to the floristic composition, there are strong correlations with the structural composition as well as the geographic characteristics of the VEC and Hunter Valley Dry Rainforest in Maitland LGA. **Table 4.1** summarises the conformation of Unit 1 to the characteristic features of the Lower Hunter Dry Rainforest provided in the final determination for the VEC (NSW Scientific Committee 2008a).

Table 4.1 – Conformation of Hunter Valley Dry Rainforest (Unit 1) to VEC, Lower Hunter Dry Rainforest

Features of TEC	Details of VEC ^a	Conformation of Unit 1 to VEC characteristics ^b
No. & % species in common between VEC and Unit 1	45 species (76.3% of VEC listing)	45 species (37.9% of Unit 1)
Location / Bioregion	Lower Hunter / Sydney Basin and NSW North Coast	Yes: occurs in Sydney Basin and NSW North Coast
Physiographic / position in the Landscape	Gullies and steep hillslopes with south facing aspects. Generally found at elevations less than 300 m ASL	Yes: recorded in gullies and sheltered slopes usually with south and east aspects; below 300 m ASL
Geology / Soils	Carboniferous sediments of the Barrington footslopes along the northern rim of the Hunter Valley Floor	Yes: recorded in the Carboniferous landscape on the northern rim of the Hunter Valley floor.
Canopy density	40-80%	Partly: mean 33.1% +/-35.6%
Canopy height	15-25m	Yes: mean 20.8m: range 8-35m
Emergent tree height	20-30m	Yes: mean 20m: range 15-22m
Shrub & ground cover density	Dense shrub and ground layer	Partly: shrubs 28% +/-27%; ground layer 25% +/-25%
Other floristic features	Vines are abundant	Yes: 10 vine species recorded with high frequency
Dominant canopy plants of the VEC recorded in Unit 1 (c/a) ^c	<i>Alectryon subcinereus</i> (3), <i>Alectryon tomentosus</i> (3), <i>Brachychiton populneus</i> subsp. <i>populneus</i> (4), <i>Streblus brunonianus</i> (3), <i>Cupaniopsis anacardioides</i> (3), <i>Mallotus philippensis</i> (4), <i>Melia azedarach</i> (3), <i>Aphanopetalum resinsum</i> (2), <i>Capparis arborea</i> (2) and <i>Elaeocarpus obovatus</i> (2).	
Dominant understorey plants of the VEC recorded in Unit 1 (c/a) ^c	<i>Olea paniculata</i> (3), <i>Oplismenus aemulus</i> (4), <i>Parsonsia straminea</i> (3), <i>Adiantum aethiopicum</i> (3), <i>Cayratia clematidea</i> (2), <i>Geitonoplesium cymosum</i> (2), <i>Notelaea longifolia</i> (2), <i>Pandorea pandorana</i> var. <i>pandorana</i> (2)	

Notes: a. Paraphrased from NSW Scientific Committee (2008a)
b. Details from Hill (2003)
c. c/a = mean cover abundance recorded in Hill (2003) community.

4.2 Alluvial Tall Moist Forest (Unit 2)

Alluvial Tall Moist Forest (Unit 2) in the Maitland LGA described by Hill (2003) is an example of the EEC, River Flat Eucalypt Forest on Coastal Floodplains (NSW Scientific Committee 2008b). However, it does not represent a core range of this EEC, which is generally closer to the coast although occurrences have also been mapped in Cessnock and Singleton LGAs.

The EEC listing for River Flat Eucalypt Forest on Coastal Floodplains comprises 88 flora species which characterise the EEC. Of these 88 species, Alluvial Tall Moist Forest (Unit 2) within Maitland LGA supports 50 species, which equate to 50% of the EEC list of characteristic species and 34.9% of total species recorded in Unit 2. This demonstrates a moderate to strong correlation between the two communities.

In Maitland LGA, Alluvial Tall Moist Forest occurs in stream channels in the south-east of the LGA along Four Mile Creek and Scotch Dairy Creek around Ashtonfield and Thornton at about 10m ASL. DECC (2007a) states that this EEC is *typical of alluvial flats, drainage lines and river terraces associated with coastal floodplains below 50 m ASL*, which corresponds with occurrences of Unit 2 in Maitland LGA.

DECC (2007a) states that the EEC, River-flat Eucalypt Forest can be identified by these key indicators: (1) its location south of Port Stephens in the NSW North Coast, Sydney Basin or South East Corner bioregions; (2) its location on the coastal floodplain; (3) the presence of silty, clay or sandy loam soil with a lack of deep humic layers that has little or no saline influence; (4) its location on a river flat or terrace in an upper part of the Coastal Floodplain; (5) an open forest or woodland structure; (6) a mixture of Eucalypt or *Angophora* trees, particularly forest red gum (*Eucalyptus tereticornis*), cabbage gum (*E. amplifolia*) or broad-leaved apple (*Angophora subvelutina*); (7) presence of characteristic shrub and/or groundlayer species and (8) relatively low numbers of she-oaks (*Casuarina* spp.), paperbarks (*Melaleuca* spp.) or swamp mahogany trees. Alluvial Tall Moist Forest (Unit 2) conforms to the key indicators of location (1, 2 and 4), soils (3) and structure (5). Unit 2 conforms to some extent to the key indicators of species composition in the canopy and shrub strata (6, 7 and 8), as there are several indicator species not recorded in the Maitland unit, including cabbage gum (*E. amplifolia*) and *A. subvelutina*. However, 50% of the EEC list of characteristic species was recorded in Unit 2.

Table 4.2 summarises the conformation of Unit 2 to the characteristic features of the River Flat Eucalypt Forest provided in the final determination for the EEC (NSW Scientific Committee 2008b).

Alluvial Tall Moist Forest (Unit 2) has adequate similarities to the EEC River Flat Eucalypt Forest to be considered as its equivalent, although it does not represent a core example of the community.

Table 4.2 – Conformation of Alluvial Tall Moist (Unit 2) to EEC, River Flat Eucalypt Forest

Features of TEC	Details of EEC ^a	Conformations of Unit 2 to EEC characteristics ^b
No. & % species in common between EEC and Unit 1	44 species (50% of EEC listing)	44 species (34.9% of Unit 2)
Location / Bioregion	Several LGAs incl. Maitland. Sydney Basin, NSW North Coast, South Easter Corner	Yes: Sydney Basin & Maitland LGA
Physiographic / position in Landscape	Periodically inundated alluvial flats, drainage lines and river terraces associated with coastal floodplains; active erosion on level landform patterns.	Partly: occurs in stream channels where with minor floodplains
Soils	Silts, clay-loams, sandy loams	Yes: alluviums (sandy loams)
Elevation	Usually below 50 m ASL, and on localised river flats up to 250 m ASL	Yes: mapped <10 m ASL
Canopy density	Open forest to woodland (scattered trees due to clearing)	Yes: open forest (mean cover of 33.8%)
Canopy height	Tall; may exceed 40 m	Yes: tall to very tall (canopy 18-30 m)
Other features	Typically forms mosaics with other floodplain forest communities and treeless wetlands, often on their fringes.	Yes: forms mosaic with several other forest communities on alluvium
Dominant canopy plants of the EEC recorded in Unit 2 (c/a) ^c	<i>Angophora floribunda</i> (2), <i>Acmena smithii</i> (2), <i>Backhousia myrtifolia</i> (2), <i>Eucalyptus grandis</i> (3), <i>E. saligna</i> (2) and <i>E. tereticornis</i> (2)	
Dominant understorey plants of the EEC recorded in Unit 2 (c/a) ^c	<i>Adiantum aethiopicum</i> (3), <i>Breynia oblongifolia</i> (2), <i>Dichondra repens</i> (2), <i>Entolasia marginata</i> (2), <i>E. stricta</i> (3), <i>Eustrephus latifolius</i> (2), <i>Glycine clandestina</i> (2), <i>Imperata cylindrica</i> var. <i>major</i> (3), <i>Lomandra longifolia</i> (3), <i>Pandorea pandorana</i> var. <i>pandorana</i> (2), <i>Oplismenus aemulus</i> (2), <i>Pratia purpurascens</i> (2), <i>Sigesbeckia orientalis</i> (2), <i>Stephania japonica</i> var. <i>discolor</i> (2), <i>Melaleuca linariifolia</i> (3)	

Notes: a. Paraphrased from NSW Scientific Committee (2008b)

b. Details from Hill (2003)

c. c/a = mean cover abundance recorded in Hill (2003) community.

4.3 Alluvial River Oak Forest (Unit 3)

Alluvial River Oak Forest (Unit 3) is not consistent with any currently listed TECs under the TSC Act or EPBC Act. However, this community meets the listing requirement for an EEC of Criteria 1 (E) and 2 (R) due to a severe decline in geographic distribution compared to its pre-1750 extent and its restricted geographic distribution coupled with demonstratable threats to its existence in the near future.

Additionally, it has a very low to nil reservation level in the Hunter region (Peake 2006). It is understood that a likely equivalent community has recently been nominated for listing as a TEC under the TSC Act.

4.4 Hunter Valley Moist Forest (Unit 4)

Hunter Valley Moist Forest (Unit 4) is not consistent with any currently listed TECs under the TSC Act or EPBC Act. However, this community meets the listing requirement for a VEC of Criterion 2 (L) due to its limited geographic distribution coupled with demonstrable threats to its existence in the medium-term future.

Additionally, Hunter Valley Moist Forest has a low to moderate reservation level in the Hunter region (Peake 2006).

4.5 Central Hunter Riparian Forest (Unit 5)

Central Hunter Riparian Forest (Unit 5) is not consistent with any currently listed TECs under the TSC Act or EPBC Act. However, this community meets the listing requirement for an EEC of Criterion 1 (C) due to a very severe decline in geographic distribution compared to its pre-1750 extent (Peake 2006).

4.6 Seaham Spotted Gum Forest (Unit 6)

Seaham Spotted Gum Forest (Unit 6) is not consistent with any currently listed TECs under the TSC Act or EPBC Act. However, this community meets the listing requirement for an EEC of Criterion 2 (R) due to its restricted geographic distribution coupled with demonstrable threats to its existence in the near future.

Additionally, Hunter Valley Moist Forest has a low reservation level in the Hunter region (Peake 2006).

Seaham Spotted Gum Forest (Unit 6) is floristically similar to the Lower Hunter Spotted Gum – Ironbark EEC, although only 16 species recorded in Unit 8 are listed by the NSW Scientific Committee (2008c) as characteristic of the EEC, which equates to 21.9% of species recorded in Unit 6 and 29% of species listed in the EEC final determination. Unit 6 is distinguished by the dominance of a collection of plants that may also occur in the EEC. These include narrow-leaved ironbark (*Eucalyptus crebra*), grey gum (*E. punctata*), white mahogany (*E. acmenoides*), grey box (*E. moluccana*), grey ironbark (*E. siderophloia*), *Acacia falcata*, hickory wattle (*A. implexa*), *Leucopogon juniperinus*, three-awned grass (*Aristida vegans*) and pastel flower (*Pseuderanthemum variabile*) (NSW Scientific Committee 2008c). Additionally, the distribution of Unit 6 is generally outside the core area where the EEC occurs (Cessnock to Beresfield). The NSW Scientific Committee (2008c) explains that the EEC is replaced by Seaham Spotted Gum – Ironbark Forest towards the north-east of the EEC's distribution where sediments of Carboniferous age are typical, compared to the Permian sediments that support Lower Hunter Spotted Gum-Ironbark Forest. The EEC and Seaham unit are also known to intergrade in the Maitland area where these substrates adjoin (NSW Scientific Committee 2008c).

4.7 Lower Hunter Spotted Gum – Ironbark Forest (Unit 7)

Lower Hunter Spotted Gum – Ironbark Forest (Unit 7) in the Maitland LGA described by Hill (2003) is an example of the EEC, Lower Hunter Spotted Gum – Ironbark Forest (NSW Scientific Committee 2008c).

The EEC listing for Lower Hunter Spotted Gum – Ironbark Forest comprises 55 flora species which characterise the EEC. Of these 55 species, the Lower Hunter Spotted Gum – Ironbark Forest (Unit 7) within Maitland LGA supports 45 species, which equates to 81.8% of the EEC list of characteristic species and 23.2% of total species recorded in Unit 7. This demonstrates a strong correlation between the two communities.

In addition to the floristic composition, there are strong correlations with the structural composition as well as the geographic characteristics of the EEC and Lower Hunter Spotted Gum – Ironbark Forest (Unit 7) in Maitland LGA. DECC (2007b) states that a remnant can be identified as the EEC, Lower Hunter Spotted Gum – Ironbark Forest, by (1) its location in the central or lower Hunter Valley; (2) the presence of an open forest or woodland structure and (3) the presence in the tree layer of spotted gum (*Corymbia maculata*) and broad-leaved ironbark (*Eucalyptus fibrosa*). The Maitland Unit 7 conforms to these features.

Table 4.3 summarises the conformation of Unit 7 to the characteristic features of the Lower Hunter Spotted Gum – Ironbark Forest provided in the final determination for the EEC (NSW Scientific Committee 2008c).

Table 4.3 – Conformation of Lower Hunter Spotted Gum – Ironbark Forest (Unit 7) to the EEC, Lower Hunter Spotted Gum – Ironbark Forest

Features of TEC	Details of EEC ^a	Conformations of Unit 7 to EEC characteristics ^b
No. & % species in common between VEC and Unit 7	45 species (81.8% of species in EEC listing)	45 species (23.2% of species recorded in Unit 7)
Location / Bioregion	Sydney Basin - recorded in Cessnock - Beresfield area in the Central and Lower Hunter Valley; LGAs of Cessnock, Maitland, Singleton, Lake Macquarie, Newcastle, Port Stephens and Dungog.	Yes: Sydney Basin; Maitland LGA in the Cessnock – Beresfield area.
Soils	Permian substrates - Dalwood Group, the Maitland Group, Greta and Tomago Coal Measures; Yellow podsolic and solodic soils of the Lower Hunter soil landscapes of Aberdare, Branxton and Neath.	Yes: Permian geology, including the Maitland Group.
Canopy density	Open forest or woodland	Yes: open forest to woodland (mean canopy cover 34.8% +/-8%)
Dominant canopy plants of the VEC recorded in Unit 7 (c/a) ^c	<i>Corymbia maculata</i> (3), <i>Eucalyptus crebra</i> (3), <i>E. fibrosa</i> (3), <i>E. canaliculata</i> intergrades (2), <i>E. punctata</i> (2), <i>E. tereticornis</i> (2) and others	
Dominant understorey plants of the VEC recorded in Unit 7 (c/a) ^c	<i>Acacia parvipinnula</i> (3), <i>Melaleuca nodosa</i> (3), <i>Bursaria spinosa</i> (3), <i>Entolasia stricta</i> (3), <i>Cymbopogon refractus</i> (2), <i>Daviesia ulicifolia</i> (2), <i>Vernonia cinerea</i> (2) and others	

Notes: a. Paraphrased from NSW Scientific Committee (2008c)

b. Details from Hill (2003)

c. c/a = mean cover abundance recorded in Hill (2003) community.

4.8 Hunter Stringybark Spotted Gum Open Forest (Unit 8)

Hunter Stringybark Spotted Gum Open Forest (Unit 8) is not consistent with any currently listed TECs under the TSC Act or EPBC Act. However, this community meets the listing requirement, for a VEC, of Criterion 2 (L) due to its limited geographic distribution coupled with demonstratable threats to its existence in the medium-term future (Peake 2006).

Additionally, Hunter Stringybark Spotted Gum Open Forest has a low reservation level in the Hunter region (Peake 2006).

4.9 Hunter Lowlands Redgum Forest Variant (Unit 9)

Hunter Lowlands Redgum Forest Variant (Unit 9) in the Maitland LGA described by Hill (2003) is an example of the EEC, Hunter Lowlands Redgum Forest (NSW Scientific Committee 2008d).

The EEC listing for Hunter Lowlands Redgum Forest comprises 36 flora species which characterise the EEC. Of these 36 species, the Hunter Lowlands Redgum Forest Variant (Unit 9) within Maitland LGA supports 25 species, which equates to 69.4% of the EEC list of characteristic species and 26.6% of total species recorded in Unit 9. This demonstrates a strong correlation between the two communities.

In addition to the floristic composition, there are strong correlations between the structural composition as well as the geographic characteristics of the EEC and Hunter Lowlands Redgum Forest Variant (Unit 9) in Maitland LGA.

Table 4.4 summarises the conformation of Unit 9 to the characteristic features of the Hunter Lowlands Redgum Forest provided in the final determination for the EEC (NSW Scientific Committee 2008d).

Table 4.4 – Conformation of Hunter Lowlands Redgum Forest Variant (Unit 9) to the EEC, Hunter Lowlands Redgum Forest

Features of TEC	Details of EEC ^a	Conformations of Unit 9 to EEC characteristics ^b
No. & % species in common between VEC and Unit 1	25 species (69.4% of EEC list)	25 species (26.6% of Unit 9)
Location / Bioregion	LGAs of Maitland, Cessnock and Port Stephens (in the Sydney Basin Bioregion) and Muswellbrook and Singleton (in the NSW North Coast Bioregion); Hunter Valley floor in Sydney Basin and NSW North Coast.	Yes (Maitland LGA); Sydney Basin. Occurs from Tocal and Bolwarra Heights to Rutherford and Greta.
Physiographic / position in Landscape	Gentle slopes, depressions, drainage flats.	Yes: occurs on low-lying hills and open depressions.
Soils	Permian sediments.	Yes: occurs mostly on Permian sediments; occurs less on Residual and Carboniferous landscapes.

Table 4.4 – Conformation of Hunter Lowlands Redgum Forest Variant (Unit 9) to the EEC, Hunter Lowlands Redgum Forest (cont)

Features of TEC	Details of EEC ^a	Conformations of Unit 9 to EEC characteristics ^b
Canopy density	Open forest canopy and open; mid-strata of sparse shrubs; affected by clearing (i.e. areas of less dense canopy occur)	Yes: is an open forest to woodland (mean canopy cover 32.9% +/- 13.2%); has a sparse shrub/low tree stratum (mean cover 5-16%).
Dominant canopy plants of the EEC recorded in Unit 9 (c/a) ^c	<i>Eucalyptus tereticornis</i> (3), <i>E. punctata</i> (as <i>E. punctata X canaliculata</i>) (2), <i>Corymbia maculata</i> (2), <i>Eucalyptus crebra</i> (2), <i>Eucalyptus moluccana</i> (4)	
Dominant understorey plants of the EEC recorded in Unit 9 (c/a) ^c	Shrub stratum: <i>Breynia oblongifolia</i> (2), <i>Leucopogon juniperinus</i> (2), <i>Solanum prinophyllum</i> (2). Ground stratum: <i>Microlaena stipoides</i> var. <i>stipoides</i> (4), <i>Cymbopogon refractus</i> (2), <i>Echinopogon caespitosus</i> var. <i>caespitosus</i> (2), <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> (2) <i>Pratia purpurascens</i> (2), <i>Dichondra repens</i> (2)	

Notes: a. Paraphrased from NSW Scientific Committee (2008d)

b. Details from Hill (2003)

c. c/a = mean cover abundance recorded in Hill (2003) community.

4.10 Hunter Lowlands Redgum Moist Forest (Unit 10)

Hunter Lowlands Redgum Forest (Unit 10) in the Maitland LGA described by Hill (2003) is an example of the EEC, Hunter Lowlands Redgum Forest (NSW Scientific Committee 2008d).

The EEC listing for Hunter Lowlands Redgum Forest comprises 36 flora species which characterise the EEC. Of these 36 species, the Hunter Lowlands Redgum Forest (Unit 10) within Maitland LGA supports 23 species, which equates to 63.9% of the EEC list of characteristic species and 35.4% of total species recorded in Unit 10. This demonstrates a strong correlation between the two communities.

In addition to the floristic composition, there are strong correlations with the structural composition as well as the geographic characteristics of the EEC and Hunter Lowlands Redgum Forest (Unit 10) in Maitland LGA.

Table 4.5 summarises the conformation of Unit 10 to the characteristic features of the Hunter Lowlands Redgum Forest provided in the final determination for the EEC (NSW Scientific Committee 2008d).

Table 4.5 – Conformation of Hunter Lowlands Redgum Forest (Unit 10) to the EEC, Hunter Lowlands Redgum Forest

Features of TEC	Details of EEC ^a	Conformations of Unit 10 to EEC characteristics ^b
No. & % species in common between VEC and Unit 1	23 species (63.9% of EEC list)	23 species (35.4% of Unit 10)
Location/Bioregion	LGAs of Maitland, Cessnock and Port Stephens (in the Sydney Basin Bioregion) and Muswellbrook and Singleton (in the NSW North Coast Bioregion); Hunter Valley floor in Sydney Basin and NSW North Coast.	Yes: (Maitland LGA); Sydney Basin and NSW North Coast. Occurs in the Thornton-Metford area.
Physiographic/position in Landscape	Gentle slopes, depressions, drainage flats.	Yes: occurs on lowland streams on margins of alluvial plains, level to very gently inclined open depressions, stream flats and adjacent lower slopes.
Soils	Permian sediments.	Yes: Permian soils.
Canopy density	Open forest canopy and open; mid-strata of sparse shrubs; affected by clearing (i.e. areas of less dense canopy occur).	Yes: is an open forest (mean canopy cover 35% +/-10%); has a variable shrub/low tree stratum that ranges from sparse to dense (mean cover of about 11-47%).
Dominant canopy plants of the EEC recorded in Unit 10 (c/a) ^c	<i>Eucalyptus tereticornis</i> (3), <i>Eucalyptus punctata</i> (as <i>E. punctata</i> X <i>canaliculata</i>) (3), <i>Angophora costata</i> (3), <i>Corymbia maculata</i> (2), <i>Eucalyptus crebra</i> (3)	
Dominant understorey plants of the EEC recorded in Unit 10 (c/a) ^c	Shrub stratum: <i>Breynia oblongifolia</i> (2), <i>Daviesia ulicifolia</i> (3). Ground stratum: <i>Microlaena stipoides</i> var. <i>stipoides</i> (2), <i>Cymbopogon refractus</i> (2), <i>Echinopogon caespitosus</i> var. <i>caespitosus</i> (2), <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> (2), <i>Pratia purpurascens</i> (2), <i>Dichondra repens</i> (2), <i>Imperata cylindrica</i> var. <i>major</i> .	

Notes: a. Paraphrased from NSW Scientific Committee (2008d)

b. Details from Hill (2003)

c. c/a = mean cover abundance recorded in Hill (2003) community.

4.11 Kurri Sand Swamp Woodland (Unit 11)

Kurri Sand Swamp Woodland (Unit 11) in the Maitland LGA is equivalent to the EEC, Kurri Sand Swamp Woodland in the Sydney Basin Bioregion (NSW Scientific Committee 2008e).

Description of Kurri Sand Swamp Woodland in Hill (2003) was taken directly and in its entirety from NPWS (2000) although mapping was carried out by Hill (2203). The EEC listing for this woodland has also been based solely on NPWS (2000); therefore the equivalency of the Maitland unit and the EEC is conclusive.

4.12 Swamp Oak Alluvial Forest (Unit 12)

Swamp Oak Alluvial Forest (Unit 12) is equivalent to the EEC, Swamp Oak Floodplain Forest (NSW Scientific Committee 2008f).

The EEC listing for Swamp Oak Floodplain Forest comprises 45 flora species which characterise the EEC. Of these 45 species, the Swamp Oak Alluvial Forest (Unit 12) within Maitland LGA supports 9 species, which equates to 20% of the EEC list of characteristic species and 47.4% of total species recorded in Unit 12.

The EEC varies from a dense to sparse tree stratum of swamp oak (*Casuarina glauca*), with other trees sometimes occurring, such as *Melaleuca* spp. *C. glauca* dominates Swamp Oak Alluvial Forest (Unit 12) and *M stypheloides* is a common tree in the unit (NSW Scientific Committee 2008f).

Features that distinguish Swamp Oak Floodplain Forest from other communities on coastal floodplains include the dominance of swamp oak (*Casuarina glauca*), with or without subordinate tree species; the relatively low abundance of *Eucalyptus* species and a groundcover of forbs and graminoids. Its occupation of low-lying parts of floodplain, alluvial flats, drainage lines, lake margins and fringes of estuaries; habitats where flooding is periodic and soils influenced by saline ground water (NSW Scientific Committee 2008f). Swamp Oak Alluvial Forest (Unit 12) in Maitland LGA exhibits all of these features.

Although only 9 (20%) species that are listed on the EEC occur in the Maitland unit, the EEC has a wide distribution from the NSW south-east to north coast bioregions. Consequently, its list of characteristic species includes many plants whose distribution occur outside of the Lower Hunter. The NSW Scientific Committee (2008e) also states that the total species list of the community is considerably larger than that given in the EEC listing, with many species present at only one or two sites or in low abundance. Additionally, the flora of the EEC is determined by the frequency and duration of waterlogging and the level of salinity (Scientific Committee 2008f), which can vary significantly throughout its range. Sampling in Maitland of Swamp Oak Alluvial Forest (Unit 12) is also limited, with only three sites surveyed by Hill (2003). This will have resulted in fewer characteristic species being recorded for the community than actually exist. The high level of weed invasion in and human disturbance of Unit 12 will also have significantly reduced its native species composition.

Table 4.6 summarises the conformation of Unit 12 to the characteristic features of the Swamp Oak Floodplain Forest provided in the final determination for the EEC (NSW Scientific Committee 2008f).

Table 4.6 – Conformation of Swamp Oak Alluvial Forest (Unit 12) to the EEC, Swamp Oak Floodplain Forest

Features of TEC	Details of EEC ^a	Conformations of Unit 12 to EEC characteristics ^b
No. & % species in common between VEC and Unit 1	9 species (20% of EEC list)	9 species (47.4% of Unit 12)
Location/Bioregion	Known from a large number of LGAs, including Maitland, in the Bioregions of NSW North Coast, Sydney Basin and South East Corner.	Yes: occurs in Maitland LGA in the Sydney Basin.

Table 4.6 – Conformation of Swamp Oak Alluvial Forest (Unit 12) to the EEC, Swamp Oak Floodplain Forest (cont)

Features of TEC	Details of EEC ^a	Conformations of Unit 12 to EEC characteristics ^b
Physiographic/position in Landscape	Occurs on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes associated with coastal floodplains.	Yes: occurs on alluvial flats and estuarine fringes in the south-east and east of Maitland LGA in Woodberry and Hexham Swamps.
Soils	Occurs on grey-black clay-loams and sandy loams, where the groundwater is saline or sub-saline.	Yes: occurs in loamy, sandy soils of Quaternary deposits in estuarine areas and soils with a saline influence.
Elevation	Generally occurs below 20 m (rarely above 10 m) elevation.	Yes: most remnants are in the south-east of the LGA below 10 m ASL, a minority occur between 10 and 20 m ASL.
Canopy density	Varies from open forests to low woodlands, scrubs or reedlands with scattered trees.	Yes: ranges from closed to open forest, with many partly cleared areas of scattered trees over grasslands and reedlands.
Other features	Typically forms mosaics with other floodplain forest communities and treeless wetlands, often on the fringe of treeless floodplain lagoons or wetlands with semi-permanent standing water.	Yes: fringes wetland system in the south-east of Maitland LGA, including Woodberry Swamp and Hexham Swamp.
Dominant canopy plants of the EEC recorded in Unit 12 (c/a) ^c	<i>Casuarina glauca</i> (5), <i>Melaleuca stypheloides</i> (2).	
Dominant understorey plants of the EEC recorded in Unit 12 (c/a) ^c	<i>Centella asiatica</i> (3), <i>Commelina cyanea</i> (2), <i>Cyndodon dactylon</i> (3), <i>Juncus usitatus</i> (2), <i>Lomandra longifolia</i> (2), <i>Parsonsia straminea</i> (3).	

Notes: a. Paraphrased from NSW Scientific Committee (2008f)

b. Details from Hill (2003)

c. c/a = mean cover abundance recorded in Hill (2003) community.

4.13 Freshwater Wetland Complex (Unit 13)

Freshwater Wetland Complex (Unit 13) in the Maitland LGA is partly equivalent to the EEC, Freshwater Wetlands on Coastal Floodplains (NSW Scientific Committee 2008g). The areas of the wetland mapped in Maitland LGA that have few or no woody emergents conform to this EEC. Areas of the wetland that have a cover woody trees such as prickly-leaved tea-tree (*Melaleuca stypheloides*) and swamp oak (*Casuarina glauca*) do not have a strong equivalency to the EEC, as discussed below.

Hill (2003) indicates that mapping of Freshwater Wetland Complex (Unit 13) in the Maitland LGA requires extensive field survey to validate boundaries. It is now apparent that re-mapping to separate the wetlands with and without woody emergents is also needed to allow delineation of the areas that are equivalent to the EEC.

In the absence of such mapping, Freshwater Wetland Complex (Unit 13) has been treated herein as the EEC for the benefit of its conservation management.

Description of Freshwater Wetland Complex (Unit 13) in Hill (2003) was based on NPWS (2000). A total of 17 diagnostic species are recorded in freshwater wetland complex in Hill (2003), which only represents a small proportion of the total species list for this community in Maitland LGA, as it varies significantly from site to site depending on the habitat of the location.

The EEC listing for Freshwater Wetlands on Coastal Floodplains comprises 66 flora species which characterise the EEC (NSW Scientific Committee 2008g). Of these 66 species, the Freshwater Wetland Complex (Unit 13) within Maitland LGA supports 6 species, which equates to 9% of the EEC list of characteristic species and 35.3% of total species recorded in Unit 13.

Although only 6 (9%) species that are listed on the EEC occur in the Maitland unit, the EEC has a wide distribution from the NSW south-east to north coast bioregions. Consequently, its list of characteristic species includes many plants whose distribution occurs outside of the Lower Hunter.

As well as this, the number and relative abundance of the characteristic species is determined by a range of catchment- and site-specific features, including flood regime, extent of waterlogging, soil nutrient levels, soil salinity, size of the site, recent rainfall patterns and disturbance history (NSW Scientific Committee 2008g). Additionally, the total species list of the EEC is considerably larger than that provided by NSW Scientific Committee (2008g), with many species present at only one or two sites or in low abundance.

Features that distinguish the freshwater wetland EEC from other communities on the coastal floodplain include the dominance of herbaceous plants; scarcity or absence of woody plants and the presence of amphibious, emergent, floating or submerged aquatic forbs, grasses or sedges (NSW Scientific Committee 2008g). Most areas of Freshwater Wetland Complex (Unit 13) in Maitland LGA conform to these features. However, areas with a high proportion of woody emergent trees do not conform to the EEC.

The EEC is typical of low-lying parts of floodplains, alluvial flats, depressions, drainage lines, backswamps, lagoons and lakes; habitats where flooding is periodic and standing fresh water persists for at least part of the year in most years (NSW Scientific Committee 2008g). Freshwater Wetland Complex (Unit 13) in Maitland LGA exhibits all of these features.

Table 4.7 summarises the conformation of Unit 13 to the characteristic features of the Freshwater wetlands on Coastal Floodplains provided in the final determination for the EEC (NSW Scientific Committee 2008g).

Table 4.7 - Conformation of Freshwater Wetland Complex (Unit 13) to the EEC, Freshwater Wetlands on Coastal Floodplains

Features of TEC	Details of EEC ^a	Conformations of Unit 13 to EEC characteristics ^b
No. & % species in common between VEC and Unit 1	6 species (9% of EEC list)	6 species (35.3% of Unit 13)
Location / Bioregion	NSW North Coast, Sydney Basin and South East Corner bioregions, in various LGAs including Maitland	Yes: occurs in Sydney Basin bioregion and Maitland LGA.

Table 4.7 - Conformation of Freshwater Wetland Complex (Unit 13) to the EEC, Freshwater Wetlands on Coastal Floodplains (cont)

Features of TEC	Details of EEC ^a	Conformations of Unit 13 to EEC characteristics ^b
Physiographic / position in Landscape	Occurs in depressions, flats, drainage lines, backswamps, lagoons and lakes associated with coastal floodplains; in areas with periodic or semi-permanent inundation by freshwater; there may be minor saline influence.	Yes: occurs in depressions in the floodplain. Some areas are saline.
Soils	Silts, muds or humic loams	Yes: occurs in these soils.
Elevation	Below 20 m elevation	Yes: occurs below 20 m ASL.
Floristic structure	Vary from sedgeland and reedlands to herbfields; woody plants are scarce.	Yes (partly): mostly forblands, reedlands and sedgelands. Some areas with woody emergents are less likely to be this EEC.
Other features	Typically these wetlands form mosaics with other floodplain communities, and often they include or are associated with ephemeral or semi-permanent standing water.	Yes: associated in Maitland with other floodplain communities and standing water.
Dominant plants of the EEC recorded in Unit 13 (c/a) ^c	<i>Alisma plantago-aquatica</i> (2), <i>Azolla pinnata</i> (3), <i>Juncus usitatus</i> (2), <i>Ludwigia peploides</i> subsp. <i>montevicensis</i> (2), <i>Maundia triglochoides</i> (5) and <i>Typha orientalis</i> (5).	

Notes: a. Paraphrased from NSW Scientific Committee (2008g)

b. Details from Hill (2003)

c. c/a = mean cover abundance recorded in Hill (2003) community.

5.0 Conclusion

The majority (eight out of 13) of vegetation communities mapped in Maitland LGA are now listed EECs or VECs in the TSC Act. The remaining communities that not listed on the TSC Act have limited or restricted distribution and are subject to demonstratable threat. The communities are also generally poorly reserved in formal reservations. As a result, all of the extant native vegetation in Maitland LGA is important for ecological conservation and management.

Freshwater wetlands (Unit 13) mapped in the LGA by Hill (2003) include at least two separate communities, as discussed in **Section 4.13**: one with a cover of trees and one with trees generally absent. The community that comprises of woody trees typically as emergents is not equivalent to the EEC Freshwater Wetlands on Coastal Floodplains. Further mapping work is needed to separate these units on a vegetation map for the LGA.

Description of Kurri Sand Swamp Woodland (Unit 11) mapped in the LGA by Hill (2003) was taken from NPWS (2000). Survey of this unit in Maitland LGA is needed to confirm its floristic character in the area.

Categories of ecological significance that were developed by Hill (2003) were modified herein to incorporate the new listings on the TSC Act of Vulnerable Ecological Communities (VECs) and Critically Endangered Ecological Communities (CEECs). These were added to the TSC Act by the *Threatened Species Legislation Amendment Act 2004*. The new ecological significance categories were added to the *community-level Category 'A'*, the highest level of ecological significance in Hill (2003), by dividing it into three sub-categories A1 (CEECs), A2 (EECs) and A3 (VECs). Although there were no CEECs in Maitland LGA at the time of writing this report, category A1 was included to facilitate any such future determinations.

Although the EPA Act does not require an assessment of significance (7 part test) for VECs, VECs are relevant to the preparation of environmental planning instruments under Section 26 of the EPA Act.

6.0 References

DECC see Department of Environment and Climate Change NSW

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**Umwelt (Australia) Pty Limited
2/20 The Boulevard
PO Box 838
Toronto NSW 2283**

**Ph. 02 4950 5322
Fax 02 4950 5737**