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Volume 2: Vegetation Community Profiles, Lake Macquarie Local Government Area Working Draft v2



March 2016

Report to

Lake Macquarie City Council

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Cover image: Views of Apple – Palm Gully Forest (top), Beach Spinifex (bottom), & flowering *Angophora inopina* (greyscale).

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Contents

Background	1
Classification	1
Mapping	2
The Profiles	2
References	4
Acknowledgements	5
Rainforests	6
Coastal Wet Gully Forest Unit 1	7
Coastal Warm Temperate – Subtropical Rainforest Unit 1a	9
Permian Gully Rainforest Unit 1g	11
Lake Macquarie Dry Rainforest Unit 3e.....	14
Littoral Rainforest Unit 4	16
Moist Forests (Alluvial Soils)	18
Alluvial Tall Moist Forest Unit 5	19
Alluvial Bluegum - Paperbark Forest Unit 5a.....	22
Alluvial Bluegum – Apple Moist Forest Unit 5b.....	24
Alluvial Bluegum – Spotted Gum Moist Forest Unit 5e	26
Alluvial Riparian Blackbutt Forest Unit 5h	29
Riparian Paperbark - Peppermint Forest Unit 11a	32
Awaba Peppermint – Black Wattle Riparian Forest Unit 11c	35
Cooranbong Blackbutt Tall Forest Unit 123.....	37
Moist Forests (Colluvial Soils)	39
Coastal Narrabeen Bluegum Ridge Forest Unit 6a	40
Coastal Ranges Mesic Blackbutt Forest Unit 9a	43
Coastal Ranges Mesic Peppermint Forest Unit 9e.....	45
Coastal Ranges Mesic Stringybark – Mahogany Forest Unit 9i	47
Coastal Ranges Mesic Blackbutt-Tallowwood Forest Unit 9l	49
Coastal Sheltered Apple - Peppermint Forest Unit 11	51
Hunter Valley Moist Forest Unit 12.....	54
Hunter Valley Moist Spotted Gum - Blackbutt Forest Unit 12a	57
Hunter Valley Moist Spotted Gum – Turpentine Forest Unit 12b	59
Hunter Valley Moist Spotted Gum - Ironbark Forest Unit 12c	61
Hunter Valley Moist Spotted Gum - Fergusons Forest Unit 12d	63
Narrabeen Peppermint - Apple Forest Unit 25a	66
Dry Forests (Coastal Ranges).....	69
Coastal Ranges Dry Blackbutt Forest Unit 9b.....	70
Coastal Ranges Dry Spotted Gum - Blackbutt Forest Unit 9d	72
Coastal Ranges Dry Peppermint - Blackbutt Forest Unit 9f	74
Coastal Ranges Dry Tallowwood - Blackbutt Forest Unit 9h.....	76
Hunter Range Dry Escarpment Apple Forest Unit 21a	79

Hunter Range Dry Ironbark – Grey Gum Forest Unit 21d	81
Hunter Range Dry Mahogany – Grey Gum Forest Unit 21e	83
Hunter Range Dry Mahogany – Apple Forest Unit 21f	85
Hunter Range Dry Stringybark - Blackbutt Forest Unit 21g.....	87
Watagans Remnant Hawkesbury Forest Unit 26h	90
Dry Forests (Coastal Sand).....	92
Coastal Sand Apple - Blackbutt Forest Unit 33	93
Pelican Bangalay Forest Unit 33c	95
Awabakal Sand Mantled Blackbutt Forest Unit 33d	97
Sand Mantled Banksia Forest Unit 33m	100
Dry Forests (Spotted Gum-Ironbark).....	102
Coastal Foothills Spotted Gum – Ironbark Forest Unit 15.....	103
Coastal Foothills Spotted Gum – Ironbark Forest (Kurri) Unit 15d.....	106
Lake Macquarie Spotted Gum Forest Unit 15h	108
Lake Macquarie Ironbark Forest Unit 15i	111
Coastal Foothills Moist Grey Gum - Mahogany Forest Unit 15k	114
Sugarloaf Uplands Dry Spotted Gum – Ironbark Forest Unit 15l	116
Jilliby Spotted Gum – Northern Ironbark – Mahogany Forest Unit 15m.....	118
Jilliby Spotted Gum – Fergusons Ironbark - Mahogany Forest Unit 15n	120
Sugarloaf Uplands Moist Spotted Gum – Ironbark Forest Unit 15o	122
Hinterland Spotted Gum – Red Ironbark Forest Unit 17o	125
Red Ironbark – Paperbark Forest Unit 110a.....	128
Dry Forests (Smooth-barked Apple)	131
Coastal Narrabeen Shrub Forest Unit 22	132
Coastal Narrabeen Dry Bloodwood – Apple - Mahogany Forest Unit 22e.....	134
Coastal Plains Smooth-barked Apple Woodland Unit 30	136
Buttonderry Footslopes Forest Unit 30a.....	139
Sugarloaf Uplands Bloodwood - Apple Forest Unit 30b	141
Coastal Plains Stringybark – Apple Forest Unit 30e	144
Freemans Peppermint – Apple - Bloodwood Forest Unit 30f.....	147
Sugarloaf Lowlands Bloodwood - Apple Forest Unit 30h	150
West Wallsend Stringybark Forest Unit 30i.....	153
Sugarloaf Lowlands Bloodwood – Apple – Scribbly Gum Forest Unit 30j.....	155
Coastal Headland Low Forest Unit 51c.....	158
Dry Forests (Scribbly Gum, colluvial soils).....	160
Coastal Plains Scribbly Gum Woodland Unit 31	161
Snappy Gum Ridgetop Heathy Forest Unit 31j	165
Lake Macquarie Snappy Gum Forest Unit 111a	168
Killingworth Snappy Gum Forest Unit 111c.....	172
Kahibah Snappy Gum Forest Unit 119.....	174
Dry Forests (Scribbly Gum, sand deposits)	176
Narrabeen Dune Forest Unit 31k.....	177

Cockle Creek Dune Forest Unit 122.....	179
Swamp Forests (Alluvial Soils).....	181
Swamp Mahogany - Paperbark Forest Unit 37.....	182
Alluvial Paperbark Sedge Forest Unit 37a.....	185
Alluvial Floodplain Woollybutt Forest Unit 37b.....	187
Alluvial Floodplain Cabbage Gum Forest Unit 37d.....	189
Swamp Mahogany – Tallowwood Swamp Forest Unit 37g.....	191
Floodplain Redgum – Rough-barked Apple Forest Unit 38a.....	193
Apple - Palm Gully Forest Unit 39.....	195
Red Mahogany – Apple – Paperbark Forest Unit 42.....	197
Wyee Turpentine – Red Mahogany – Apple Riparian Forest Unit 42c.....	200
Swamp Forests (Coastal Sands).....	202
Coastal Sand Swamp Forest Unit 37e.....	203
Swamp Mahogany – Livistona Swamp Forest Unit 37f.....	205
Dune Swale Swamp Forest Unit 37j.....	207
Swamp Forests (Lake Foreshore).....	209
Foreshore Redgum – Rough-barked Apple Forest Unit 38.....	210
Foreshore Redgum – Ironbark Forest Unit 38c.....	212
Swamp Oak – Rushland Forest Unit 40.....	214
Lake Macquarie Headland Swamp Oak Forest Unit 40d.....	216
Swamp Forests (Scrub-Forests).....	218
Estuarine Paperbark Scrub-Forest Unit 43a.....	219
White Stringybark – Paperbark Scrub-Forest Unit 43e.....	222
Forest Redgum – Paperbark Scrub-Forest Unit 43f.....	225
Scrubs & Thickets (Alluvial Soils).....	227
Narrabeen Alluvial Paperbark Thicket Unit 42a.....	228
Swamp Paperbark Thicket Unit 100a.....	230
Paperbark Depression Forest Unit 108b.....	232
Paperbark – Carex Backswamp Forest Unit 113.....	234
Mesic Paperbark Thicket Unit 114.....	236
Scrubs & Thickets (Colluvial Soils).....	238
Sugarloaf Uplands Paperbark Thicket Unit 15p.....	239
Paperbark Clay Heath Unit 43c.....	241
Depression Paperbark Thicket Unit 110b.....	243
Scrubs & Thickets (Coastal Sands).....	246
Tomago Clay Wallum Scrub Unit 36c.....	247
Coastal Sand Foredune Scrub Unit 50a.....	249
Coastal Sand Banksia Scrub Unit 50b.....	251
Scrubs & Thickets (Estuarine).....	253
Mangrove – Estuarine Complex Unit 47.....	254
Scrubs & Thickets (Coastal Headland).....	256
Coastal Headland Shrubland Unit 51b.....	257

Coastal Headland Paperbark Scrub Unit 51d.....	259
Dry Heathland (Colluvial Soils).....	261
Coastal Plains Dry Heath Unit 31h.....	262
Coastal Sandstone Laterite Heath Unit 31i.....	264
Dry Heathland (Coastal Sands).....	267
Coastal Sand Wallum Heath Unit 34a.....	268
Coastal Sand Mantled Clay Heath Unit 34b.....	270
Coastal Sandplain Dry Heath Unit 34c.....	272
Wet Heathlands (Colluvial Soils).....	274
Munmorah Grasstree Wet Heath Unit 44a.....	275
Coastal Plains Wet Heath Unit 44m.....	277
Wet Heathlands (Coastal Sands).....	279
Coastal Sand Bottlebrush Wet Heath Unit 44g.....	280
Tomago Strand Plain Intermediate Heath Unit 44j.....	282
Munmorah Impeded Sand Sedgeland Unit 44l.....	284
Wet Heathlands (Upland Swamps).....	286
Hawkesbury Hanging Swamps Unit 54.....	287
Munmorah Sedge Swamp Unit 54e.....	289
Sedgeland & Meadow (Estuarine).....	291
Estuarine Juncus Rushland Unit 40c.....	292
Saltmarsh Unit 47a.....	294
Sedgeland & Meadow (Freshwater).....	296
Phragmites Rushland Unit 40a.....	297
Lepironia Swamp Unit 45.....	299
Freshwater Wetland Complex Unit 46.....	301
Freshwater Carex Rainforest Sedgeland Unit 46c.....	302
Freshwater Cladium Sedgeland Unit 46h.....	304
Freshwater Gahnia Sedgeland Unit 46i.....	306
Grasslands.....	308
Coastal Headland Grassland Unit 51a.....	309
Beach Spinifex Unit 53.....	311
Seagrass Unit 121.....	313
Water Couch Meadow Unit 125.....	315
Anthropogenic Vegetation.....	317
Freshwater Typha Wetland Unit 46a.....	318
Freshwater Baumea Sedgeland Unit 46b.....	320
Freshwater Philydrum Sedgeland Unit 46f.....	322
Mining Rehabilitation Unit R.....	324
Bitou Bush Scrub Unit 50c.....	326
Appendix 1 – Sampling Effort.....	328
Community Index (by Name).....	332
Community Index (by Unit).....	335

Background

In 2008, a vegetation mapping program was commenced on behalf of Lake Macquarie City Council which aimed to describe and map the native vegetation of the entire local government area (LGA), an area of ~65,000 ha (~40,000 ha vegetated). This program implemented a new mapping technique which relied upon the intuitive classification of data collected from numerous Rapid Data Points (RDP). Due to funding constraints, progress of the mapping program was completed in stages across the City, with the final stage completed in 2014. As at December 2014, over 18,000 RDP have been used to construct the current map draft across the LGA.

This report provides for the first time summary details and diagnostic species lists for 131 vegetation communities incorporated in the current vegetation map draft for the LGA. It is based on a hybrid intuitive-numerical classification (details following), and aims to provide sufficient information to assist in the field recognition of defined communities. Many defined units currently remain poorly sampled or completely unsampled, and descriptions in those cases are based on intuition and limited field notes. Importantly, this document should be seen as a *working draft*, as ongoing sampling and classification work is required for most of these poorly defined units, some of which will result in revisions to mapping and the classification hierarchy.

Brief notes follow on the classification and mapping processes, and a summary of information contained in the profiles.

Classification

Numerical classification of vegetation within Lake Macquarie local government area began back in 1997 with the initial surveys of Awabakal Nature Reserve, Glenrock State Recreation Area, Pulbah Island Nature Reserve, Tingira Heights Nature Reserve and Lake Macquarie State Recreation Area (Bell 1998a, b). These were undertaken on behalf of the NSW National Parks and Wildlife Service, and at that time classification of the reserve vegetation was attempted within a regional context. A paucity of regional systematic data, however, meant that a thorough evaluation could only be speculation. Shortly after, the Lower Hunter and Central Coast Regional Environmental Management Strategy (LHCCREMS) incorporated a regional classification for this region, reported on in NPWS (2000), which in part fulfilled this role.

Using these works as a base, the classification of vegetation within Lake Macquarie LGA has been continually refined and improved as new sample data became available. Consequently, the classification presented in this document represents 18 years of sampling and analysis across many different projects within Lake Macquarie and the lower Hunter region. Despite this, there are still some described communities lacking in sample data (see Appendix 1 for sampling effort), and rationalising their positions in a classification is difficult in a numerical process such as this. By necessity, therefore, this working classification is a *hybrid intuitive-numerical* classification, and has been referred to as the **Interim Community Classification** (ICC). Volume 1 of this work discusses this more fully.

Over the years, two software programs have been used to elucidate community patterns in the Lake Macquarie dataset: *PATN* (Belbin 1995) and *Primer* (Clarke & Gorley 2006). The current ICC classification has used the latter to numerically analyse the relationships between sample plots collected within intuitive vegetation communities. As noted above, several communities remain poorly sampled, and hence their position in the classification has been based on analysis experience and intuition.

In general terms, when less than 3 samples in a target vegetation type have been collected, their position in dendrograms and ordinations of large datasets is highly mobile, resulting in uncertainty of significance. In cases such as these, intuitive assessments based on field inspections have taken precedence over results from numerical classification. While this situation is not ideal, it is considered the best compromise under present circumstances: absorbing potentially distinct communities into broader groups simply because insufficient replicates have been sampled is not a suitable outcome. Previous regional studies have adopted this approach, resulting in many locally-distinct communities remaining currently undefined in regional classification products.

A number of the vegetation communities defined in the present hybrid ICC classification stem back to the original surveys from the 1990s. In some cases, no additional sampling of these communities has been undertaken for nearly 20 years, meaning that data and site photographs are now dated. It is hoped, however, that continued sampling of these under-represented vegetation units will clarify their positions within the Lake Macquarie classification, and a revision produced in due course.

As the production of these community profiles was intended to accompany the current LGA vegetation map, only minor changes to the classification have been made as a result of recent numerical classification. This was a deliberate ploy because current project budgeting did not allow for modifications to the LGA map as a result of classification analysis, and any changes would render either product unusable in some areas. Future clarification of classification units should also entail a full revision of the associated vegetation map, to ensure consistency between map and profiles.

Mapping

As noted previously, the mapping of vegetation across the Lake Macquarie LGA began in 2008 and progressed in six stages as funding became available (see Bell & Driscoll 2013). Stages were mapped following extensive field investigations, and polygons attributed a draft vegetation code based on a regional hybrid intuitive/numerical vegetation classification maintained by the author. Over this seven year period, it was inevitable that inconsistencies in the application of community codes would occur, and hence the current map of vegetation for the LGA should be seen as indicative only: a full revision in the light of numerical classification results achieved to date is yet to be undertaken. For example, there remains a single polygon of MU43 (Wyong Paperbark Swamp Forest, an old LHCCREMS unit) near Cooranbong which requires re-assessment and updating to the new ICC classification. And there are other examples where tentative field-applied communities have not been supported by numerical analysis.

Initial mapping for Stage 1 of this project (Wye to Cooranbong) in 2008 also entailed the preparation of a second vegetation map covering the entire Lake Macquarie local government area. This was based on the LHCCREMS classification of NPWS (2000) and the updated mapping of EcoLogical (2003), but where more recent and detailed mapping had been completed (eg: development application surveys, management plans, mapping of conservation reserves etc), these were inserted. Over time, this initial LGA map was updated by Council with the completion of Stages 2 to 6 mapping areas. As a consequence of this continual insertion of new map data, slithers and remnants of the original map layers have remained (eg MU6: Coastal Narrabeen Moist Forest), and these will require a detailed review and clean with any subsequent update of this map. In a small number of other areas, detailed mapping has not yet been updated on the LGA map. This has resulted in former LHCCREMS vegetation units persisting in these areas (eg MU48: Coastal Clay Heath), which will require revision.

The mapping procedure adopted as part of this work initially involved the preparation of a floristic stratification map based on extensive field reconnaissance across the LGA. This applied an intuitive classification to over 18,000 Rapid Data Points to provide an indication of the geographical spread of observed variations in floristic composition. That floristic strata layer forms an important step in the process of developing a vegetation community map, but it is not a final mapping product in itself. As a consequence of this approach, there are a number of floristic strata that were rarely mapped, as those combinations of species were perhaps not encountered again. It is these rare stratum in particular that require targeted sampling and assessment to determine their place in the classification hierarchy (see Bell 2013).

The Profiles

Community profiles of each vegetation community present within Lake Macquarie LGA have been developed to assist end-users in the interpretation of delineated map units. These have been constructed on the best-available data as at March 2015, and should be seen as a work in progress. To assist end-users in the application of these profiles, communities have been grouped into sections along a common theme: for example, all Rainforest communities are profiled together, while Dry Forest vegetation is divided into six

sections based on geophysical attributes (coastal ranges, coastal sands, colluvial soils, etc) and/or key canopy components (Smooth-barked Apple, Scribbly Gum, etc). Two indexes (by community name and unit number) at the rear of the document provide rapid access to all communities via their community names and units.

For each vegetation community, a summary of the dominant or characteristic species is provided, together with brief notes on distribution and affinities, and a photograph showing a typical view. Equivalent vegetation types with commonly used regional classification units are also provided, including Keith Class (Keith 2004), the Vegetation Classification and Assessment (VCA) of Benson (2006), the Greater Hunter Vegetation unit (GHV) of Sivertsen et. al. (2012), and the original regional classification (LHCCREMS) of NPWS (2000). Note that for communities that effectively remain unchanged in name and unit from original LHCCREMS communities, new profiles and diagnostic species lists have been created using updated and Lake Macquarie specific data.

To assist readers in distinguishing the better-defined communities from those where further sampling and analysis is required to clarify relationships and classification positions, information on the level of confidence in the classification as at March 2015 has also been provided. This has been delivered subjectively in the form of a simple Low Moderate High assessment bar. Communities defined as 'Low' refer to those where limited or no sample data has been collected and analysed, or where the community may in future be subsumed into a related unit as floristic differences are relatively minor. 'High' confidence communities are those where numerical analysis of replicated data or obvious floristic differences (for simple communities) suggest strong independence within the entire Lake Macquarie dataset. Application of 'Moderate' applies to those communities falling between these two extremes. Ideally, at least six samples per community would allow a high level of confidence to be applied to community definition, and at the same time encapsulate much of the internal floristic variation present in each community. Three samples per community allows full statistical testing for diagnostic species. At present, only 19 of the 131 defined communities have been sampled six or more times, 55 have been sampled on at least three occasions, and 24 remain completely unsampled (Figure 1). See also Appendix 1 for sampling effort of individual communities.

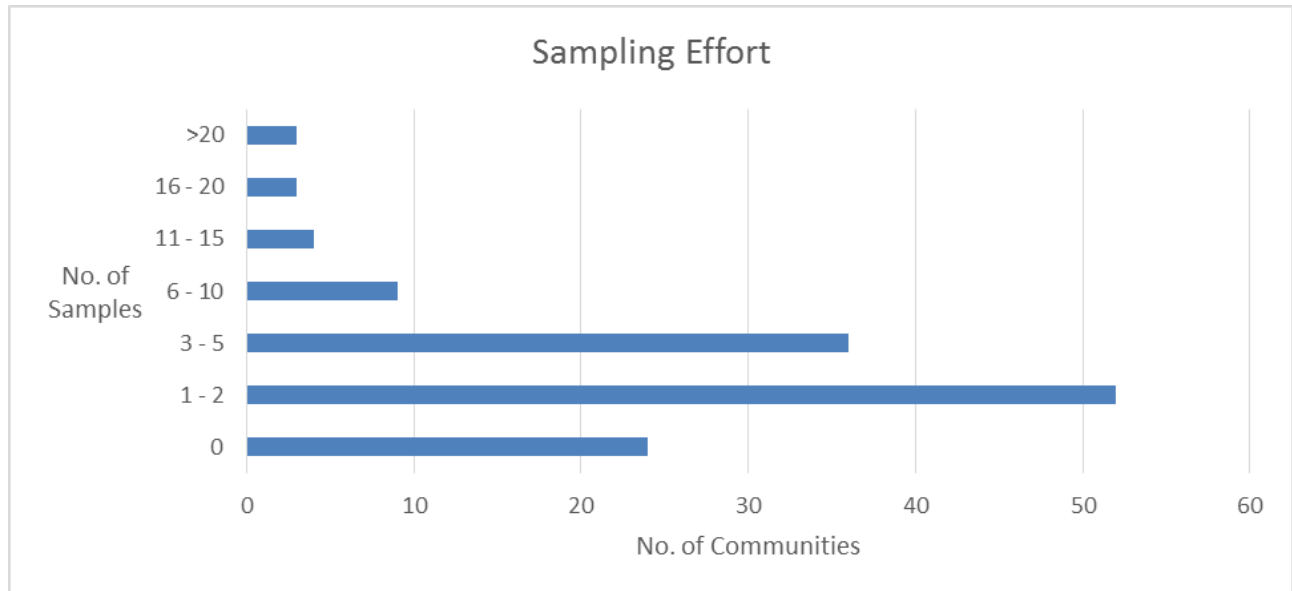


Figure 1 Summary of sampling effort, 480 plot samples across 131 communities.

Diagnostic species for each community have been derived using the SIMPER routine in *Primer* (Clarke & Gorley 2006). SIMPER analysis provides the relative contributions of each species to the Bray-Curtis similarity within each of the defined vegetation communities. Only those species contributing to a total cumulative contribution of 99% of the average similarity for each community are listed. These species can be described as *typical* of that community, and have a consistently large presence within the data as reflected in the ratio of their contribution to the standard deviation (the Sim/SD field in each table) across

the within-group similarities (the average similarity). Community groups with less than two samples (eg: Sandstone Hanging Swamps, MU54) cannot be analysed in this way. Instead, the full native species list from the single plot in each community is shown, in decreasing cover abundance value per plant habit type. For those communities that are yet to be sampled, indicative species lists derived from RDP have been provided.

In the *Key Diagnostic Species* tables in each profile:

- Average similarity is the within-group (community) similarity for all pairs of sample plots comprising that community. Higher average similarity indicates a better or more confidently defined community.
- Av.Abund is the average cover abundance of that species within sample plots comprising the community
- Av.Sim is the average similarity (contribution) made by each species to the within-group (community) similarity (the overall average similarity).
- Sim/SD is the ratio of average similarity to standard deviation for each species across all pairs of samples. A high ratio represents a good discriminating species. At least three samples are required for this ratio to be calculated.
- Contrib % is the percentage contribution of each species to the overall average similarity for the community.

Readers need not be too concerned about the exact meanings of the above terms; these have already been interpreted and are reflected in the lists of diagnostic species presented for each community. Within each habit class (tree, shrub, etc), species are listed in decreasing order of importance for that community. For example, the most important species delineating Lake Macquarie Dry Rainforest (MU3e) are *Backhousia myrtifolia* (a tree, 27.9%), *Eucalyptus acmenioides* (a tree, 5.0%), *Doodia aspera* (a ground fern, 7.6%) and *Morinda jasminioides* (a twiner, 6.5%).

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Rainforests



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Turpentine - Sydney Blue Gum - Lilly Pilly moist shrubby tall open forest on the Central Coast ranges of the Sydney Basin Bioregion

GHV: White Mahogany/ Turpentine moist shrubby tall open forest (048)

LHCCREMS: Coastal Wet Gully Forest (MU1)

General Description:

Most well protected gullies and lower slopes of the Watagan Ranges support Coastal Wet Gully Forest, which in places merges over broad ecotones with Coastal Warm Temperate Rainforest (MU1a). Characteristic species present include *Eucalyptus saligna*, *Syncarpia glomulifera*, *Eucalyptus acmenoides* and *Allocasuarina torulosa* in the often widely spaced emergent layer, over a sub-canopy of rainforest species such as *Cryptocarya microneura*, *Claoxylon australe* and *Dorophora sassafras*. Ground layer vegetation includes *Cordyline stricta*, *Blechnum cartilagineum*, *Adiantum hispidulum*, *Gahnia melanocarpa*, and the vines *Cissus hypoglauca*, *Cissus antarctica*, *Marsdenia rostrata* and *Ripogonum fawcettianum*.

Characteristic Features:

- Emergent canopy of Bluegums, White Mahogany, Turpentine and Forest Oak
- mid-storey of rainforest plants including vines
- ground layer sparse, but including ferns and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

2356 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Lowland Rainforest EEC (?)

Key Diagnostic Species [99% contribution, based on 3 plots]:

Coastal Wet Gully Forest (1)
Average similarity: 34.31

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Doryphora sassafras</i>	2.00	1.45	0.58	4.22
	<i>Cryptocarya microneura</i>	1.00	0.49	0.58	1.43
	<i>Acmena smithii</i>	0.67	0.48	0.58	1.41
Small Tree	<i>Synoum glandulosum subsp. glandulosum</i>	2.67	1.94	2.24	5.65
	<i>Guioa semiglauca</i>	2.00	1.45	0.58	4.22
	<i>Ficus coronata</i>	1.33	0.97	0.58	2.82
	<i>Claoxylon australe</i>	0.67	0.49	0.58	1.43
	<i>Neolitsea dealbata</i>	0.67	0.48	0.58	1.41
	<i>Streblus brunonianus</i>	0.67	0.48	0.58	1.41
	<i>Wilkiea huegeliana</i>	0.67	0.48	0.58	1.39
Palm	<i>Archontophoenix cunninghamiana</i>	2.00	0.97	0.58	2.82
	<i>Livistona australis</i>	1.00	0.48	0.58	1.41
Shrub	<i>Cordyline stricta</i>	2.33	2.90	68.99	8.45
	<i>Eupomatia laurina</i>	2.00	2.90	68.99	8.45
	<i>Breynia oblongifolia</i>	1.00	1.45	68.99	4.22
	<i>Clerodendrum tomentosum</i>	1.00	1.45	68.99	4.22
	<i>Pittosporum multiflorum</i>	1.00	0.48	0.58	1.41
Ground Fern	<i>Calochlaena dubia</i>	2.00	2.90	68.99	8.45
	<i>Adiantum hispidulum</i>	0.67	0.49	0.58	1.43
	<i>Adiantum formosum</i>	1.00	0.48	0.58	1.41
	<i>Polystichum australiense</i>	1.00	0.48	0.58	1.41
Grass	<i>Oplismenus aemulus</i>	1.00	0.48	0.58	1.41
Sedge	<i>Gymnostachys anceps</i>	1.33	1.45	68.99	4.22
Herb	<i>Alpinia caerulea</i>	0.67	0.48	0.58	1.41
	<i>Pseuderanthemum variable</i>	0.67	0.48	0.58	1.41
Twiner	<i>Cissus hypoglauca</i>	2.00	2.90	68.99	8.45
	<i>Cissus antarctica</i>	1.33	1.45	68.99	4.22
	<i>Morinda jasminoides</i>	1.33	0.97	0.58	2.82
	<i>Dioscorea transversa</i>	0.67	0.48	0.58	1.39
	<i>Sarcopetalum harveyanum</i>	0.67	0.48	0.58	1.39
Epiphytic Fern	<i>Pyrrosia rupestris</i>	1.33	1.45	68.99	4.22



Keith Class: Northern Warm Temperate Rainforests
VCA: Jackwood/ Lilly Pilly riparian rainforest of the Central Coast
GHV: Jackwood/ Lilly Pilly/ Sassafras riparian warm-temperate rainforest of the Central Coast (010)
LHCCREMS: Coastal Warm Temperate - Subtropical Rainforest (MU1a)

General Description:

Closely related to Coastal Wet Gully Forest (MU1), Coastal Warm Temperate Rainforest supports a large number of rainforest species, but generally without the emergent canopy of Bluegums (*Eucalyptus saligna*) and Turpentine (*Syncarpia glomulifera*). Species typically present include *Cryptocarya microneura*, *Acmena smithii*, *Claoxylon australe*, *Neolitsea dealbata*, *Ficus rubiginosa*, and *Eupomatia laurina*. Vines are prominent in this community and a sparse fern layer including *Adiantum aethiopicum*, *Adiantum formosum*, *Doodia aspera*, *Pellaea falcata* and *Blechnum* species is characteristic. Occurs in well protected gullies on alluvium and rocky slopes, along major creeks and in gully heads.

Characteristic Features:

- Emergent eucalypts absent or very sparse
- Canopy dominated by rainforest species, such as Lilly Pilly, Figs and Murrogun
- ground layer of ferns

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1145 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Lowland Rainforest EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Warm Temperate - Subtropical Rainforest (1a)					
Average similarity: 35.76					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Acmena smithii</i>	2.50	2.65	-	7.41
	<i>Cryptocarya microneura</i>	2.00	2.65	-	7.41
Small Tree	<i>Ficus coronata</i>	2.00	2.65	-	7.41
	<i>Synoum glandulosum subsp. glandulosum</i>	2.00	2.65	-	7.41
	<i>Neolitsea dealbata</i>	1.50	1.32	-	3.70
	<i>Wilkiea huegeliana</i>	1.50	1.32	-	3.70
Palm	<i>Livistona australis</i>	1.50	1.32	-	3.70
Shrub	<i>Cordyline stricta</i>	1.50	1.32	-	3.70
	<i>Eupomatia laurina</i>	1.50	1.32	-	3.70
	<i>Hymenosporum flavum</i>	1.50	1.32	-	3.70
Ground Fern	<i>Doodia aspera</i>	2.00	2.65	-	7.41
	<i>Polystichum australiense</i>	2.00	2.65	-	7.41
	<i>Adiantum hispidulum</i>	1.50	1.32	-	3.70
	<i>Blechnum cartilagineum</i>	1.50	1.32	-	3.70
Twiner	<i>Morinda jasminoides</i>	2.00	2.65	-	7.41
	<i>Ripogonum fawcettianum</i>	2.00	2.65	-	7.41
Epiphytic Fern	<i>Arthropteris tenella</i>	2.00	2.65	-	7.41
	<i>Asplenium australasicum</i>	1.50	1.32	-	3.70



Keith Class: Northern Warm Temperate Rainforests

VCA: Not yet assigned

GHV: Lily Pilly/ Grey Myrtle/ Rasp Fern warm temperate rainforest on ranges of the Central and lower North Coast (008)

LHCCREMS: Coastal Wet Gully Forest (MU1)

General Description:

Permian Gully Rainforest represents gully rainforest occurring on the coastal plains on Permian sediments, generally in incised drainage systems. Prominent species in the canopy include *Pittosporum undulatum*, *Acmena smithii*, *Synoum glandulosum*, *Cryptocarya microneura* and *Elaeodendron australe* var. *australe*. This community requires further testing against similar rainforest types on other substrates to ascertain real differences. At present, this type is known from rocky gullies (not sandy alluvium), and tends not to be as well developed as Coastal Warm Temperate – Subtropical Rainforest (MU1a).

Characteristic Features:

- canopy of species such as Sweet Pittosporum, Lily Pilly, Murrogun and Red Olive Plum
- mid-storey of various mesic species
- ground layer of ferns, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 5 plots]:

Permian Gully Rainforest (1g)					
Average similarity: 38.63					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Acmena smithii</i>	2.40	2.11	1.08	5.45
	<i>Cryptocarya microneura</i>	1.60	1.21	1.01	3.13
	<i>Alphitonia excelsa</i>	1.60	0.70	0.50	1.81
	<i>Ficus fraseri</i>	0.80	0.26	0.32	0.68
	<i>Casuarina glauca</i>	0.60	0.16	0.32	0.41
Small Tree	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	2.40	1.75	1.09	4.52
	<i>Elaeodendron australe</i> var. <i>australe</i>	1.80	1.00	0.60	2.60
	<i>Wilkiea huegeliana</i>	1.20	0.99	0.97	2.57
	<i>Ficus coronata</i>	1.20	0.97	1.04	2.51
	<i>Guioa semiglauca</i>	1.40	0.86	0.62	2.23
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.80	0.84	0.49	2.17
	<i>Scolopia braunii</i>	1.20	0.57	0.57	1.48
	<i>Diospyros australis</i>	1.20	0.42	0.32	1.09
	<i>Neolitsea dealbata</i>	0.80	0.39	0.62	1.01
	<i>Melaleuca styphelioides</i>	1.40	0.37	0.32	0.95
	<i>Alectryon subcinereus</i>	1.00	0.26	0.32	0.68
Palm	<i>Livistona australis</i>	1.20	0.80	1.16	2.07
Shrub	<i>Pittosporum undulatum</i>	3.20	3.83	3.18	9.91
	<i>Breynia oblongifolia</i>	1.00	0.87	1.15	2.24
	<i>Pittosporum revolutum</i>	0.80	0.83	1.15	2.15
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	1.00	0.80	1.16	2.07
	<i>Pittosporum multiflorum</i>	1.00	0.55	0.56	1.43
	<i>Eupomatia laurina</i>	1.00	0.24	0.32	0.63
	<i>Rubus moluccanus</i> var. <i>trilobus</i>	0.40	0.15	0.32	0.38
	<i>Maytenus silvestris</i>	0.40	0.13	0.32	0.35
Ground Fern	<i>Pellaea falcata</i>	1.80	1.67	1.15	4.31
	<i>Doodia aspera</i>	2.40	1.24	0.53	3.20
	<i>Adiantum hispidulum</i>	1.20	0.57	0.59	1.49
	<i>Adiantum aethiopicum</i>	1.20	0.57	0.59	1.48
	<i>Calochlaena dubia</i>	0.80	0.27	0.32	0.69
	<i>Adiantum formosum</i>	0.60	0.14	0.32	0.38
Grass	<i>Oplismenus imbecillis</i>	1.60	1.60	1.16	4.14
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	0.80	0.88	1.16	2.27
	<i>Lomandra longifolia</i>	0.40	0.16	0.32	0.41
Sedge	<i>Gahnia melanocarpa</i>	1.00	0.62	0.57	1.60
Twiner	<i>Dioscorea transversa</i>	2.00	2.80	11.86	7.26
	<i>Morinda jasminoides</i>	1.80	1.60	1.16	4.14
	<i>Cissus antarctica</i>	1.40	1.27	0.99	3.29
	<i>Smilax australis</i>	1.20	1.02	0.99	2.65
	<i>Geitonoplesium cymosum</i>	1.20	0.96	1.06	2.49
	<i>Stephania japonica</i> var. <i>discolor</i>	1.00	0.54	0.58	1.40
	<i>Embelia australiana</i>	1.00	0.51	0.58	1.32
	<i>Sarcopetalum harveyanum</i>	0.60	0.39	0.62	1.00

Permian Gully Rainforest (1g)					
Average similarity: 38.63					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Parsonsia straminea</i>	0.80	0.24	0.32	0.63
	<i>Ripogonum album</i>	0.60	0.14	0.32	0.35
	<i>Smilax glyciphylla</i>	0.60	0.13	0.32	0.35



Keith Class: Dry Rainforests

VCA: Not yet assigned

GHV: Grey Myrtle sheltered gully dry rainforest in gullies of the Sydney Basin (021)

LHCCREMS: Hunter Valley Dry Rainforest (MU3)?

General Description:

Occurs in shallow gullies mostly on Permian geology. Floristically simple; *Backhousia myrtifolia* usually dominant in the poorest sites, under a canopy of emergent eucalypts. Very depauperate rainforest occurring often as narrow bands along creeklines. This community is effectively a form of Warm Temperate Rainforest (*Backhousia myrtifolia* alliance), but referred to as 'dry' in this work to reflect low species diversity and prominence of *Backhousia*. Emergent eucalypts are normally present, including *Eucalyptus acmenioides* and *Corymbia maculata*. Lake Macquarie Dry Rainforest has been poorly sampled to date, so true relationships are difficult to resolve. This community is not correlated with Lower Hunter Dry Rainforest EEC despite the name.

Characteristic Features:

- canopy usually clearly dominated by Grey Myrtle, with scattered emergent White Mahogany and Spotted Gum
- sparse to absent mid-layer, typically very open
- ground layer of ferns, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

7 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 5 plots]:

Lake Macquarie Dry Rainforest (3e)					
Average similarity: 31.62					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Backhousia myrtifolia</i>	5.00	8.83	4.34	27.92
	<i>Eucalyptus acmenoides</i>	1.80	1.58	0.62	5.01
	<i>Corymbia maculata</i>	1.00	0.82	0.60	2.60
	<i>Cryptocarya microneura</i>	1.20	0.48	0.32	1.52
	<i>Angophora costata</i>	1.00	0.41	0.32	1.30
	<i>Allocasuarina torulosa</i>	0.60	0.21	0.32	0.67
	<i>Ficus rubiginosa</i>	0.40	0.16	0.32	0.51
Small Tree	<i>Guioa semiglauca</i>	1.00	0.64	0.57	2.02
	<i>Wilkiea huegeliana</i>	1.40	0.64	0.57	2.02
	<i>Stenocarpus salignus</i>	0.80	0.32	0.32	1.01
Palm	<i>Livistona australis</i>	1.20	1.18	1.06	3.74
Shrub	<i>Notelaea longifolia f. longifolia</i>	1.20	1.18	1.05	3.74
	<i>Pittosporum undulatum</i>	1.20	0.69	0.59	2.18
	<i>Pittosporum multiflorum</i>	0.60	0.18	0.32	0.56
Ground Fern	<i>Doodia aspera</i>	2.60	2.40	1.01	7.60
	<i>Adiantum aethiopicum</i>	0.60	0.21	0.32	0.67
Grass	<i>Oplismenus imbecillis</i>	1.20	1.06	0.62	3.34
Graminoid	<i>Dianella caerulea var. assera</i>	0.40	0.22	0.32	0.69
Sedge	<i>Gymnostachys anceps</i>	1.20	1.04	0.62	3.30
	<i>Carex longibrachiata</i>	0.40	0.18	0.32	0.57
Herb	<i>Aneilema acuminatum</i>	1.20	1.04	0.62	3.30
	<i>Pseuderanthemum variabile</i>	1.20	1.04	0.62	3.30
Twiner	<i>Morinda jasminoides</i>	1.60	2.04	1.16	6.46
	<i>Dioscorea transversa</i>	1.40	1.54	1.01	4.88
	<i>Eustrephus latifolius</i>	0.80	1.21	1.13	3.81
	<i>Smilax australis</i>	0.80	0.51	0.62	1.62
	<i>Marsdenia rostrata</i>	0.80	0.48	0.62	1.51
	<i>Aphanopetalum resinosum</i>	0.80	0.16	0.32	0.51
	<i>Cissus antarctica</i>	0.40	0.16	0.32	0.51
	<i>Geitonoplesium cymosum</i>	0.60	0.16	0.32	0.51
	<i>Pandorea pandorana</i>	0.40	0.16	0.32	0.51
	<i>Sarcopetalum harveyanum</i>	0.40	0.16	0.32	0.51
	<i>Smilax glycyphylla</i>	0.60	0.16	0.32	0.51
Epiphytic Orchid	<i>Plectorrhiza tridentata</i>	0.40	0.18	0.32	0.57



Keith Class: Littoral Rainforests
VCA: Not yet assigned
GHV: Tuckeroo/ Coast Banksia littoral rainforest (018)
LHCCREMS: Littoral Rainforest (MU4)

General Description:

A simple rainforest occurring close to the ocean on coastal headlands or at the back of coastal dunes. Typically very low in stature and tightly packed with a few dominant tree species such as *Cupaniopsis anacardoides*, *Acmena smithii*, and *Guioa semiglauca*. Often merges into surrounding headland scrub. The definition of Littoral Rainforest taken in the strict sense for this work, meaning that superficially similar rainforest stands away from the immediately effects of coastal exposure (onshore salt-laden winds and sea spray) have not been included. Analysis has shown that these stands are floristically more complex and are closer to warm temperate rainforest than they are to littoral rainforests.

Characteristic Features:

- occurs on sheltered southern or easterley-facing slopes on coastal headlands or behind coastal dunes
- dense, low canopy of Tuckeroo, Lily Pily, Guioa, Cheesetree and Cabbage Tree Palm
- sparse mid and ground layer of vines but few other species

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

21 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Littoral Rainforest EEC

Key Diagnostic Species [99% contribution, based on 4 plots]:

Littoral Rainforest (4)					
Average similarity: 28.94					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Acmena smithii</i>	3.00	4.49	2.22	15.53
	<i>Dysoxylum fraserianum</i>	1.50	0.78	0.41	2.68
Small Tree	<i>Cupaniopsis anacardioides</i>	2.75	4.78	1.74	16.51
	<i>Guioa semiglauca</i>	3.00	4.10	2.00	14.19
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1.00	1.19	0.89	4.11
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.25	1.05	0.91	3.63
	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	1.00	0.39	0.41	1.36
	<i>Elaeodendron australe</i> var. <i>australe</i>	0.75	0.33	0.41	1.14
	<i>Syzygium paniculatum</i>	1.00	0.33	0.41	1.13
Palm	<i>Livistona australis</i>	1.00	1.05	0.91	3.63
Shrub	<i>Maclura cochinchinensis</i>	1.25	1.68	0.74	5.82
	<i>Myrsine variabilis</i>	0.75	1.05	0.91	3.63
	<i>Clerodendrum tomentosum</i>	0.75	0.48	0.41	1.67
	<i>Breynia oblongifolia</i>	0.50	0.33	0.41	1.13
Ground Fern	<i>Pteridium esculentum</i>	0.50	0.33	0.41	1.14
Graminoid	<i>Lomandra longifolia</i>	0.75	0.48	0.41	1.67
Sedge	<i>Gahnia melanocarpa</i>	0.75	0.39	0.41	1.36
Herb	<i>Viola hederacea</i>	1.00	0.78	0.41	2.71
Twiner	<i>Geitonoplesium cymosum</i>	1.25	2.40	5.87	8.28
	<i>Cayratia clematidea</i>	1.00	1.20	0.89	4.15
	<i>Sarcopetalum harveyanum</i>	1.00	0.66	0.41	2.28
	<i>Smilax australis</i>	1.00	0.66	0.41	2.28

Moist Forests (Alluvial Soils)



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest of the Central Coast ranges of the Sydney Basin bioregion

GHV: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (050)

LHCCREMS: Alluvial Tall Moist Forest (MU5)

General Description:

Alluvial Tall Moist Forest typically occurs on deeper alluvial sandy loams at the bases of the larger gullies. *Eucalyptus saligna* is prominent in the emergent canopy layer, often co-occurring with *Syncarpia glomulifera* and *Angophora floribunda*, over a lower tree layer of *Acmena smithii*, *Melaleuca styphelioides*, *Glochidion ferdinandi*, *Cryptocarya microneura* and *Claoxylon australe*. Ground layer vegetation includes the grasses *Oplismenus imbecillus* and *Microlaena stipoides* var. *stipoides*, the ferns *Calochlaena dubia*, *Blechnum cartilagineum* and *Adiantum aethiopicum*, and shrubs *Cordyline stricta*, *Hymenosporum flavum*, and *Breynia oblongifolia*. The sedges *Gymnostachys anceps* and *Carex longibrachiata* are also common. In some areas, *Archontophoenix cunninghamiana* is dominant, and most likely forms a distinct community of its own.

Characteristic Features:

- Tall eucalypt canopy of Bluegums, Turpentine and Rough-barked Apple
- mid-storey of Lily Pily, Prickly-leaved Paperbark, Cheese Tree and Murrogun
- ground layer of ferns and vines
- occurs on deep alluvial sandy loams in broad gullies

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1770 ha

Community Conservation Status:

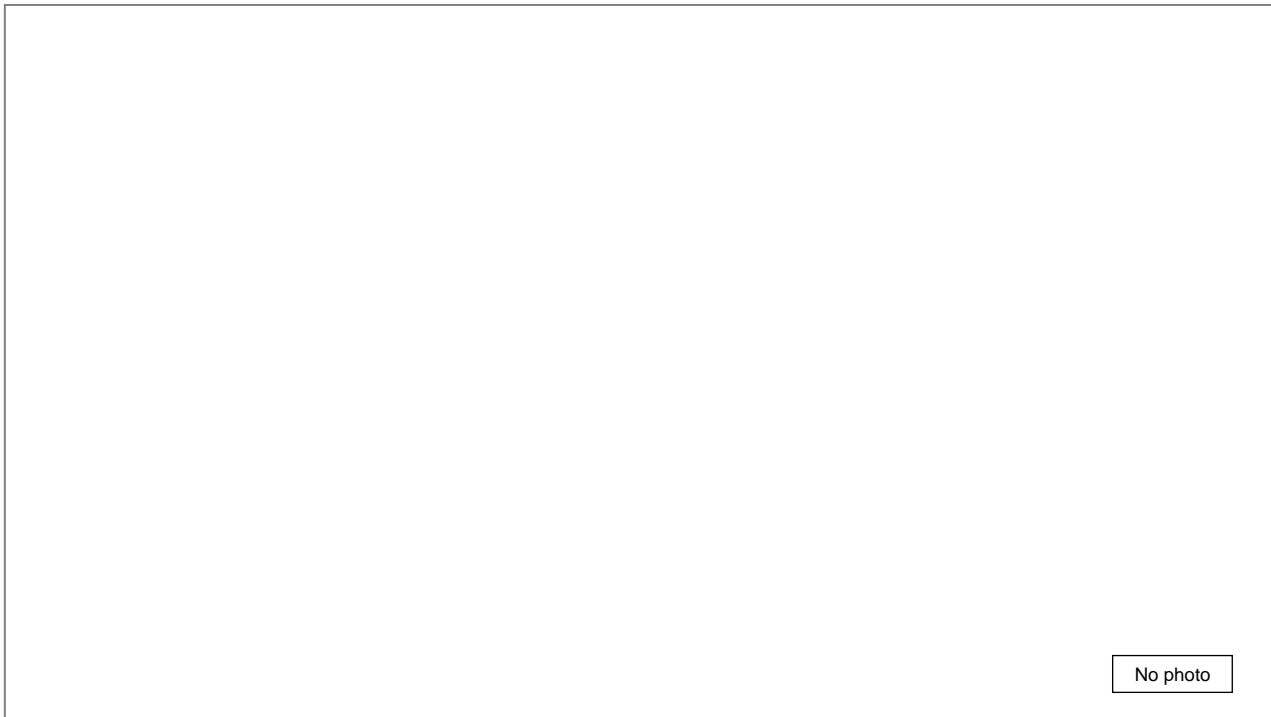
EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 10 plots]:

Alluvial Tall Moist Forest (5)					
Average similarity: 39.84					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus saligna</i>	3.30	3.98	3.74	9.98
	<i>Acmena smithii</i>	3.10	3.03	1.59	7.60
	<i>Angophora floribunda</i>	0.90	0.36	0.51	0.90
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	0.90	0.28	0.36	0.69
	<i>Cryptocarya microneura</i>	0.90	0.20	0.26	0.49
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	0.60	0.19	0.26	0.48
	<i>Allocasuarina torulosa</i>	0.50	0.16	0.39	0.41
	<i>Alphitonia excelsa</i>	0.30	0.10	0.26	0.25
	<i>Eucalyptus acmenoides</i>	0.60	0.09	0.15	0.22
	<i>Ceratopetalum apetalum</i>	0.20	0.03	0.15	0.08
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	2.50	2.21	1.28	5.54
	<i>Melaleuca styphelioides</i>	1.70	1.16	0.74	2.92
	<i>Ficus coronata</i>	1.60	1.04	0.68	2.61
	<i>Callistemon salignus</i>	0.90	0.20	0.26	0.50
	<i>Melaleuca linariifolia</i>	0.80	0.19	0.26	0.48
	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	0.80	0.11	0.25	0.27
	<i>Callicoma serratifolia</i>	0.40	0.08	0.26	0.21
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	0.40	0.08	0.26	0.21
Shrub	<i>Breynia oblongifolia</i>	0.90	0.81	1.24	2.04
	<i>Eupomatia laurina</i>	1.20	0.56	0.49	1.39
	<i>Maytenus silvestris</i>	0.60	0.27	0.52	0.67
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	0.40	0.17	0.39	0.44
	<i>Clerodendrum tomentosum</i>	0.40	0.15	0.39	0.39
	<i>Myrsine howittiana</i>	0.70	0.15	0.24	0.37
	<i>Pittosporum revolutum</i>	0.60	0.09	0.26	0.22
	<i>Cordyline stricta</i>	0.30	0.08	0.26	0.21
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.30	0.08	0.26	0.21
	<i>Omalanthus nutans</i>	0.20	0.04	0.15	0.10
	<i>Hymenosporum flavum</i>	0.20	0.03	0.15	0.08
Ground Fern	<i>Adiantum aethiopicum</i>	2.20	2.71	7.06	6.81
	<i>Calochlaena dubia</i>	1.60	1.22	1.14	3.07
	<i>Doodia aspera</i>	1.00	0.48	0.50	1.19
	<i>Blechnum cartilagineum</i>	1.00	0.45	0.50	1.14
	<i>Adiantum hispidulum</i>	0.50	0.17	0.38	0.42
	<i>Pteridium esculentum</i>	0.50	0.16	0.39	0.41
	<i>Hypolepis muelleri</i>	0.50	0.06	0.15	0.16
	<i>Adiantum formosum</i>	0.50	0.05	0.15	0.13
	<i>Doodia caudata</i>	0.30	0.03	0.15	0.08
Grass	<i>Oplismenus imbecillis</i>	2.40	2.36	1.76	5.92
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.20	0.59	0.64	1.49
	<i>Entolasia marginata</i>	0.80	0.36	0.50	0.89
	<i>Imperata cylindrica</i>	0.40	0.16	0.39	0.41
Graminoid	<i>Lomandra longifolia</i>	0.80	0.36	0.50	0.91

Alluvial Tall Moist Forest (5)					
Average similarity: 39.84					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Dianella caerulea</i> var. <i>assera</i>	0.50	0.30	0.53	0.76
Sedge	<i>Gahnia clarkei</i>	1.70	1.29	0.91	3.23
	<i>Carex longebrachiata</i>	1.30	1.02	0.86	2.56
	<i>Gymnostachys anceps</i>	0.80	0.43	0.66	1.08
	<i>Gahnia melanocarpa</i>	0.40	0.05	0.15	0.12
Herb	<i>Dichondra repens</i>	1.50	1.51	1.17	3.80
	<i>Pseuderanthemum variabile</i>	1.00	0.61	0.52	1.54
	<i>Viola hederacea</i>	1.10	0.56	0.52	1.41
	<i>Pratia purpurascens</i>	0.80	0.33	0.39	0.82
	<i>Hydrocotyle laxiflora</i>	0.70	0.23	0.36	0.57
	<i>Veronica plebeia</i>	0.60	0.19	0.37	0.48
	<i>Hydrocotyle sibthorpioides</i>	0.20	0.03	0.15	0.08
	<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	0.20	0.03	0.15	0.07
Twiner	<i>Dioscorea transversa</i>	2.00	2.69	7.21	6.75
	<i>Geitonoplesium cymosum</i>	1.60	1.74	3.64	4.36
	<i>Morinda jasminoides</i>	1.40	1.28	1.12	3.21
	<i>Smilax australis</i>	1.10	0.78	0.85	1.96
	<i>Stephania japonica</i> var. <i>discolor</i>	0.60	0.32	0.52	0.81
	<i>Cissus antarctica</i>	0.60	0.29	0.52	0.74
	<i>Cissus hypoglauca</i>	0.40	0.18	0.38	0.45
	<i>Glycine clandestina</i>	0.50	0.11	0.25	0.27
	<i>Parsonsia straminea</i>	0.40	0.10	0.26	0.25
	<i>Eustrephus latifolius</i>	0.30	0.08	0.26	0.21
	<i>Sarcopetalum harveyanum</i>	0.30	0.08	0.26	0.21
	<i>Hibbertia scandens</i>	0.30	0.08	0.26	0.20
	<i>Cayratia clematidea</i>	0.30	0.03	0.15	0.08
	<i>Clematis glycinoides</i> var. <i>glycinoides</i>	0.20	0.03	0.15	0.08



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest of the Central Coast ranges of the Sydney Basin bioregion

GHV: ?*Melaleuca biconvexa*/ Swamp Mahogany/ Cabbage Palm swamp forest of the Central Coast (205)

LHCCREMS: Alluvial Tall Moist Forest (MU5)

General Description:

Occurs along major creek systems with alluvial flats in the south-western Lake Macquarie and Wyong areas, and extending into Gosford LGA. Typified by a canopy of *Eucalyptus saligna* and an often dense sub-canopy of *Melaleuca biconvexa* and *Callistemon salignus*. Only a few remnants remain in Lake Macquarie, such as around the Cooranbong and Mandalong Valleys.

Characteristic Features:

- Canopy of Sydney Bluegum, on alluvial flats (may have been previously logged out)
- mid-storey of Biconvex Paperbarks
- moist ground layer of sedges, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

174 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [species presence, rapid data points]:

Alluvial Bluegum - Paperbark Forest (5a)					
Less than 1 sample in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Eucalyptus saligna</i>	-	-	-	√
	<i>Angophora floribunda</i>	-	-	-	√
	<i>Eucalyptus pilularis</i>	-	-	-	√
	<i>Eucalyptus propinqua</i>	-	-	-	√
	<i>Eucalyptus acmenioides</i>	-	-	-	√
	<i>Allocasuarina torulosa</i>	-	-	-	√
Small Tree	<i>Melaleuca biconvexa</i>	-	-	-	√
	<i>Callistemon salignus</i>	-	-	-	√
	<i>Melaleuca linariifolia</i>	-	-	-	√
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	√
	<i>Acmena smithii</i>	-	-	-	√
	<i>Backhousia myrtifolia</i>	-	-	-	√
Ground Fern	<i>Calochlaena dubia</i>	-	-	-	√
Sedge	<i>Gahnia clarkei</i>	-	-	-	√



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest of the Central Coast ranges of the Sydney Basin bioregion

GHV: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (050)

LHCCREMS: Alluvial Tall Moist Forest (MU5)

General Description:

Noted in the Cooranbong area of south-western Lake Macquarie, on alluvial flats. A moist forest type of *Eucalyptus saligna* and *Angophora floribunda*, with *Callistemon salignus* and *Acacia parramattensis* common in the mid-storey, over *Pteridium esculentum*, *Microlaena stipoides* var. *stipoides* and *Adiantum aethiopicum*. Related to but drier than other moist forest types on alluvial flats, such as Cooranbong Blackbutt Tall Forest (MU123), Alluvial Bluegum – Paperbark Forest (MU5a) and Floodplain Redgum – Rough-barked Apple Forest (MU38a). Further exploratory analyses in this group are required to clarify relationships.

Characteristic Features:

- canopy of Sydney Blue Gum and Rough-barked Apple
- mid-storey of Parramatta Wattle, Corkwood and Coffee Bush
- ground layer of Bracken and various grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

69 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 4 plots]:

Alluvial Bluegum - Apple Moist Forest (5b)					
Average similarity: 63.80					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus saligna</i>	3.50	4.22	10.93	6.61
	<i>Angophora floribunda</i>	3.00	3.34	4.58	5.23
	<i>Allocasuarina torulosa</i>	0.75	0.69	0.91	1.08
Small Tree	<i>Acacia parramattensis</i>	3.75	3.14	1.45	4.92
	<i>Duboisia myoporoides</i>	2.50	2.90	4.65	4.55
	<i>Callistemon salignus</i>	2.25	1.60	0.89	2.50
	<i>Melaleuca linariifolia</i>	0.50	0.23	0.41	0.36
Shrub	<i>Breynia oblongifolia</i>	2.00	2.68	16.29	4.19
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	2.00	2.68	16.29	4.19
	<i>Melaleuca nodosa</i>	1.50	0.89	0.80	1.40
	<i>Pittosporum revolutum</i>	1.00	0.69	0.91	1.08
	<i>Maytenus silvestris</i>	1.00	0.64	0.91	1.00
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	0.75	0.64	0.91	1.00
	<i>Sannantha pluriflora</i>	1.25	0.41	0.41	0.64
	<i>Cassinia uncata</i>	0.50	0.24	0.41	0.38
Ground Fern	<i>Pteridium esculentum</i>	3.25	3.61	2.77	5.66
	<i>Adiantum aethiopicum</i>	2.25	2.68	16.29	4.19
Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.50	2.88	7.00	4.51
	<i>Oplismenus imbecillis</i>	2.25	2.20	2.21	3.46
	<i>Entolasia marginata</i>	0.50	0.23	0.41	0.36
Graminoid	<i>Lomandra longifolia</i>	2.00	1.54	3.42	2.42
	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	1.34	16.29	2.10
Sedge	<i>Gahnia clarkei</i>	1.75	1.97	3.14	3.09
Herb	<i>Dichondra repens</i>	2.25	2.68	16.29	4.19
	<i>Hydrocotyle laxiflora</i>	2.00	2.68	16.29	4.19
	<i>Pratia purpurascens</i>	2.00	2.68	16.29	4.19
	<i>Oxalis perennans</i>	1.75	1.97	3.14	3.09
	<i>Viola hederacea</i>	1.50	1.37	0.91	2.15
	<i>Pseuderanthemum variabile</i>	1.50	1.27	0.91	1.99
	<i>Gonocarpus tetragynus</i>	1.25	0.91	0.84	1.42
	<i>Poranthera microphylla</i>	1.25	0.85	0.81	1.34
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.75	0.23	0.41	0.36
	Ground Orchid	<i>Pterostylis</i> spp.	1.00	0.43	0.41
Twiner	<i>Glycine clandestina</i>	2.00	2.68	16.29	4.19
	<i>Hibbertia scandens</i>	2.00	2.68	16.29	4.19
	<i>Eustrephus latifolius</i>	1.25	0.84	0.83	1.32
	<i>Billardiera scandens</i>	0.50	0.24	0.41	0.38
	<i>Kennedia rubicunda</i>	0.75	0.23	0.41	0.36
	<i>Morinda jasminoides</i>	0.75	0.23	0.41	0.36



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest of the Central Coast ranges of the Sydney Basin bioregion

GHV: ?*Melaleuca biconvexa*/ Swamp Mahogany/ Cabbage Palm swamp forest of the Central Coast (205)

LHCCREMS: Alluvial Tall Moist Forest (MU5)

General Description:

Alluvial Bluegum – Spotted Gum Moist Forest is an alluvial forest where *Eucalyptus saligna* co-occurs with *Corymbia maculata*, but other canopy species are also present and may be locally dominant. These include *Angophora floribunda*, *Eucalyptus amplifolia*, *Eucalyptus siderophloia* and *Eucalyptus globoidea*. Understorey vegetation includes species such as *Melaleuca decora*, *Melaleuca linariifolia*, *Acacia longifolia* and *Daviesia ulicifolia*, and a range of grasses and herbs occur on the ground. This vegetation type may be ecotonal between the wetter alluvial Bluegum-dominated communities and the drier Spotted Gum communities, and further sampling and investigation is required.

Characteristic Features:

- canopy of Sydney Blue Gum with Spotted Gum, or Rough-barked Apple, Cabbage Gum, Northern Ironbark or White Stringybark
- mid-storey of Paperbarks and wattles
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

106 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Alluvial Bluegum - Spotted Gum Moist Forest (5e)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Angophora floribunda</i>	-	-	-	4.00
	<i>Corymbia maculata</i>	-	-	-	3.00
	<i>Eucalyptus globoidea</i>	-	-	-	3.00
	<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	-	-	-	2.00
	<i>Allocasuarina torulosa</i>	-	-	-	1.00
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	-	-	-	1.00
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	1.00
Small Tree	<i>Melaleuca linariifolia</i>	-	-	-	2.00
	<i>Callistemon salignus</i>	-	-	-	1.00
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	1.00
Shrub	<i>Melaleuca decora</i>	-	-	-	4.00
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	-	-	-	3.00
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	2.00
	<i>Melaleuca sieberi</i>	-	-	-	2.00
	<i>Persoonia linearis</i>	-	-	-	1.00
	<i>Pultenaea retusa</i>	-	-	-	1.00
	<i>Melaleuca nodosa</i>	-	-	-	1.00
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	-	-	-	1.00
	<i>Platysace lanceolata</i>	-	-	-	1.00
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	2.00
Grass	<i>Entolasia stricta</i>	-	-	-	3.00
	<i>Imperata cylindrica</i>	-	-	-	2.00
	<i>Themeda australis</i>	-	-	-	2.00
	<i>Anisopogon avenaceus</i>	-	-	-	2.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	2.00
	<i>Digitaria ramularis</i>	-	-	-	1.00
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	-	-	-	2.00
	<i>Lomandra longifolia</i>	-	-	-	1.00
Sedge	<i>Lepidosperma laterale</i>	-	-	-	2.00
	<i>Gahnia clarkei</i>	-	-	-	1.00
Herb	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Gonocarpus tetragynus</i>	-	-	-	2.00
	<i>Boronia polygalifolia</i>	-	-	-	1.00
	<i>Brunoniella australis</i>	-	-	-	1.00
Ground Orchid	<i>Acianthus fornicatus</i>	-	-	-	1.00
Twiner	<i>Glycine clandestina</i>	-	-	-	2.00
	<i>Hardenbergia violacea</i>	-	-	-	1.00
	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	1.00
	<i>Billardiera scandens</i>	-	-	-	1.00
	<i>Polymeria calycina</i>	-	-	-	1.00

Alluvial Bluegum - Spotted Gum Moist Forest (5e)**Less than 2 samples in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
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Keith Class: North Coast Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Smooth-barked Apple/ Turpentine/ Blackbutt open forest on ranges of the Central Coast (061)

LHCCREMS: Alluvial Tall Moist Forest (MU5)

General Description:

Alluvial Riparian Blackbutt Forest occurs along major creek systems such as Dora Creek and Cockle Creek and environs, extending south into Wyong LGA. *Eucalyptus pilularis* is dominant along the banks of these creeks, but little extant areas are left to sample well. Common understorey species include *Acacia longifolia*, *Leptospermum polygalifolium*, *Pteridium esculentum*, *Dodonaea triquetra*, *Banksia spinulosa* var. *collina*, *Lomandra longifolia*, *Entolasia stricta* and *Gahnia clarkei*. This type is related to Cooranbong Blackbutt Tall Forest (MU123) but further investigation is required to determine how the two differ.

Characteristic Features:

- occurs along the banks of major creeks
- canopy almost exclusively of Blackbutt
- mid-storey of Wattles, Ti-tree, Hop Bush and Banksia
- ground layer of sedges, ferns, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

13 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Alluvial Riparian Blackbutt Forest (5h)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus piperita</i>	-	-	-	3.00
	<i>Eucalyptus pilularis</i>	-	-	-	3.00
	<i>Allocasuarina torulosa</i>	-	-	-	2.00
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	2.00
	<i>Angophora costata</i>	-	-	-	2.00
	<i>Angophora floribunda</i>	-	-	-	1.00
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	3.00
	<i>Acacia binervata</i>	-	-	-	2.00
	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	-	-	-	2.00
	<i>Callicoma serratifolia</i>	-	-	-	2.00
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	-	-	-	1.00
	<i>Guioa semiglauc</i>	-	-	-	1.00
Palm	<i>Livistona australis</i>	-	-	-	1.00
Shrub	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	1.00
	<i>Persoonia linearis</i>	-	-	-	1.00
	<i>Astrotricha latifolia</i>	-	-	-	1.00
	<i>Acacia implexa</i>	-	-	-	1.00
	<i>Breynia oblongifolia</i>	-	-	-	1.00
	<i>Clerodendrum tomentosum</i>	-	-	-	1.00
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	-	-	-	1.00
	<i>Rubus parvifolius</i>	-	-	-	1.00
	<i>Seringia arborescens</i>	-	-	-	1.00
Ground Fern	<i>Blechnum cartilagineum</i>	-	-	-	3.00
	<i>Pteridium esculentum</i>	-	-	-	2.00
	<i>Adiantum aethiopicum</i>	-	-	-	2.00
	<i>Doodia aspera</i>	-	-	-	2.00
Grass	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Oplismenus imbecillis</i>	-	-	-	2.00
	<i>Entolasia marginata</i>	-	-	-	1.00
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00
	<i>Lomandra longifolia</i>	-	-	-	2.00
Sedge	<i>Gahnia melanocarpa</i>	-	-	-	3.00
	<i>Lepidosperma laterale</i>	-	-	-	1.00
	<i>Gymnostachys anceps</i>	-	-	-	1.00
Herb	<i>Pseuderanthemum variabile</i>	-	-	-	2.00
	<i>Viola hederacea</i>	-	-	-	2.00
	<i>Pratia purpurascens</i>	-	-	-	1.00
	<i>Alpinia caerulea</i>	-	-	-	1.00
	<i>Hydrocotyle sibthorpioides</i>	-	-	-	1.00
Ground Orchid	<i>Acianthus fornicatus</i>	-	-	-	2.00
Twiner	<i>Pandorea pandorana</i>	-	-	-	2.00

Alluvial Riparian Blackbutt Forest (5h)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
	<i>Hibbertia dentata</i>	-	-	-	2.00
	<i>Smilax australis</i>	-	-	-	2.00
	<i>Dioscorea transversa</i>	-	-	-	2.00
	<i>Marsdenia rostrata</i>	-	-	-	2.00
	<i>Glycine clandestina</i>	-	-	-	1.00
	<i>Hibbertia scandens</i>	-	-	-	1.00
	<i>Cissus hypoglauca</i>	-	-	-	1.00
	<i>Geitonoplesium cymosum</i>	-	-	-	1.00



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Sheltered Apple-Peppermint Forest (MU11)

General Description:

Minor drainage lines on the lower elevation undulating country of the coastal plains support a swampy community of *Eucalyptus piperita*, *Eucalyptus punctata* and *Angophora costata*. The tall shrub layer includes *Callicoma serratifolia*, *Glochidion ferdinandi* and *Melaleuca linariifolia*, and with a dense ground layer of *Gahnia clarkei*. Typically, Riparian Paperbark - Peppermint Forest occupies only narrow bands 15m or less in width.

Characteristic Features:

- narrow bands following creeklines on low topography
- canopy dominated by Sydney Peppermint, Grey Gum and Smooth-barked Apple
- mid-storey of Paperbark, Cheese Tree and Black Wattle
- ground layer of sedges

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

53 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 5 plots]:

Riparian Paperbark - Peppermint Forest (11a)					
Average similarity: 34.72					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus piperita</i>	2.60	3.64	6.80	10.49
	<i>Angophora costata</i>	0.60	0.48	0.62	1.38
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1.20	0.48	0.32	1.37
	<i>Acmena smithii</i>	0.80	0.28	0.32	0.81
	<i>Allocasuarina torulosa</i>	0.60	0.16	0.32	0.46
	<i>Eucalyptus umbra</i>	0.40	0.15	0.32	0.43
Small Tree	<i>Melaleuca styphelioides</i>	3.40	2.69	0.62	7.74
	<i>Melaleuca linariifolia</i>	2.60	2.03	0.87	5.85
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	2.20	1.88	0.89	5.42
	<i>Callistemon salignus</i>	1.40	0.72	0.52	2.06
	<i>Ficus coronata</i>	0.40	0.16	0.32	0.46
	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	0.60	0.15	0.32	0.43
	<i>Callicoma serratifolia</i>	0.80	0.15	0.32	0.43
Shrub	<i>Breynia oblongifolia</i>	1.00	0.64	0.57	1.84
	<i>Pittosporum undulatum</i>	0.80	0.19	0.32	0.53
	<i>Rubus parvifolius</i>	0.80	0.19	0.32	0.53
Ground Fern	<i>Adiantum aethiopicum</i>	2.00	3.20	12.25	9.23
	<i>Cyathea australis</i>	0.40	0.16	0.32	0.46
	<i>Calochlaena dubia</i>	0.40	0.15	0.32	0.43
Grass	<i>Oplismenus imbecillis</i>	2.60	1.99	1.14	5.74
	<i>Entolasia marginata</i>	1.20	0.48	0.62	1.38
	<i>Imperata cylindrica</i>	0.60	0.44	0.62	1.26
	<i>Poa affinis</i>	0.60	0.16	0.32	0.46
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	0.80	0.93	1.16	2.67
	<i>Lomandra longifolia</i>	0.80	0.44	0.62	1.26
Sedge	<i>Gahnia clarkei</i>	3.80	3.47	0.91	9.98
	<i>Carex longibrachiata</i>	0.80	0.32	0.32	0.92
Herb	<i>Pratia purpurascens</i>	1.60	1.85	1.16	5.34
	<i>Viola hederacea</i>	1.20	0.96	0.62	2.75
	<i>Hydrocotyle laxiflora</i>	1.20	0.92	0.62	2.64
	<i>Pseuderanthemum variabile</i>	0.80	0.48	0.62	1.38
	<i>Galium propinquum</i>	0.80	0.32	0.32	0.92
	<i>Centella asiatica</i>	0.80	0.30	0.32	0.86
	<i>Dichondra repens</i>	0.60	0.16	0.32	0.46
	<i>Gonocarpus tetragynus</i>	0.40	0.15	0.32	0.43
	<i>Hydrocotyle geraniifolia</i>	0.60	0.15	0.32	0.43
Twiner	<i>Dioscorea transversa</i>	1.40	1.40	1.01	4.05
	<i>Eustrephus latifolius</i>	0.80	0.48	0.62	1.38
	<i>Smilax australis</i>	0.80	0.48	0.62	1.38
	<i>Morinda jasminoides</i>	0.80	0.46	0.62	1.32
	<i>Geitonoplesium cymosum</i>	0.60	0.16	0.32	0.46
	<i>Hibbertia dentata</i>	0.40	0.16	0.32	0.46
	<i>Parsonsia straminea</i>	0.60	0.16	0.32	0.46

Riparian Paperbark - Peppermint Forest (11a)**Average similarity: 34.72**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Polymeria calycina</i>	0.60	0.15	0.32	0.43



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: ?Smooth-barked Apple open forest on coastal lowlands of the Central Coast (103)
LHCCREMS: Coastal Sheltered Apple-Peppermint Forest (MU11)

General Description:

Awaba Peppermint – Black Wattle Riparian Forest occurs in narrow rocky gully lines high in the catchment of the hinterland low hills, where *Callicoma serratifolia* dominates the small tree/ shrub layers in narrow bands. Emergent eucalypts include *Eucalyptus piperita* and *Angophora costata* with *Allocasuarina torulosa*.

Characteristic Features:

- occurs as narrow bands along riparian zones
- emergent canopy of Sydney Peppermint and Smooth-barked Apple
- dense mid-storey of Black Wattle, Cheese Tree and Gynea Lily
- ground layer of ferns and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

13 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Awaba Peppermint-Black Wattle Riparian Forest (11c)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Allocasuarina torulosa</i>	-	-	-	3.00
	<i>Eucalyptus piperita</i>	-	-	-	3.00
	<i>Angophora costata</i>	-	-	-	3.00
Small Tree	<i>Callicoma serratifolia</i>	-	-	-	5.00
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	2.00
	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	-	-	-	1.00
	<i>Ceratopetalum gummiferum</i>	-	-	-	1.00
Shrub	<i>Dodonaea triquetra</i>	-	-	-	2.00
	<i>Doryanthes excelsa</i>	-	-	-	2.00
	<i>Prostanthera incisa</i>	-	-	-	1.00
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	-	-	-	1.00
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	-	-	-	1.00
	<i>Gompholobium latifolium</i>	-	-	-	1.00
	<i>Lomatia silaifolia</i>	-	-	-	1.00
	<i>Pultenaea daphnoides</i>	-	-	-	1.00
Ground Fern	<i>Calochlaena dubia</i>	-	-	-	3.00
	<i>Blechnum cartilagineum</i>	-	-	-	2.00
	<i>Adiantum aethiopicum</i>	-	-	-	2.00
	<i>Adiantum hispidulum</i>	-	-	-	1.00
Grass	<i>Oplismenus imbecillis</i>	-	-	-	2.00
	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Poa affinis</i>	-	-	-	2.00
	<i>Entolasia marginata</i>	-	-	-	1.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	1.00
	<i>Digitaria diffusa</i>	-	-	-	1.00
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	1.00
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	-	-	-	1.00
Sedge	<i>Schoenus melanostachys</i>	-	-	-	2.00
	<i>Gymnostachys anceps</i>	-	-	-	1.00
	<i>Gahnia melanocarpa</i>	-	-	-	1.00
Herb	<i>Pseuderanthemum variabile</i>	-	-	-	2.00
Twiner	<i>Dioscorea transversa</i>	-	-	-	2.00
	<i>Hibbertia dentata</i>	-	-	-	1.00
	<i>Smilax glyciphylla</i>	-	-	-	1.00
	<i>Billardiera scandens</i>	-	-	-	1.00
	<i>Eustrephus latifolius</i>	-	-	-	1.00
	<i>Kennedia rubicunda</i>	-	-	-	1.00



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Smooth-barked Apple/ Turpentine/ Blackbutt open forest on ranges of the Central Coast (061)

LHCCREMS: Alluvial Tall Moist Forest (MU5)

General Description:

Cooranbong Blackbutt Tall Forest supports often tall stands of *Eucalyptus pilularis* on the undulating valley flats around Cooranbong and Martinsville. Largely depleted due to clearing and logging, other species co-occurring include *Allocasuarina torulosa*, *Calistemon salignus* and *Glochidion ferdinandi* in the mid layer, over a rich herb and grass layer. This community is broadly related to Coastal Narrabeen Shrub Forest (MU22) and Coastal Ranges Open Forest (MU9) through the sharing of Blackbutt in the canopy, but occurs in a very different landscape position. It is also very similar to Alluvial Riparian Blackbutt Forest (MU5h), and further clarification of differences with that community is required.

Characteristic Features:

- tall canopy of Blackbutt with Forest Oak, Willow Bottlebrush and Cheese Tree
- mid-storey of Cheese Tree, Coffee Bush and Prickly Beard-heath
- rich ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

311 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - (?) River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Cooranbong Blackbutt Tall Forest (123)					
Average similarity: 65.24					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus pilularis</i>	4.00	4.28	-	6.56
	<i>Allocasuarina torulosa</i>	2.50	2.14	-	3.28
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	4.50	4.28	-	6.56
	<i>Callistemon salignus</i>	3.00	3.21	-	4.92
	<i>Melaleuca styphelioides</i>	1.50	1.07	-	1.64
Shrub	<i>Breynia oblongifolia</i>	2.00	2.14	-	3.28
	<i>Leucopogon juniperinus</i>	2.00	2.14	-	3.28
	<i>Persoonia linearis</i>	1.00	1.07	-	1.64
	<i>Pittosporum revolutum</i>	1.00	1.07	-	1.64
	<i>Pittosporum undulatum</i>	1.00	1.07	-	1.64
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.50	1.07	-	1.64
Ground Fern	<i>Adiantum aethiopicum</i>	2.00	2.14	-	3.28
	<i>Pteridium esculentum</i>	2.00	2.14	-	3.28
Grass	<i>Imperata cylindrica</i>	3.50	3.21	-	4.92
	<i>Themeda australis</i>	3.00	3.21	-	4.92
	<i>Entolasia marginata</i>	2.00	2.14	-	3.28
	<i>Entolasia stricta</i>	2.50	2.14	-	3.28
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	2.14	-	3.28
	<i>Oplismenus imbecillis</i>	2.00	2.14	-	3.28
	<i>Panicum simile</i>	2.50	2.14	-	3.28
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	2.00	2.14	-	3.28
Sedge	<i>Lepidosperma laterale</i>	2.00	2.14	-	3.28
Herb	<i>Brunoniella australis</i>	2.00	2.14	-	3.28
	<i>Dichondra repens</i>	2.00	2.14	-	3.28
	<i>Lagenophora stipitata</i>	2.00	2.14	-	3.28
	<i>Oxalis perennans</i>	2.00	2.14	-	3.28
	<i>Pratia purpurascens</i>	2.00	2.14	-	3.28
	<i>Tricoryne elatior</i>	1.50	1.07	-	1.64
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	1.00	1.07	-	1.64
Twiner	<i>Eustrephus latifolius</i>	1.00	1.07	-	1.64
	<i>Glycine clandestina</i>	1.50	1.07	-	1.64
	<i>Hardenbergia violacea</i>	1.00	1.07	-	1.64

Moist Forests (Colluvial Soils)



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest of the Central Coast ranges of the Sydney Basin bioregion

GHV: Blackbutt/ Turpentine/ Sydney Blue Gum mesic tall open forest on ranges of the Central Coast (050)

LHCCREMS: Coastal Narabeen Moist Forest (MU6)

General Description:

Coastal Narrabeen Bluegum Ridge Forest is a moist ridgetop vegetation occurring in the Watagan Mountains, where *Eucalyptus deanei*, *Eucalyptus saligna*, *Syncarpia glomulifera* and *Eucalyptus acmenoides* are prominent. The open or dense mid-layer comprises species such as *Acacia maidenii*, *Trochocarpa laurina*, *Persoonia linearis*, and *Synoum glandulosum*, over a well developed herb and grass layer. This community generally occurs in higher rainfall areas at the top of the Olney SF catchment, such as along the ridges around Heaton Gap. Few areas remain untouched by logging operations. Some further sampling is required to clarify the relationship of this type with Coastal Wet Gully Forest (MU1).

Characteristic Features:

- occurs in ridgetop habitats in high rainfall parts of the Watagan Mountains
- canopy of Mountain Gum, with other species such as Sydney Blue Gum, Turpentine and White Mahogany
- sparse or dense mid-storey of Maidens Wattle, Tree Heath and Scentless Rosewood
- rich ground layer of ferns, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

534 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Coastal Narrabeen Bluegum Ridge Forest (6a)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus deanei</i>	-	-	-	4.00
	<i>Allocasuarina torulosa</i>	-	-	-	3.00
	<i>Acacia maidenii</i>	-	-	-	3.00
	<i>Eucalyptus acmenoides</i>	-	-	-	2.00
Small Tree	<i>Trochocarpa laurina</i>	-	-	-	3.00
	<i>Synoum glandulosum subsp. glandulosum</i>	-	-	-	2.00
	<i>Guioa semiglauca</i>	-	-	-	1.00
	<i>Cryptocarya rigida</i>	-	-	-	1.00
	<i>Alectryon subcinereus</i>	-	-	-	1.00
	<i>Diospyros australis</i>	-	-	-	1.00
Shrub	<i>Rubus parvifolius</i>	-	-	-	2.00
	<i>Cordyline stricta</i>	-	-	-	2.00
	<i>Persoonia linearis</i>	-	-	-	1.00
	<i>Platysace lanceolata</i>	-	-	-	1.00
	<i>Pittosporum multiflorum</i>	-	-	-	1.00
Low Shrub	<i>Plectranthus parviflorus</i>	-	-	-	1.00
Ground Fern	<i>Doodia aspera</i>	-	-	-	3.00
	<i>Pteridium esculentum</i>	-	-	-	2.00
Grass	<i>Oplismenus imbecillis</i>	-	-	-	3.00
	<i>Imperata cylindrica</i>	-	-	-	3.00
	<i>Entolasia marginata</i>	-	-	-	2.00
	<i>Microlaena stipoides var. stipoides</i>	-	-	-	2.00
	<i>Digitaria parviflora</i>	-	-	-	2.00
	<i>Poa labillardierei var. labillardierei</i>	-	-	-	1.00
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00
	<i>Dianella caerulea var. assera</i>	-	-	-	1.00
Sedge	<i>Gymnostachys anceps</i>	-	-	-	2.00
	<i>Cyperus enervis</i>	-	-	-	2.00
	<i>Gahnia melanocarpa</i>	-	-	-	1.00
	<i>Carex appressa</i>	-	-	-	1.00
Herb	<i>Pseuderanthemum variabile</i>	-	-	-	2.00
	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Dichondra repens</i>	-	-	-	2.00
	<i>Oxalis perennans</i>	-	-	-	2.00
	<i>Poranthera microphylla</i>	-	-	-	2.00
	<i>Galium propinquum</i>	-	-	-	2.00
	<i>Desmodium gunnii</i>	-	-	-	2.00
	<i>Arthropodium milleflorum</i>	-	-	-	2.00
	<i>Commelina cyanea</i>	-	-	-	2.00
	<i>Geranium homeanum</i>	-	-	-	2.00
	<i>Hydrocotyle geraniifolia</i>	-	-	-	2.00
	<i>Stellaria flaccida</i>	-	-	-	2.00

Coastal Narrabeen Bluegum Ridge Forest (6a)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
	<i>Sigesbeckia orientalis subsp. orientalis</i>	-	-	-	1.00
Ground Orchid	<i>Pterostylis spp.</i>	-	-	-	2.00
Twiner	<i>Hibbertia dentata</i>	-	-	-	3.00
	<i>Glycine clandestina</i>	-	-	-	2.00
	<i>Cissus hypoglauca</i>	-	-	-	2.00
	<i>Geitonoplesium cymosum</i>	-	-	-	2.00
	<i>Stephania japonica var. discolor</i>	-	-	-	2.00
	<i>Pandorea pandorana</i>	-	-	-	1.00
	<i>Smilax australis</i>	-	-	-	1.00
	<i>Dioscorea transversa</i>	-	-	-	1.00
	<i>Hibbertia scandens</i>	-	-	-	1.00
	<i>Clematis glycinoides var. glycinoides</i>	-	-	-	1.00
Epiphytic Fern	<i>Pyrrhosia rupestris</i>	-	-	-	1.00



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: Blackbutt/ Rough-barked Apple/ Turpentine/ ferny tall open forest of the Central Coast (046)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Mesic Blackbutt Forest is a tall forest where *Eucalyptus pilularis* is clearly dominant, but may also occur with *Eucalyptus saligna* or *Allocasuarina torulosa*. The mesic understorey of semi-rainforest species includes *Acacia parramattensis*, *Astrotricha latifolia*, *Clerodendrum tomentosum*, *Synoum glandulosum*, *Claoxylon australe* and *Cryptocarya glaucescens*. This represents a widespread forest type in the Watagan Mountains system, but is currently poorly sampled across its distribution. Coastal Ranges Mesic Blackbutt Forest merges with Coastal Wet Gully Forest (MU1) and other similar moist vegetation types in protected slope positions.

Characteristic Features:

- canopy of Blackbutt with Sydney Blue Gum or Forest Oak
- mid-storey of mesic species such as Parramatta Wattle, Hairy Clerodendrum and Scentless Rosewood
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

935 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Ranges Mesic Blackbutt Forest (9a)						
Average similarity: 26.32						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	
Tree	<i>Eucalyptus saligna</i>	2.50	2.63	-	10.00	
	<i>Allocasuarina torulosa</i>	2.00	1.32	-	5.00	
Small Tree	<i>Synoum glandulosum subsp. glandulosum</i>	2.00	2.63	-	10.00	
	<i>Claoxylon australe</i>	2.00	1.32	-	5.00	
Grass	<i>Imperata cylindrica</i>	2.00	2.63	-	10.00	
	<i>Oplismenus imbecillis</i>	2.00	1.32	-	5.00	
Graminoid	<i>Lomandra longifolia</i>	1.50	1.32	-	5.00	
Sedge	<i>Gymnostachys anceps</i>	1.50	1.32	-	5.00	
Herb	<i>Pratia purpurascens</i>	2.00	2.63	-	10.00	
	<i>Pseuderanthemum variabile</i>	2.00	2.63	-	10.00	
Twiner	<i>Cayratia clematidea</i>	1.50	1.32	-	5.00	
	<i>Cissus hypoglauca</i>	1.50	1.32	-	5.00	
	<i>Geitonoplesium cymosum</i>	1.50	1.32	-	5.00	
	<i>Parsonsia straminea</i>	1.50	1.32	-	5.00	
	<i>Stephania japonica var. discolor</i>	2.00	1.32	-	5.00	



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Mesic Peppermint Forest is present in the Watagan Mountains in and around Watagans NP, and some parts of the Sugarloaf Range. *Eucalyptus piperita* is the dominant canopy species present, co-occurring with *Allocasuarina torulosa* and *Angophora costata*. A moderately dense understorey of species such as *Cryptocarya rigida*, *Glochidion ferdinandi*, and *Astrotricha latifolia* occurs over *Entolasia marginata*, *Cymbopogon refractus*, *Gahnia melanocarpa* and *Lomandra longifolia*. Further investigation is required to determine its relationship to similar moist forests.

Characteristic Features:

- canopy dominated by Sydney Peppermint, Forest Oak and Smooth-barked Apple
- mid-storey of mesic species such as Cheesetree, *Astrotricha* and Forest Maple
- ground layer of grasses and grass-like plants

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

66 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Coastal Ranges Mesic Peppermint Forest (9e)
Less than 2 samples in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Allocasuarina torulosa</i>	-	-	-	4.00
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	4.00
	<i>Eucalyptus piperita</i>	-	-	-	4.00
	<i>Cryptocarya glaucescens</i>	-	-	-	3.00
	<i>Eucalyptus saligna</i>	-	-	-	1.00
Small Tree	<i>Acacia parramattensis</i>	-	-	-	4.00
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	-	-	-	3.00
	<i>Trochocarpa laurina</i>	-	-	-	3.00
	<i>Elaeocarpus reticulatus</i>	-	-	-	2.00
	<i>Acacia schinoides</i>	-	-	-	1.00
Shrub	<i>Myrsine variabilis</i>	-	-	-	3.00
	<i>Persoonia linearis</i>	-	-	-	2.00
	<i>Acrotriche divaricata</i>	-	-	-	2.00
	<i>Astrotricha latifolia</i>	-	-	-	2.00
	<i>Prostanthera incisa</i>	-	-	-	2.00
	<i>Psychotria loniceroides</i>	-	-	-	2.00
	<i>Zieria smithii</i>	-	-	-	2.00
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	1.00
Ground Fern	<i>Calochlaena dubia</i>	-	-	-	4.00
	<i>Pteridium esculentum</i>	-	-	-	2.00
Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	2.00
	<i>Entolasia marginata</i>	-	-	-	2.00
	<i>Entolasia stricta</i>	-	-	-	1.00
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	1.00
Sedge	<i>Gahnia clarkei</i>	-	-	-	2.00
	<i>Lepidosperma laterale</i>	-	-	-	1.00
Twiner	<i>Hibbertia scandens</i>	-	-	-	2.00
	<i>Hibbertia dentata</i>	-	-	-	2.00
	<i>Eustrephus latifolius</i>	-	-	-	2.00
	<i>Smilax australis</i>	-	-	-	2.00
	<i>Cissus hypoglauca</i>	-	-	-	1.00
Epiphytic Orchid	<i>Cymbidium suave</i>	-	-	-	1.00



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Mesic Stringybark – Mahogany Forest is dominated in the canopy by the prominent *Eucalyptus agglomerata* with *Allocasuarina torulosa*, *Syncarpia glomulifera*, *Eucalyptus acmenioides* and *Angophora floribunda*. Common mid-storey species include *Cryptocarya rigida*, *Synoum glandulosum*, *Cordyline stricta* and *Gymnostachys anceps*, over a rich and diverse ground layer of herbs and grasses. This community occurs in the Watagan Mountains on high rainfall slopes and ridges, and merges with other moist forest types. Further investigation is required to determine the relationship between this and similar communities, although the distribution of *Eucalyptus agglomerata* is distinctive where it occurs.

Characteristic Features:

- canopy of Blue-leaved Stringybark, with Forest Oak, Turpentine and Rough-barked Apple
- mid-storey of Forest Maple, Scentless Rosewood and Tree-heath
- rich ground layer of ferns, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

30 ha

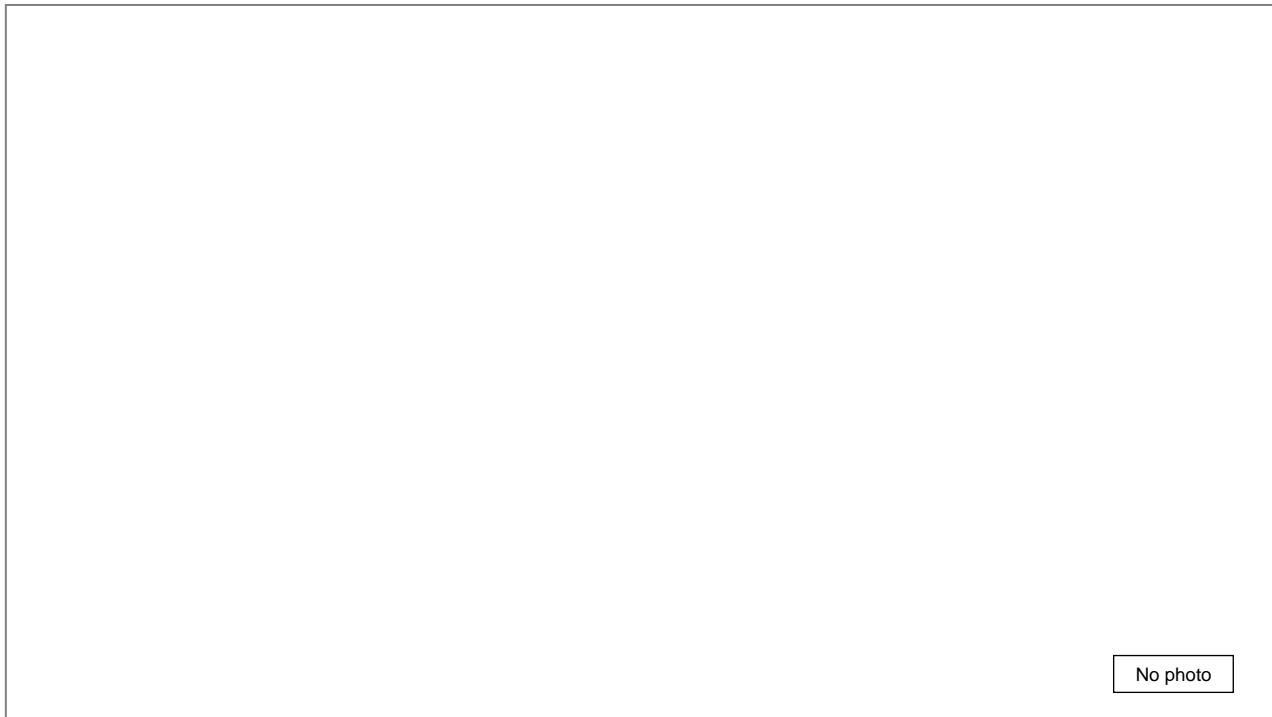
Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Ranges Mesic Stringybark - Mahogany Forest (9i)					
Average similarity: 58.22					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus agglomerata</i>	4.00	3.76	-	6.45
	<i>Allocasuarina torulosa</i>	3.00	2.82	-	4.84
	<i>Angophora floribunda</i>	2.50	1.88	-	3.23
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2.50	1.88	-	3.23
	<i>Diploglottis cunninghamii</i>	1.00	0.94	-	1.61
Small Tree	<i>Cryptocarya rigida</i>	3.00	2.82	-	4.84
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	3.50	2.82	-	4.84
	<i>Claoxylon australe</i>	1.50	0.94	-	1.61
	<i>Diospyros australis</i>	1.00	0.94	-	1.61
Shrub	<i>Cordyline stricta</i>	2.00	1.88	-	3.23
	<i>Clerodendrum tomentosum</i>	1.00	0.94	-	1.61
	<i>Psychotria loniceroides</i>	2.00	0.94	-	1.61
Ground Fern	<i>Doodia aspera</i>	2.50	1.88	-	3.23
	<i>Polystichum australiense</i>	2.00	1.88	-	3.23
	<i>Calochlaena dubia</i>	1.50	0.94	-	1.61
Grass	<i>Oplismenus imbecillis</i>	2.00	1.88	-	3.23
	<i>Entolasia marginata</i>	1.50	0.94	-	1.61
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	2.00	0.94	-	1.61
Graminoid	<i>Lomandra longifolia</i>	2.00	1.88	-	3.23
	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	0.94	-	1.61
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	1.50	0.94	-	1.61
Sedge	<i>Gymnostachys anceps</i>	2.00	1.88	-	3.23
	<i>Gahnia aspera</i>	1.50	0.94	-	1.61
	<i>Gahnia melanocarpa</i>	1.50	0.94	-	1.61
Herb	<i>Desmodium gunnii</i>	2.00	1.88	-	3.23
	<i>Hydrocotyle geraniifolia</i>	2.00	1.88	-	3.23
	<i>Hydrocotyle laxiflora</i>	2.00	1.88	-	3.23
	<i>Pratia purpurascens</i>	2.00	1.88	-	3.23
	<i>Pseuderanthemum variable</i>	2.00	1.88	-	3.23
	<i>Viola hederacea</i>	2.00	1.88	-	3.23
Twiner	<i>Dioscorea transversa</i>	2.00	1.88	-	3.23
	<i>Hibbertia dentata</i>	2.00	1.88	-	3.23
	<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1.00	0.94	-	1.61
	<i>Eustrephus latifolius</i>	1.50	0.94	-	1.61
	<i>Glycine clandestina</i>	1.50	0.94	-	1.61
	<i>Smilax australis</i>	1.50	0.94	-	1.61
	<i>Tetragium nitens</i>	1.00	0.94	-	1.61



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Tallowwood/ Smooth-barked Apple/ Blackbutt grass tall open forest of the Central and lower North Coast (038)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Mesic Blackbutt-Tallowwood Forest occurs in two areas in the hills west of Morisset and Wyee, but has not yet been sampled. It is typified by a canopy of *Eucalyptus pilularis*, *Eucalyptus microcorys*, and *Allocasuarina torulosa*, over an understorey of *Xanthorrhoea malocophylla*, *Synoum glandulosum*, *Persoonia linearis*, *Daviesia ulicifolia*, *Gompholobium latifolium*, *Calochlaena dubia*, *Poa affinis* and *Themeda australis*. Other eucalypts may also be present, including *Eucalyptus propinqua*, *Corymbia maculata* and *Eucalyptus acmenioides*. As this community is yet to be sampled, its position in the classification hierarchy is currently unknown.

Characteristic Features:

- canopy most notably of Blackbutt with Tallowwood and Forest Oak, but also with Small-fruited Grey Gum, Spotted Gum and White Mahogany
- mid-storey of dry or mesic shrubs, and Grass Tree may be obvious
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

72 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Coastal Ranges Mesic Blackbutt - Tallowood Forest (9I)					
Less than 1 sample in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Eucalyptus pilularis</i>	-	-	-	✓
	<i>Eucalyptus microcorys</i>	-	-	-	✓
	<i>Syncarpia glomulifera subsp. glomulifera</i>	-	-	-	✓
	<i>Eucalyptus propinqua</i>	-	-	-	✓
	<i>Eucalyptus acmenioides</i>	-	-	-	✓
	<i>Allocasuarina torulosa</i>	-	-	-	✓
Small Tree	<i>Choricarpia leptopetala</i>	-	-	-	✓
Shrub	<i>Podolobium aciculiferum</i>	-	-	-	✓
	<i>Daviesia ulicifolia</i>	-	-	-	✓
	<i>Pimelea linifolia</i>	-	-	-	✓
	<i>Rhodamnia rubescens</i>	-	-	-	✓
	<i>Gompholobium latifolium</i>	-	-	-	✓
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	✓
	<i>Calochlaena dubia</i>	-	-	-	✓
	<i>Pellaea falcata</i>	-	-	-	✓
Grass Tree	<i>Xanthorrhoea malocophylla</i>	-	-	-	✓
Grass	<i>Entolasia stricta</i>	-	-	-	✓
	<i>Themeda australis</i>	-	-	-	✓
	<i>Poa affinis</i>	-	-	-	✓
	<i>Imperata cylindrica</i>	-	-	-	✓
Graminoid	<i>Lomandra longifolia</i>	-	-	-	✓
	<i>Gymnostachys anceps</i>	-	-	-	✓



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Smooth-barked Apple open forest on coastal lowlands of the Central Coast (103)

LHCCREMS: Coastal Sheltered Apple-Peppermint Forest (MU11)

General Description:

Coastal Sheltered Apple - Peppermint Forest occurs in dry drainage lines and associated slopes, generally at southerly to south-easterly aspects. It is clearly dominated by *Eucalyptus piperita* and *Angophora costata*, and with a sparse or moderate cover of understorey shrubs and grasses such as *Allocasuarina littoralis*, *Pteridium esculentum*, *Entolasia stricta*, *Themeda australis*, and *Imperata cylindrica*. Within the Lake Macquarie region, this vegetation type has often been cleared for grazing, cropping or horticulture, and is generally restricted in extent.

Characteristic Features:

- occurs in sheltered aspects on dry drainage lines
- tall canopy dominated by Sydney Peppermint and Smooth-barked Apple
- scattered mid-layer of Bracken and Geebung
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1179 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 18 plots]:

Coastal Sheltered Apple - Peppermint Forest (11)					
Average similarity: 39.40					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus piperita</i>	3.78	4.16	6.01	10.56
	<i>Angophora costata</i>	2.89	3.07	4.24	7.79
	<i>Corymbia gummifera</i>	1.61	1.02	0.81	2.59
	<i>Eucalyptus umbra</i>	0.72	0.24	0.38	0.62
	<i>Allocasuarina torulosa</i>	0.61	0.13	0.25	0.32
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	0.33	0.05	0.19	0.14
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	0.39	0.06	0.19	0.14
Small Tree	<i>Allocasuarina littoralis</i>	1.50	0.81	0.63	2.05
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	0.83	0.33	0.51	0.84
	<i>Melaleuca linariifolia</i>	0.33	0.05	0.20	0.13
	<i>Callicoma serratifolia</i>	0.33	0.02	0.14	0.06
Shrub	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.33	0.77	0.77	1.95
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.22	0.71	0.88	1.80
	<i>Persoonia linearis</i>	0.72	0.62	1.01	1.57
	<i>Acacia myrtifolia</i>	1.28	0.56	0.62	1.41
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.94	0.55	0.67	1.41
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.94	0.54	0.84	1.36
	<i>Dodonaea triquetra</i>	1.22	0.41	0.41	1.04
	<i>Gompholobium latifolium</i>	0.83	0.39	0.52	0.99
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.78	0.38	0.61	0.97
	<i>Leptospermum trinervium</i>	0.72	0.32	0.52	0.82
	<i>Epacris pulchella</i>	0.67	0.26	0.44	0.66
	<i>Pittosporum undulatum</i>	0.72	0.21	0.36	0.53
	<i>Pultenaea paleacea</i>	0.72	0.20	0.31	0.51
	<i>Acacia ulicifolia</i>	0.61	0.19	0.38	0.48
	<i>Acacia terminalis</i>	0.50	0.18	0.39	0.46
	<i>Breynia oblongifolia</i>	0.50	0.17	0.39	0.43
	<i>Tetradlea juncea</i>	0.39	0.16	0.40	0.42
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	0.61	0.16	0.31	0.41
	<i>Persoonia levis</i>	0.39	0.16	0.40	0.40
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.50	0.14	0.31	0.36
	<i>Podolobium ilicifolium</i>	0.56	0.14	0.31	0.36
	<i>Pultenaea villosa</i>	0.83	0.14	0.22	0.36
	<i>Dillwynia retorta</i>	0.50	0.09	0.20	0.23
	<i>Bossiaea obcordata</i>	0.39	0.05	0.14	0.12
	<i>Comesperma ericinum</i>	0.28	0.05	0.20	0.12
	<i>Exocarpos cupressiformis</i>	0.22	0.05	0.20	0.12
	<i>Lomatia silaifolia</i>	0.22	0.05	0.20	0.12
<i>Pultenaea retusa</i>	0.28	0.05	0.20	0.12	
<i>Pittosporum revolutum</i>	0.22	0.04	0.20	0.11	
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	0.17	0.02	0.14	0.06	
Low Shrub	<i>Dampiera stricta</i>	0.89	0.39	0.45	0.99
Sub-shrub	<i>Mirbelia rubiifolia</i>	0.33	0.05	0.19	0.14
	<i>Hovea linearis</i>	0.17	0.02	0.14	0.06
Ground Fern	<i>Pteridium esculentum</i>	1.83	1.79	2.12	4.55
	<i>Lindsaea linearis</i>	0.83	0.39	0.51	0.98

Coastal Sheltered Apple - Peppermint Forest (11)					
Average similarity: 39.40					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Calochlaena dubia</i>	0.28	0.03	0.13	0.08
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	0.67	0.23	0.38	0.60
	<i>Xanthorrhoea macronema</i>	0.33	0.12	0.33	0.31
Grass	<i>Entolasia stricta</i>	2.72	2.85	4.82	7.24
	<i>Themeda australis</i>	1.89	1.45	1.41	3.67
	<i>Imperata cylindrica</i>	1.83	1.36	1.16	3.45
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.06	0.50	0.52	1.26
	<i>Panicum simile</i>	0.78	0.37	0.52	0.93
	<i>Aristida vagans</i>	0.61	0.21	0.37	0.52
	<i>Anisopogon avenaceus</i>	0.56	0.16	0.31	0.41
	<i>Poa affinis</i>	0.50	0.07	0.19	0.18
	<i>Pseudoraphis paradoxa</i>	0.22	0.02	0.14	0.06
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.44	1.35	1.98	3.44
	<i>Lomandra obliqua</i>	1.22	0.84	0.82	2.14
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.00	0.61	0.68	1.56
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.94	0.44	0.47	1.13
	<i>Lomandra longifolia</i>	0.78	0.35	0.44	0.90
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	0.44	0.10	0.25	0.26
	<i>Patersonia glabrata</i>	0.39	0.07	0.19	0.18
Sedge	<i>Lepidosperma laterale</i>	1.17	0.81	0.79	2.05
	<i>Lepidosperma neesii</i>	0.61	0.10	0.25	0.26
	<i>Ptilothrix deusta</i>	0.33	0.05	0.19	0.13
	<i>Gahnia clarkei</i>	0.50	0.05	0.12	0.12
	<i>Gahnia radula</i>	0.28	0.03	0.14	0.08
Herb	<i>Pratia purpurascens</i>	1.00	0.56	0.61	1.42
	<i>Brunoniella australis</i>	0.89	0.47	0.60	1.20
	<i>Phyllanthus hirtellus</i>	0.89	0.44	0.53	1.12
	<i>Gonocarpus tetragynus</i>	0.89	0.38	0.45	0.96
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.67	0.36	0.63	0.91
	<i>Desmodium rhytidophyllum</i>	0.44	0.10	0.25	0.25
	<i>Pseuderanthemum variabile</i>	0.44	0.09	0.20	0.24
	<i>Dichondra repens</i>	0.33	0.05	0.19	0.13
	<i>Opercularia diphylla</i>	0.28	0.05	0.20	0.12
	<i>Lagenophora stipitata</i>	0.22	0.03	0.14	0.06
Ground Orchid	<i>Acianthus fornicatus</i>	0.39	0.07	0.20	0.17
Twiner	<i>Glycine clandestina</i>	1.28	1.11	1.57	2.82
	<i>Hardenbergia violacea</i>	1.06	0.72	0.90	1.83
	<i>Billardiera scandens</i>	1.06	0.72	0.93	1.82
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.89	0.44	0.52	1.11
	<i>Eustrephus latifolius</i>	0.83	0.42	0.52	1.07
	<i>Pandorea pandorana</i>	0.67	0.31	0.54	0.77
	<i>Hibbertia scandens</i>	0.22	0.04	0.20	0.11
	<i>Hibbertia dentata</i>	0.28	0.03	0.13	0.08
	<i>Smilax glycyphylla</i>	0.28	0.03	0.13	0.08
	<i>Parsonsia straminea</i>	0.28	0.03	0.13	0.07



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Spotted Gum/ Broad-leaved Mahogany/ Grey Gum grass/ shrub open forest on Coastal Lowlands of the Central Coast (071)
LHCCREMS: Hunter Valley Moist Forest (MU12)

General Description:

Hunter Valley Moist Forest is a broadly defined unit requiring further clarification and assessment, and it may overlap considerably with other MU12 subunits so far defined. As defined here, this is an original REMS2000 unit that has been subdivided regionally (see MU12 subunits). This community is effectively an ecotonal unit between moister forests in sheltered locations, and dryer ridgetop types. In most cases a canopy of *Corymbia maculata* with *Eucalyptus acmenioides* is present, although other species such as *Eucalyptus siderophloia* and *Eucalyptus punctata* may also occur. Important understorey species include *Polyscias sambuccifolia*, *Pteridium esculentum*, *Pittosporum undulatum*, *Notelaea longifolia*, *Poa affinis*, *Oplismenus imbecillus* and *Pseuderanthemum variabile*.

Characteristic Features:

- canopy of Spotted Gum and White Mahogany, with Ironbarks and Grey Gum
- mid-storey of Elderberry Panax, Sweet Pittosporum, Bracken and Native Olive
- well developed ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

959 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 9 plots]:

Hunter Valley Moist Forest (12)					
Average similarity: 45.77					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus acmenoides</i>	3.33	3.48	9.32	7.61
	<i>Corymbia maculata</i>	3.11	3.39	18.70	7.40
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	2.00	1.50	1.11	3.27
	<i>Allocasuarina torulosa</i>	1.67	1.23	1.42	2.68
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1.11	0.42	0.44	0.92
	<i>Eucalyptus punctata</i>	0.89	0.21	0.29	0.45
	<i>Eucalyptus propinqua</i>	0.67	0.10	0.17	0.21
	<i>Acmena smithii</i>	0.67	0.07	0.17	0.15
	<i>Cryptocarya microneura</i>	0.56	0.07	0.17	0.15
	<i>Eucalyptus umbra</i>	0.44	0.06	0.17	0.14
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.33	0.70	0.71	1.52
	<i>Melaleuca styphelioides</i>	0.44	0.09	0.30	0.20
Palm	<i>Livistona australis</i>	0.44	0.10	0.30	0.21
Shrub	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.67	1.51	1.64	3.31
	<i>Pittosporum undulatum</i>	1.67	1.37	1.48	2.99
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	1.56	1.36	1.53	2.97
	<i>Breynia oblongifolia</i>	1.33	1.04	1.55	2.28
	<i>Persoonia linearis</i>	0.89	0.50	0.79	1.08
	<i>Dodonaea triquetra</i>	1.00	0.47	0.58	1.03
	<i>Maytenus silvestris</i>	0.89	0.39	0.57	0.85
	<i>Myrsine variabilis</i>	0.67	0.31	0.61	0.69
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	0.56	0.19	0.44	0.42
	<i>Acacia implexa</i>	0.56	0.19	0.44	0.41
	<i>Pittosporum revolutum</i>	0.44	0.18	0.44	0.40
	<i>Clerodendrum tomentosum</i>	0.56	0.12	0.28	0.26
	<i>Acacia ulicifolia</i>	0.33	0.09	0.30	0.21
	<i>Zieria smithii</i>	0.33	0.09	0.30	0.21
	<i>Rubus moluccanus</i> var. <i>trilobus</i>	0.44	0.09	0.30	0.20
	<i>Exocarpos cupressiformis</i>	0.33	0.09	0.30	0.19
	<i>Podolobium ilicifolium</i>	0.44	0.06	0.17	0.14
Ground Fern	<i>Pteridium esculentum</i>	1.67	1.44	2.76	3.16
	<i>Adiantum aethiopicum</i>	1.44	0.59	0.54	1.29
	<i>Doodia aspera</i>	0.89	0.22	0.29	0.49
Cycad	<i>Macrozamia flexuosa</i>	0.44	0.10	0.30	0.21
Grasstree	<i>Xanthorrhoea macronema</i>	0.56	0.12	0.28	0.27
Grass	<i>Poa affinis</i>	2.44	2.17	3.31	4.75
	<i>Oplismenus imbecillis</i>	2.11	2.02	4.17	4.42
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.44	1.20	1.45	2.63
	<i>Imperata cylindrica</i>	1.89	1.14	0.92	2.48
	<i>Entolasia stricta</i>	1.00	0.38	0.44	0.83
	<i>Themeda australis</i>	1.00	0.22	0.29	0.47
	<i>Aristida vagans</i>	0.44	0.06	0.17	0.14
	<i>Panicum simile</i>	0.44	0.06	0.17	0.14

Hunter Valley Moist Forest (12)					
Average similarity: 45.77					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Graminoid	<i>Lomandra longifolia</i>	1.56	1.44	2.79	3.15
	<i>Dianella caerulea</i> var. <i>assera</i>	1.44	1.30	3.58	2.85
Sedge	<i>Gymnostachys anceps</i>	1.11	0.64	0.76	1.40
	<i>Lepidosperma laterale</i>	0.78	0.35	0.58	0.77
Herb	<i>Pseuderanthemum variabile</i>	1.67	1.50	1.66	3.29
	<i>Desmodium gunnii</i>	1.22	0.75	0.78	1.64
	<i>Pratia purpurascens</i>	0.78	0.26	0.41	0.58
	<i>Desmodium rhytidophyllum</i>	0.67	0.19	0.30	0.41
	<i>Dichondra repens</i>	0.67	0.18	0.30	0.39
	<i>Viola hederacea</i>	0.56	0.12	0.28	0.26
Ground Orchid	<i>Acianthus fornicatus</i>	0.78	0.27	0.42	0.59
	<i>Pterostylis</i> spp.	0.56	0.12	0.28	0.27
	<i>Pterostylis longifolia</i>	0.56	0.12	0.28	0.26
Twiner	<i>Eustrephus latifolius</i>	1.78	1.78	3.32	3.88
	<i>Parsonsia straminea</i>	1.33	0.98	1.04	2.13
	<i>Pandorea pandorana</i>	1.44	0.94	1.04	2.05
	<i>Dioscorea transversa</i>	1.22	0.85	1.00	1.85
	<i>Geitonoplesium cymosum</i>	1.11	0.75	1.04	1.64
	<i>Smilax australis</i>	1.11	0.66	0.76	1.44
	<i>Hardenbergia violacea</i>	0.89	0.65	1.16	1.41
	<i>Smilax glyciophylla</i>	0.89	0.42	0.56	0.92
	<i>Clematis glycinoides</i> var. <i>glycinoides</i>	0.89	0.41	0.57	0.89
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.67	0.30	0.61	0.66
	<i>Billardiera scandens</i>	0.67	0.22	0.41	0.48
	<i>Glycine clandestina</i>	0.67	0.22	0.41	0.47
	<i>Sarcopetalum harveyanum</i>	0.56	0.18	0.44	0.40
	<i>Hibbertia scandens</i>	0.56	0.12	0.28	0.26
	<i>Hibbertia dentata</i>	0.33	0.09	0.30	0.21
	<i>Stephania japonica</i> var. <i>discolor</i>	0.33	0.10	0.30	0.21
	<i>Cayratia clematidea</i>	0.44	0.09	0.30	0.19
<i>Kennedia rubicunda</i>	0.33	0.09	0.30	0.19	
<i>Morinda jasminoides</i>	0.56	0.07	0.17	0.15	



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Spotted Gum/ Broad-leaved Mahogany/ Grey Gum grass/ shrub open forest on Coastal Lowlands of the Central Coast (071)
LHCCREMS: Hunter Valley Moist Forest (MU12)

General Description:

Hunter Valley Moist Spotted Gum - Blackbutt Forest is typified by the presence of *Eucalyptus pilularis* with *Corymbia maculata* in the canopy, with common understorey species including *Daviesia ulicifolia*, *Acacia implexa*, *Pultenaea villosa*, *Billardiera scandens*, *Entolasia stricta* and *Dianella caerulea*. In the current mapping, it occurs only on the lower hinterland hills near Mandalong, and in a small area of Pulbah Island. Further investigation is required to determine the relationship of this community with other vegetation in Units 12 and 15. In particular, it may simply be a lower-elevation, moister form of Coastal Ranges Dry Spotted Gum – Blackbutt Forest (MU9d).

Characteristic Features:

- canopy of Spotted Gum with Blackbutt
- moderately dense mid-storey of Gorse Bitter-pea, Hairy Bush-pea and Hickory Wattle
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

27 ha

Community Conservation Status:

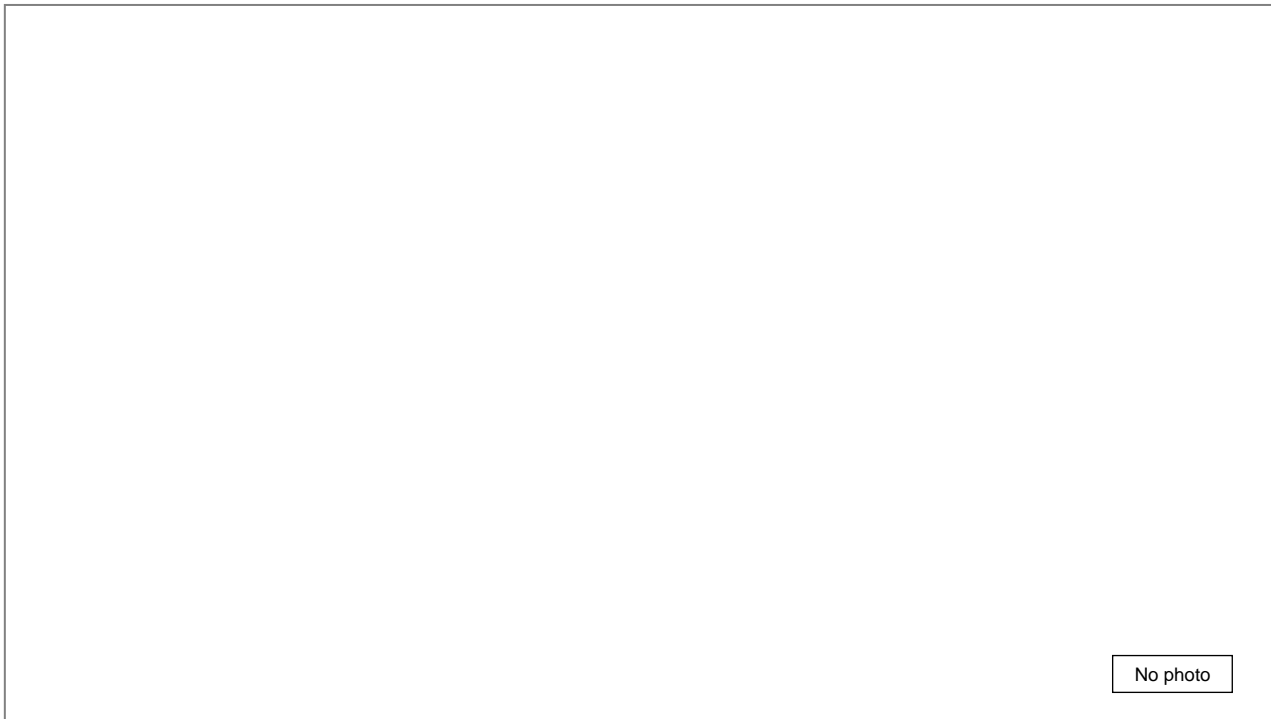
EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Hunter Valley Moist Spotted Gum - Blackbutt Forest (12a)

Average similarity: 33.33

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus pilularis</i>	4.00	6.35	-	19.05
	<i>Corymbia maculata</i>	3.50	4.76	-	14.29
Shrub	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	3.00	3.17	-	9.52
	<i>Acacia implexa</i>	1.00	1.59	-	4.76
	<i>Podolobium ilicifolium</i>	1.50	1.59	-	4.76
Grass	<i>Entolasia stricta</i>	2.00	3.17	-	9.52
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	1.59	-	4.76
	<i>Lomandra longifolia</i>	1.50	1.59	-	4.76
Herb	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.00	1.59	-	4.76
Twiner	<i>Billardiera scandens</i>	2.00	3.17	-	9.52
	<i>Eustrephus latifolius</i>	2.00	3.17	-	9.52
	<i>Smilax australis</i>	1.00	1.59	-	4.76



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Spotted Gum/ Broad-leaved Mahogany/ Grey Gum grass/ shrub open forest on Coastal Lowlands of the Central Coast (071)
LHCCREMS: Hunter Valley Moist Forest (MU12)

General Description:

Hunter Valley Moist Spotted Gum – Turpentine Forest was previously recorded within parts of Jilliby SCA (outside of Lake Macquarie LGA), and has now also been noted at the top end of the Mandalong Valley. In this area, common species include *Corymbia maculata*, *Syncarpis glomulifera*, *Eucalyptus propinqua* and *Allocasuarina torulosa* in the canopy, over shrubs such as *Glochidion ferdinandi*, *Acacia prominens*, and *Acrotriche divaricata*. Ground layer vegetation includes *Lomandra longifolia*, *Entolasia stricta* and *Poa labillarderi*. This occurrence may not differ significantly from other MU12 types, and full sampling is required.

Characteristic Features:

- canopy of Spotted Gum, Turpentine, Forest Oak and Small-fruited Grey Gum
- mid-storey of Cheese Tree and Wattles
- ground layer of Lomandra, grasses and herbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

19 ha

Community Conservation Status:

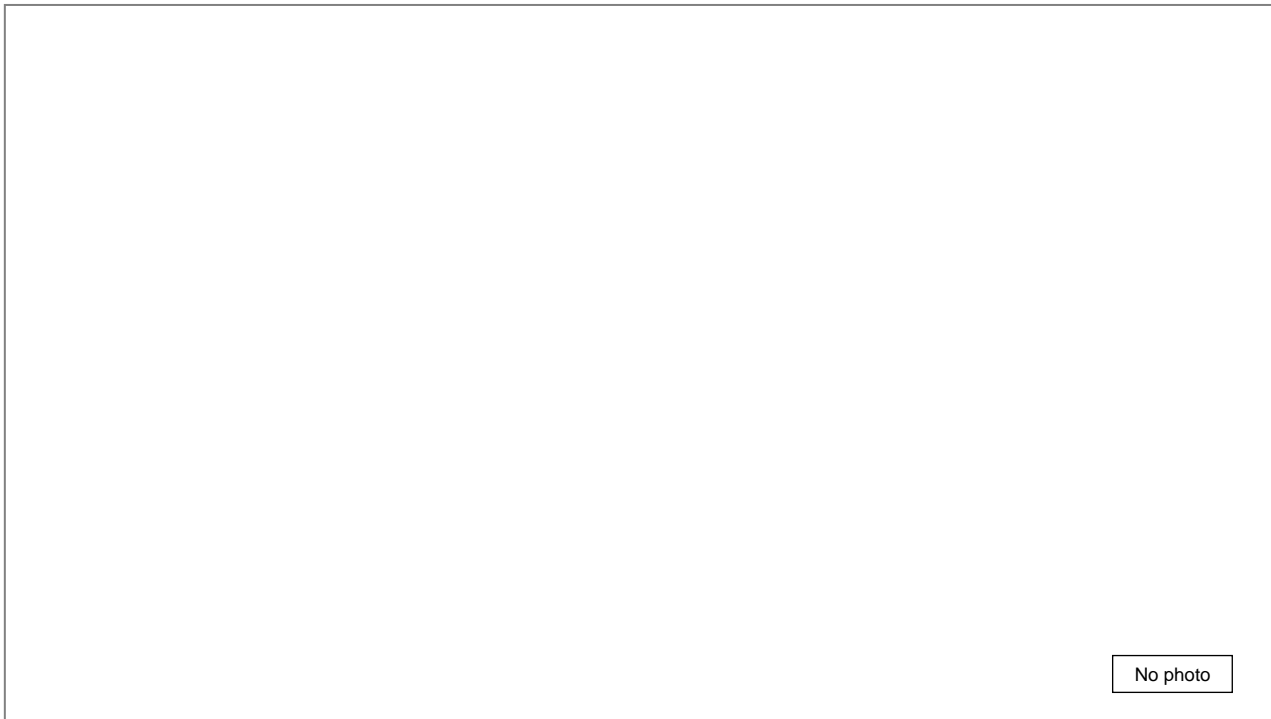
EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Hunter Valley Moist Spotted Gum - Turpentine Forest (12b)

Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Corymbia maculata</i>	-	-	-	✓
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	✓
	<i>Eucalyptus propinqua</i>	-	-	-	✓
	<i>Eucalyptus acmenioides</i>	-	-	-	✓
	<i>Eucalyptus microcorys</i>	-	-	-	✓
	<i>Allocasuarina torulosa</i>	-	-	-	✓
Small Tree	<i>Acacia prominens</i>	-	-	-	✓
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	✓
	<i>Choricarpia leptopetala</i>	-	-	-	✓
Shrub	<i>Acrotriche divaricata</i>	-	-	-	✓
	<i>Leucopogon muticus</i>	-	-	-	✓
Grass	<i>Entolasia stricta</i>	-	-	-	✓
	<i>Themeda australis</i>	-	-	-	✓
	<i>Poa labillardierei</i>	-	-	-	✓
	<i>Imperata cylindrica</i>	-	-	-	✓
Graminoid	<i>Lomandra longifolia</i>	-	-	-	✓



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Spotted Gum/ Broad-leaved Mahogany/ Grey Gum grass/ shrub open forest on Coastal Lowlands of the Central Coast (071)
LHCCREMS: Hunter Valley Moist Forest (MU12)

General Description:

Hunter Valley Moist Spotted Gum - Ironbark Forest has been mapped extensively on sheltered slopes in the Mandalong region of the LGA, generally in the vicinity of Coastal Foothills Spotted Gum – Ironbark Forest (MU15). Despite this, only very limited sampling has been completed there, and hence true relationships with related types are yet to be determined. Dominated by *Corymbia maculata* with *Eucalyptus paniculata* and/or *Eucalyptus siderophloia*. *Eucalyptus punctata* may be locally present but is not consistent, and in many areas *Eucalyptus fergusonii* and *Eucalyptus microcorys* are also locally common. This and the closely related northern unit Hunter Valley Moist Spotted Gum – Ironbark Forest (MU12d) require detailed revision, as it is possible that floristically they are very similar.

Characteristic Features:

- occurs on low hills and slopes in the Mandalong district
- canopy of Spotted Gum with Ironbarks
- mid-storey of mesic shrubs
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

578 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Hunter Valley Moist Spotted Gum - Ironbark Forest (12c)					
Less than 1 sample in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Corymbia maculata</i>	-	-	-	✓
	<i>Eucalyptus paniculata</i>	-	-	-	✓
	<i>Eucalyptus siderophloia</i>	-	-	-	✓
	<i>Eucalyptus microcorys</i>	-	-	-	✓
	<i>Eucalyptus acmenioides</i>	-	-	-	✓
	<i>Eucalyptus fergusonii</i> subsp. <i>fergusonii</i>	-	-	-	✓
	<i>Allocasuarina torulosa</i>	-	-	-	✓
Small Tree	<i>Callistemon salignus</i>	-	-	-	✓
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	✓
Shrub	<i>Acrotriche divaricata</i>	-	-	-	✓
	<i>Daviesia ulicifolia</i>	-	-	-	✓
	<i>Leucopogon juniperinus</i>	-	-	-	✓
	<i>Persoonia linearis</i>	-	-	-	✓
	<i>Podolobium aciculiferum</i>	-	-	-	✓
	<i>Olearia tomentosa</i>	-	-	-	✓
Ground Fern	<i>Doodia aspera</i>	-	-	-	✓
	<i>Adiantum aethiopicum</i>	-	-	-	✓
Grass	<i>Entolasia stricta</i>	-	-	-	✓
	<i>Themeda australis</i>	-	-	-	✓
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	✓
	<i>Poa affinis</i>	-	-	-	✓
	<i>Poa labillardierei</i>	-	-	-	✓
	<i>Imperata cylindrica</i>	-	-	-	✓
Graminoid	<i>Lomandra longifolia</i>	-	-	-	✓
	<i>Dianella caerulea</i>	-	-	-	✓



Keith Class: Hunter-Macleay Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Hunter Valley Moist Forest (MU12)

General Description:

Hunter Valley Moist Spotted Gum – Ironbark Forest is one of several communities where *Corymbia maculata* is prominent in the canopy. It is a specific form of the broader Hunter Valley Moist Forest (MU12), dominated by *Corymbia maculata*, *Eucalyptus acmenoides*, *Allocasuarina torulosa* and *Eucalyptus fergusonii* subsp. *fergusonii*. *Eucalyptus punctata* and *Syncarpia glomulifera* may also be present in some areas. The mesic shrub layer includes *Melaleuca styphelioides*, *Indigofera australis*, *Rhodamnia rubescens*, *Acrotricha divaricata*, *Croton verreauxii*, and *Cordyline stricta*. Ground layer species include *Oplismenus imbecillus*, *Smilax australis*, *Gymnostachys anceps*, *Adiantum formosum*, *Doodia aspera* and *Dichondra repens*. This more northern community is very closely related to Hunter Valley Moist Spotted Gum – Ironbark Forest (MU12c) occurring in the south of the LGA around Mandalong, and the two require careful revision.

Characteristic Features:

- canopy dominated by Spotted Gum and White Mahogany, Forest Oak and Fergusons Ironbark
- mid-storey of mesic species such as Austral Indigo, *Croton*, Scrub Turpentine and *Cordyline*
- ground layer of grasses and vines
- occurs on sheltered mid to lower slopes in the NW of the LGA

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

909 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Hunter Valley Moist Spotted Gum - Fergusons Forest (12d)					
Average similarity: 34.39					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Allocasuarina torulosa</i>	1.75	1.60	2.77	4.65
	<i>Eucalyptus acmenoides</i>	2.25	1.26	0.83	3.68
	<i>Corymbia maculata</i>	2.25	1.22	0.88	3.54
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1.00	0.52	0.90	1.52
	<i>Eucalyptus punctata</i>	1.25	0.38	0.41	1.10
	<i>Angophora floribunda</i>	0.75	0.20	0.41	0.59
	<i>Eucalyptus umbra</i>	1.25	0.20	0.41	0.58
Small Tree	<i>Melaleuca styphelioides</i>	1.50	0.68	0.85	1.98
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	0.50	0.17	0.41	0.49
	<i>Trochocarpa laurina</i>	0.50	0.17	0.41	0.49
Shrub	<i>Acrotriche divaricata</i>	0.75	0.59	0.91	1.72
	<i>Breynia oblongifolia</i>	1.00	0.53	0.90	1.54
	<i>Myrsine variabilis</i>	1.00	0.52	0.90	1.52
	<i>Clerodendrum tomentosum</i>	0.75	0.51	0.91	1.47
	<i>Persoonia linearis</i>	0.75	0.51	0.91	1.47
	<i>Rubus parvifolius</i>	1.00	0.51	0.91	1.47
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.75	0.20	0.41	0.59
	<i>Cordyline stricta</i>	0.75	0.17	0.41	0.49
	<i>Eupomatia laurina</i>	0.50	0.17	0.41	0.49
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	0.50	0.17	0.41	0.49
	<i>Maytenus silvestris</i>	0.50	0.16	0.41	0.46
Low Shrub	<i>Plectranthus parviflorus</i>	0.50	0.19	0.41	0.55
Ground Fern	<i>Doodia aspera</i>	1.25	0.68	0.85	1.98
	<i>Pteridium esculentum</i>	0.50	0.20	0.41	0.59
Grass	<i>Oplismenus imbecillis</i>	2.50	2.34	4.12	6.80
	<i>Imperata cylindrica</i>	1.75	1.61	2.69	4.67
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	1.50	0.68	0.85	1.98
	<i>Echinopogon ovatus</i>	1.25	0.41	0.41	1.18
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.50	0.41	0.41	1.18
	<i>Entolasia marginata</i>	1.00	0.32	0.41	0.93
	<i>Themeda australis</i>	1.25	0.20	0.41	0.59
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	1.08	8.78	3.13
	<i>Lomandra longifolia</i>	1.50	1.01	0.91	2.94
Sedge	<i>Gymnostachys anceps</i>	1.75	1.58	3.13	4.60
Herb	<i>Dichondra repens</i>	1.75	1.18	0.91	3.44
	<i>Pseuderanthemum variabile</i>	1.50	1.01	0.91	2.94
	<i>Oxalis perennans</i>	1.00	0.59	0.91	1.72
	<i>Lagenophora stipitata</i>	1.00	0.41	0.41	1.18
	<i>Pratia purpurascens</i>	1.00	0.41	0.41	1.18
	<i>Desmodium gunnii</i>	1.00	0.38	0.41	1.10
	<i>Viola hederacea</i>	1.00	0.34	0.41	0.97
	<i>Hydrocotyle geraniifolia</i>	1.00	0.32	0.41	0.93

	<i>Hydrocotyle laxiflora</i>	1.00	0.32	0.41	0.93
	<i>Gonocarpus tetragynus</i>	0.50	0.20	0.41	0.59
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.50	0.20	0.41	0.58
	<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	0.75	0.19	0.41	0.55
	<i>Galium binifolium</i>	0.75	0.16	0.41	0.46
Twiner	<i>Smilax australis</i>	1.75	1.60	2.77	4.65
	<i>Glycine clandestina</i>	1.75	1.58	3.13	4.60
	<i>Dioscorea transversa</i>	1.50	1.23	3.66	3.58
	<i>Geitonoplesium cymosum</i>	1.25	1.08	8.78	3.13
	<i>Cissus hypoglauca</i>	0.75	0.53	0.90	1.54
	<i>Eustrephus latifolius</i>	1.00	0.38	0.41	1.10
	<i>Hibbertia scandens</i>	0.50	0.19	0.41	0.55
	<i>Hardenbergia violacea</i>	0.50	0.17	0.41	0.49
	<i>Morinda jasminoides</i>	0.50	0.17	0.41	0.49
	<i>Pandorea pandorana</i>	0.75	0.17	0.41	0.49
	<i>Parsonsia straminea</i>	0.50	0.17	0.41	0.49



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Turpentine/ Smooth-barked Apple/ Broad-leaved Mahogany shrubby open forest on sandstone ranges of the Central Coast (110)
LHCCREMS: Sheltered Dry Hawesbury Woodland (MU25)

General Description:

Sheltered upper slopes on Narrabeen Sandstone along the Sugarloaf Range, such as around The Gap, support vegetation dominated by *Eucalyptus piperita*, *Angophora costata*, *Allocasuarina torulosa* and *Corymbia gummifera*. Shrub species include *Hibbertia aspera*, *Olearia tomentosa*, *Polyscias sambuccifolia*, *Gompholobium latifolium* and *Gymnostachys anceps*. The sparse ground layer typically supports *Entolasia stricta*, *Brunoniella australis*, *Goodenia heterophylla* subsp. *heterophylla*, *Poa affinis*, and *Microlaena stipoides* var. *stipoides*.

Characteristic Features:

- canopy dominated by Sydney Peppermint, Smooth-barked Apple, Forest Oak and Red Bloodwood
- mid-storey of Rough Guinea Flower, Soft Olearia, and Broad-leaf Wedge-pea
- sparse ground layer of grasses such as Wiry Panic and Basket Grass, and various herbs
- occurs on sheltered upper slopes on Narrabeen geology

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

9 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Narrabeen Peppermint - Apple Forest (25a)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Eucalyptus piperita</i>	-	-	-	4.00	
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	3.00	
	<i>Allocasuarina torulosa</i>	-	-	-	2.00	
	<i>Eucalyptus acmenoides</i>	-	-	-	2.00	
	<i>Eucalyptus punctata</i>	-	-	-	2.00	
	<i>Angophora costata</i>	-	-	-	1.00	
	<i>Eucalyptus fergusonii</i> subsp. <i>fergusonii</i>	-	-	-	1.00	
Small Tree	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	-	-	-	2.00	
	<i>Trochocarpa laurina</i>	-	-	-	1.00	
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	-	-	-	1.00	
Shrub	<i>Rubus parvifolius</i>	-	-	-	2.00	
	<i>Platysace lanceolata</i>	-	-	-	2.00	
	<i>Gompholobium latifolium</i>	-	-	-	2.00	
	<i>Breynia oblongifolia</i>	-	-	-	1.00	
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	-	-	-	1.00	
	<i>Pultenaea retusa</i>	-	-	-	1.00	
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	-	-	-	1.00	
	<i>Doryanthes excelsa</i>	-	-	-	1.00	
	<i>Persoonia linearis</i>	-	-	-	1.00	
	<i>Myrsine variabilis</i>	-	-	-	1.00	
Ground Fern	<i>Adiantum aethiopicum</i>	-	-	-	2.00	
	<i>Calochlaena dubia</i>	-	-	-	2.00	
	<i>Doodia aspera</i>	-	-	-	2.00	
	<i>Pteridium esculentum</i>	-	-	-	1.00	
	<i>Blechnum cartilagineum</i>	-	-	-	1.00	
Grass	<i>Poa affinis</i>	-	-	-	5.00	
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	3.00	
	<i>Entolasia marginata</i>	-	-	-	2.00	
	<i>Echinopogon ovatus</i>	-	-	-	2.00	
	<i>Dichelachne micrantha</i>	-	-	-	2.00	
	<i>Oplismenus imbecillis</i>	-	-	-	2.00	
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	-	-	-	2.00	
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00	
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	1.00	
Sedge	<i>Gymnostachys anceps</i>	-	-	-	2.00	
	<i>Gahnia melanocarpa</i>	-	-	-	1.00	
	<i>Lepidosperma elatius</i>	-	-	-	1.00	
Herb	<i>Gonocarpus tetragynus</i>	-	-	-	2.00	
	<i>Pratia purpurascens</i>	-	-	-	2.00	
	<i>Dichondra repens</i>	-	-	-	2.00	
	<i>Hydrocotyle laxiflora</i>	-	-	-	2.00	
	<i>Oxalis perennans</i>	-	-	-	2.00	
	<i>Hydrocotyle geraniifolia</i>	-	-	-	2.00	
	<i>Viola banksii</i>	-	-	-	2.00	

Narrabeen Peppermint - Apple Forest (25a)**Less than 2 samples in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
	<i>Geranium homeanum</i>	-	-	-	1.00
	<i>Desmodium rhytidophyllum</i>	-	-	-	1.00
	<i>Desmodium gunnii</i>	-	-	-	1.00
	<i>Libertia paniculata</i>	-	-	-	1.00
Ground Orchid	<i>Caladenia catenata</i>	-	-	-	2.00
Twiner	<i>Hibbertia dentata</i>	-	-	-	2.00
	<i>Smilax australis</i>	-	-	-	2.00
	<i>Eustrephus latifolius</i>	-	-	-	1.00
	<i>Kennedia rubicunda</i>	-	-	-	1.00
	<i>Hardenbergia violacea</i>	-	-	-	1.00
	<i>Dioscorea transversa</i>	-	-	-	1.00
	<i>Cissus hypoglauca</i>	-	-	-	1.00

Dry Forests (Coastal Ranges)



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Blackbutt - Smooth-barked Apple - Forest Oak shrub/forb open forest on ranges of the Central Coast, Sydney Basin Bioregion

GHV: Blackbutt/ Rough-barked Apple/ Turpentine/ ferny tall open forest of the Central Coast (046)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Dry Blackbutt Forest occurs along the drier parts of the Watagan Mountains and Sugarloaf Range. Characteristically, it comprises a canopy dominated by *Eucalyptus pilularis*, together with *Allocasuarina torulosa* and *Angophora floribunda*. Understorey vegetation is generally sparse, but includes *Pteridium esculentum*, *Imperata cylindrica* var. *major*, *Lepidosperma laterale*, *Acacia implexa* and *Themeda australis*. Commonly impacted upon by past logging practices.

Characteristic Features:

- occurs on mid to upper slopes on steep hills
- canopy dominated by Blackbutt, Forest Oak and Rough-barked Apple
- sparse shrub layer of Bracken and Hickory Wattle
- ground layer of Blady Grass, Kangaroo Grass and herbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1808 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Coastal Ranges Dry Blackbutt Forest (9b)					
Average similarity: 37.66					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Allocasuarina torulosa</i>	3.50	4.35	8.28	11.55
	<i>Eucalyptus pilularis</i>	3.75	4.17	2.50	11.08
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1.25	0.92	0.79	2.44
	<i>Corymbia gummifera</i>	1.50	0.43	0.41	1.15
	<i>Eucalyptus punctata</i>	1.25	0.41	0.41	1.09
	<i>Angophora floribunda</i>	1.00	0.26	0.41	0.69
	<i>Angophora costata</i>	1.00	0.22	0.41	0.59
Shrub	<i>Maytenus silvestris</i>	1.75	2.06	2.77	5.46
	<i>Persoonia linearis</i>	1.50	1.36	0.91	3.61
	<i>Platysace lanceolata</i>	1.25	0.68	0.91	1.80
	<i>Podolobium ilicifolium</i>	1.75	0.48	0.41	1.28
	<i>Acacia implexa</i>	1.00	0.43	0.41	1.15
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.75	0.20	0.41	0.54
Ground Fern	<i>Pteridium esculentum</i>	1.00	0.22	0.41	0.57
Grass	<i>Entolasia stricta</i>	2.50	3.00	4.30	7.96
	<i>Imperata cylindrica</i>	2.00	2.09	2.50	5.54
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.50	1.29	0.91	3.42
	<i>Themeda australis</i>	2.00	1.29	0.91	3.42
	<i>Panicum simile</i>	1.25	0.43	0.41	1.15
	<i>Paspalidium distans</i>	1.00	0.43	0.41	1.15
	<i>Aristida vagans</i>	1.25	0.41	0.41	1.09
	<i>Oplismenus imbecillis</i>	0.50	0.26	0.41	0.69
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.75	2.06	2.77	5.46
	<i>Lomandra longifolia</i>	1.75	2.02	3.28	5.37
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	1.00	0.41	0.41	1.09
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.75	0.20	0.41	0.54
Sedge	<i>Lepidosperma laterale</i>	1.50	1.42	0.91	3.76
	<i>Gahnia melanocarpa</i>	0.50	0.26	0.41	0.69
Herb	<i>Pratia purpurascens</i>	1.50	1.29	0.91	3.42
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.25	0.88	0.85	2.35
	<i>Pseuderanthemum variabile</i>	1.00	0.45	0.41	1.19
Twiner	<i>Billardiera scandens</i>	1.50	1.36	0.91	3.61
	<i>Eustrephus latifolius</i>	0.75	0.26	0.41	0.69
	<i>Hibbertia dentata</i>	0.50	0.26	0.41	0.69
	<i>Pandorea pandorana</i>	0.50	0.26	0.41	0.69
	<i>Smilax australis</i>	0.50	0.26	0.41	0.69
	<i>Parsonsia straminea</i>	0.75	0.22	0.41	0.59
	<i>Glycine clandestina</i>	0.75	0.22	0.41	0.57
Epiphytic Orchid	<i>Cymbidium suave</i>	0.50	0.24	0.41	0.64



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Dry Spotted Gum - Blackbutt Forest represents a dry grassy variant of the wider Coastal Ranges open forests, occurring west of Cooranbong and Wyee. It may represent a disturbed form of Coastal Ranges Dry Blackbutt Forest (MU9b), again occurring in the vicinity of that unit and Coastal Foothills Spotted Gum – Ironbark Forest (MU15). It is characterised in the canopy by *Eucalyptus pilularis* and *Corymbia maculata*, but other important species include *Angophora costata* and *Allocasuarina torulosa*. The understorey supports species such as the shrubs *Acacia ulicifolia*, *Bossiaea obcordata* and *Gompholobium latifolium*, with a ground layer of *Themeda australis*, *Aristida vagans*, *Entolasia stricta*, *Gonocarpus tetragynus* and *Imperata cylindrica*.

Characteristic Features:

- canopy of Blackbutt, Spotted Gum, Smooth-barked Apple and Forest Oak
- sparse mid-storey of Peas
- ground layer of grasses, herbs and forbs, where Kangaroo Grass and Wire Grasses are prominent

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1314 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:
Coastal Ranges Dry Spotted Gum - Blackbutt Forest (9d)
Average similarity: 52.56

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.00	3.85	-	7.32
	<i>Eucalyptus pilularis</i>	3.00	3.85	-	7.32
	<i>Corymbia maculata</i>	2.50	2.56	-	4.88
	<i>Allocasuarina torulosa</i>	2.00	1.28	-	2.44
Shrub	<i>Acacia ulicifolia</i>	1.00	1.28	-	2.44
	<i>Bossiaea obcordata</i>	1.00	1.28	-	2.44
	<i>Gompholobium latifolium</i>	1.00	1.28	-	2.44
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1.00	1.28	-	2.44
	<i>Leucopogon juniperinus</i>	1.50	1.28	-	2.44
	<i>Persoonia linearis</i>	1.50	1.28	-	2.44
	<i>Podolobium ilicifolium</i>	1.50	1.28	-	2.44
Low Shrub	<i>Dampiera stricta</i>	1.50	1.28	-	2.44
Ground Fern	<i>Pteridium esculentum</i>	1.50	1.28	-	2.44
Grass	<i>Themeda australis</i>	3.50	3.85	-	7.32
	<i>Aristida vagans</i>	2.50	2.56	-	4.88
	<i>Entolasia stricta</i>	2.50	2.56	-	4.88
	<i>Imperata cylindrica</i>	2.00	2.56	-	4.88
	<i>Eragrostis brownii</i>	1.50	1.28	-	2.44
	<i>Panicum simile</i>	1.50	1.28	-	2.44
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	1.28	-	2.44
	<i>Lomandra obliqua</i>	1.50	1.28	-	2.44
Sedge	<i>Lepidosperma laterale</i>	1.50	1.28	-	2.44
Herb	<i>Gonocarpus tetragynus</i>	2.00	2.56	-	4.88
	<i>Boronia polygalifolia</i>	1.00	1.28	-	2.44
	<i>Desmodium rhytidophyllum</i>	1.00	1.28	-	2.44
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.50	1.28	-	2.44
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	1.00	1.28	-	2.44
Twiner	<i>Billardiera scandens</i>	1.50	1.28	-	2.44
	<i>Glycine clandestina</i>	1.50	1.28	-	2.44
	<i>Hibbertia scandens</i>	1.00	1.28	-	2.44



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Dry Peppermint - Blackbutt Forest is perhaps an ecotonal community occurring at the interface of remnant Hawkesbury sandstone geology and older Narrabeen sediments. It is characterised in the canopy by *Eucalyptus piperita* and *Eucalyptus pilularis*, but other species such as *Corymbia gummifera*, *Allocasuarina torulosa*, *Banksia serrata* and *Eucalyptus scias* also occur. Common understorey species include *Pteridium esculentum*, *Podolobium ilicifolium*, *Persoonia linearis*, *Acacia implexa*, *Dampiera stricta*, *Entolasia stricta* and *Imperata cylindrica*. This community is very closely related to Watagans Remnant Hawkesbury Forest (MU26h), and with further data collection and analysis the two may be merged.

Characteristic Features:

- canopy of Sydney Peppermint with Blackbutt, but Red Bloodwood, Old Man Banksia and Large-fruited Mahogany also prominent
- mid-storey of Bracken, Geebung, Hickory Wattle and Prickly Shaggy Pea
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

430 ha

Community Conservation Status:

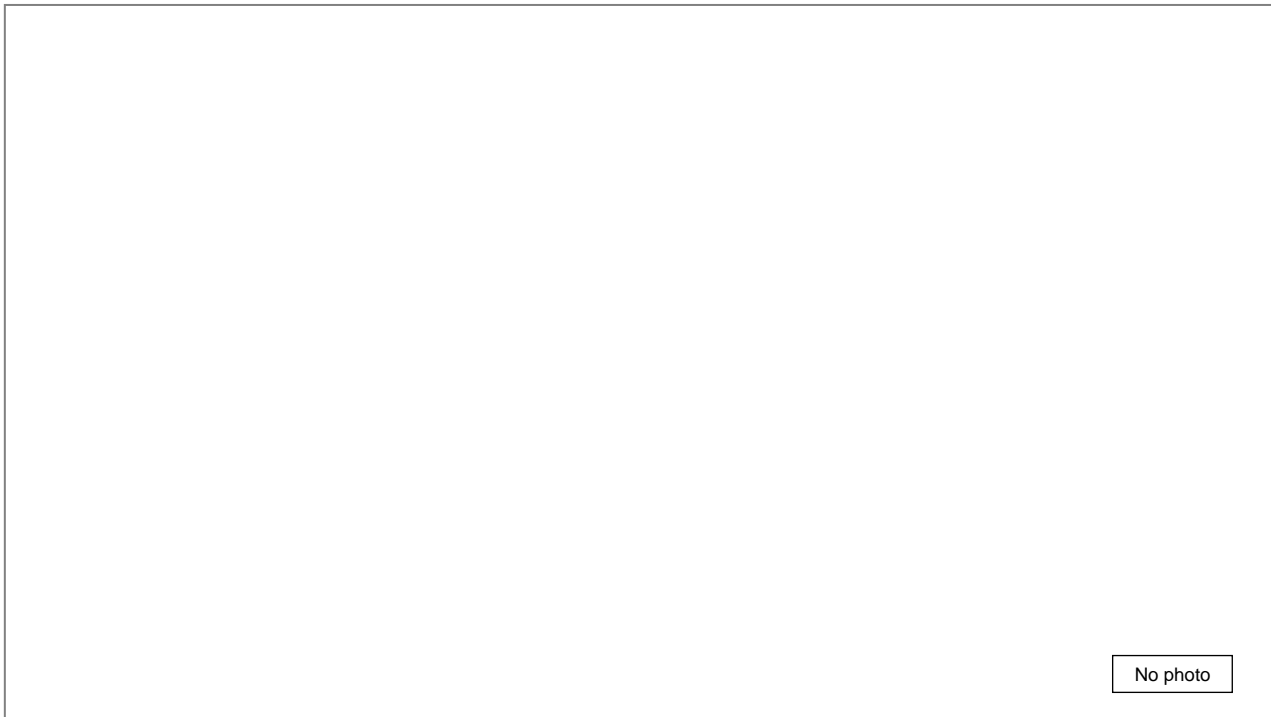
EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Coastal Ranges Dry Peppermint – Blackbutt Forest (9f)
Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Eucalyptus piperita</i>	-	-	-	✓
	<i>Eucalyptus pilularis</i>	-	-	-	✓
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	✓
	<i>Eucalyptus sieberi</i>	-	-	-	✓
	<i>Allocasuarina torulosa</i>	-	-	-	✓
	<i>Eucalyptus scias</i>	-	-	-	✓
	<i>Corymbia gummifera</i>	-	-	-	✓
Small Tree	<i>Banksia serrata</i>	-	-	-	✓
Shrub	<i>Persoonia linearis</i>	-	-	-	✓
	<i>Persoonia levis</i>	-	-	-	✓
	<i>Gompholobium latifolium</i>	-	-	-	✓
	<i>Acrotriche divaricata</i>	-	-	-	✓
	<i>Leptospermum polygalifolium</i> subsp. <i>cistmontanum</i>	-	-	-	✓
	<i>Banksia spinulosa</i> var. <i>collina</i>	-	-	-	✓
	<i>Acacia ulicifolia</i>	-	-	-	✓
	<i>Lomatia silaifolia</i>	-	-	-	✓
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	✓
Grass	<i>Entolasia stricta</i>	-	-	-	✓
	<i>Imperata cylindrica</i>	-	-	-	✓
Graminoid	<i>Lomandra longifolia</i>	-	-	-	✓
Sedge	<i>Caustis flexuosa</i>	-	-	-	✓



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Tallowwood/ Smooth-barked Apple/ Blackbutt grass tall open forest of the Central and lower North Coast (038)

LHCCREMS: Coastal Ranges Open Forest (MU9)

General Description:

Coastal Ranges Dry Tallowwood - Blackbutt Forest represents a variant of Coastal Ranges open forest from the Martinsville Valley where *Eucalyptus microcorys* is characteristic, and co-occurs with *Eucalyptus pilularis*. Other canopy species present include *Allocasuarina torulosa* and *Syncarpia glomulifera*. Understorey vegetation includes *Platysace lanceolata*, *Pteridium esculentum*, *Gompholobium virgatum*, *Persoonia linearis*, *Themeda australis*, *Entolasia stricta*, *Goodenia heterophylla* and *Dianella caerulea*. Further data collection and analysis is required to clarify relationships with other similar communities within the Coastal Ranges open forest complex.

Characteristic Features:

- canopy of Tallowwood and Blackbutt, with Forest Oak and some Turpentine
- mid-storey of Geebung, Shrubby Platysace, Leafy Wedge Pea and Bracken
- ground layer of grasses, herbs and forbs, particularly Kangaroo Grass and Wiry Panic

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

381 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Coastal Ranges Dry Tallowood - Blackbutt Forest (9h)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Eucalyptus pilularis</i>	-	-	-	4.00	
	<i>Eucalyptus microcorys</i>	-	-	-	3.00	
	<i>Allocasuarina torulosa</i>	-	-	-	3.00	
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	1.00	
	<i>Eucalyptus umbra</i>	-	-	-	1.00	
Small Tree	<i>Acacia schinoides</i>	-	-	-	1.00	
	<i>Cryptocarya rigida</i>	-	-	-	1.00	
	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	-	-	-	1.00	
	<i>Trochocarpa laurina</i>	-	-	-	1.00	
Shrub	<i>Platysace lanceolata</i>	-	-	-	3.00	
	<i>Persoonia linearis</i>	-	-	-	2.00	
	<i>Acacia implexa</i>	-	-	-	2.00	
	<i>Gompholobium virgatum</i>	-	-	-	2.00	
	<i>Podolobium ilicifolium</i>	-	-	-	2.00	
	<i>Maytenus silvestris</i>	-	-	-	1.00	
	<i>Breynia oblongifolia</i>	-	-	-	1.00	
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	1.00	
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	-	-	-	1.00	
	<i>Astrotricha floccosa</i>	-	-	-	1.00	
	<i>Clerodendrum tomentosum</i>	-	-	-	1.00	
Low Shrub	<i>Pomax umbellata</i>	-	-	-	1.00	
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	2.00	
	<i>Blechnum cartilagineum</i>	-	-	-	2.00	
	<i>Calochlaena dubia</i>	-	-	-	2.00	
	<i>Cyathea australis</i>	-	-	-	1.00	
	<i>Lindsaea microphylla</i>	-	-	-	1.00	
Grass	<i>Entolasia stricta</i>	-	-	-	2.00	
	<i>Themeda australis</i>	-	-	-	2.00	
	<i>Panicum simile</i>	-	-	-	2.00	
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	-	-	-	2.00	
	<i>Imperata cylindrica</i>	-	-	-	1.00	
	<i>Dichelachne micrantha</i>	-	-	-	1.00	
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00	
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00	
	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	-	-	-	2.00	
Sedge	<i>Lepidosperma laterale</i>	-	-	-	1.00	
Herb	<i>Pseuderanthemum variabile</i>	-	-	-	2.00	
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	-	-	-	2.00	
	<i>Gonocarpus teucrioides</i>	-	-	-	2.00	
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	-	-	-	2.00	
	<i>Lagenophora stipitata</i>	-	-	-	2.00	
	<i>Schelhammera undulata</i>	-	-	-	2.00	
	<i>Pratia purpurascens</i>	-	-	-	1.00	

Coastal Ranges Dry Tallowwood - Blackbutt Forest (9h)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
	<i>Desmodium rhytidophyllum</i>	-	-	-	1.00
	<i>Arrhenechthites mixta</i>	-	-	-	1.00
	<i>Galium binifolium</i>	-	-	-	1.00
	<i>Oxalis chnoodes</i>	-	-	-	1.00
	<i>Senecio amygdalifolius</i>	-	-	-	1.00
	<i>Viola hederacea</i>	-	-	-	1.00
Ground Orchid	<i>Pterostylis spp.</i>	-	-	-	1.00
Twiner	<i>Hibbertia scandens</i>	-	-	-	2.00
	<i>Hibbertia dentata</i>	-	-	-	2.00
	<i>Kennedia rubicunda</i>	-	-	-	1.00
	<i>Cissus hypoglauca</i>	-	-	-	1.00
	<i>Clematis glycinoides var. glycinoides</i>	-	-	-	1.00
	<i>Dioscorea transversa</i>	-	-	-	1.00



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Grey Gum/ Smooth-barked Apple/ Blue-leaved Stringybark shrub/ grass open forest on coastal ranges of the Sydney Basin (104)
LHCCREMS: Hunter Range Grey Gum Forest (MU21)

General Description:

Hunter Range Dry Escarpment Apple Forest occurs on exposed and rocky sandstone escarpment edges and spur ends within the Watagan Ranges. Prominent canopy species include *Angophora costata*, *Eucalyptus agglomerata* and *Eucalyptus umbra*. The understorey varies between sparse and dense, but invariably includes *Podolobium aciculiferum*, *Cassinia cunninghamii*, *Daviesia ulicifolia* and *Leucopogon lanceolatus*. Ground layer species are typified by *Lomandra confertifolia* subsp. *rubiginosa*, *Lepidosperma laterale*, *Aristida vagans* and *Austrostipa pubescens*. This community is similar to others within the Hunter Range dry forests, and some further clarifications are required.

Characteristic Features:

- canopy of Smooth-barked Apple with Blue-leaf Stringybark and Bastard Mahogany
- open to dense mid-storey of Needle Shaggy Pea, Cunninghams Everlasting and Gorse Bitter Pea
- ground layer of Mat-rush, with scattered grasses such as Three-awn Speargrass

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

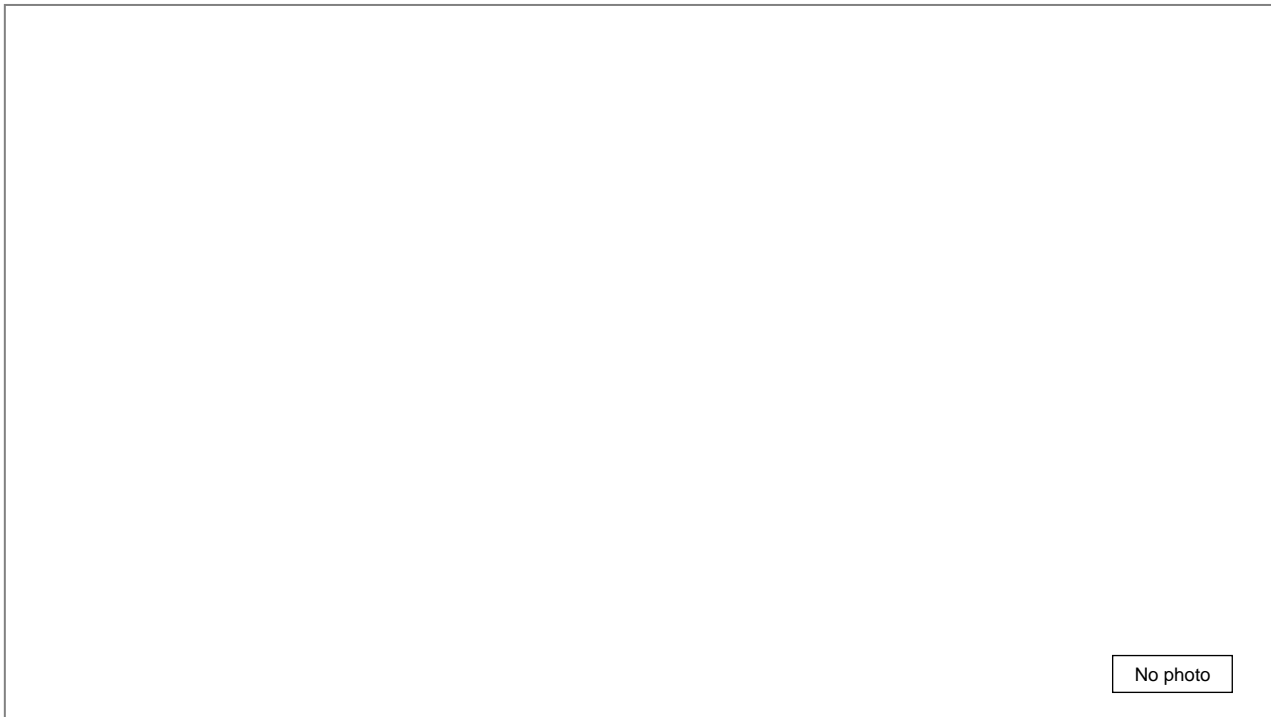
16 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
 TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Hunter Range Dry Escarpment Apple Forest (21a)					
Average similarity: 54.87					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.50	5.31	-	9.68
	<i>Eucalyptus agglomerata</i>	3.00	5.31	-	9.68
	<i>Eucalyptus umbra</i>	3.00	5.31	-	9.68
Shrub	<i>Podolobium aciculiferum</i>	4.00	5.31	-	9.68
	<i>Cassinia cunninghamii</i>	2.00	3.54	-	6.45
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	2.50	3.54	-	6.45
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1.00	1.77	-	3.23
	<i>Olearia tomentosa</i>	1.50	1.77	-	3.23
	<i>Persoonia linearis</i>	1.50	1.77	-	3.23
	<i>Platysace lanceolata</i>	1.50	1.77	-	3.23
Low Shrub	<i>Pomax umbellata</i>	1.50	1.77	-	3.23
Grass	<i>Aristida vagans</i>	1.50	1.77	-	3.23
	<i>Austrostipa pubescens</i>	1.50	1.77	-	3.23
Graminoid	<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	5.00	8.85	-	16.13
Sedge	<i>Lepidosperma laterale</i>	2.00	3.54	-	6.45
Mistletoe	<i>Dendrophthoe vitellina</i>	1.00	1.77	-	3.23



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Grey Gum/ Smooth-barked Apple/ Blue-leaved Stringybark shrub/ grass open forest on coastal ranges of the Sydney Basin (104)

LHCCREMS: Hunter Range Grey Gum Forest (MU21)

General Description:

Hunter Range Dry Ironbark – Grey Gum Forest is currently mapped for a single location at the top of the Martinsville Valley, and is yet to be sampled in detail. With further investigation this community may simply be seen as a localised form of the more widespread Hunter Ranges Dry Stringybark – Blackbutt Forest (MU21g), where *Eucalyptus punctata* and *Eucalyptus paniculata* are dominant. Other canopy species present in this community include *Eucalyptus agglomerata*, *Allocasuarina torulosa*, *Syncarpia glomulifera* and *Eucalyptus acmenioides*. *Eucalyptus pilularis* is also present in some parts. No data on understorey species is yet available.

Characteristic Features:

- canopy of Grey Gum and Grey Ironbark, with Blue-leaf Stringybark, Forest Oak and Turpentine

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

7 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

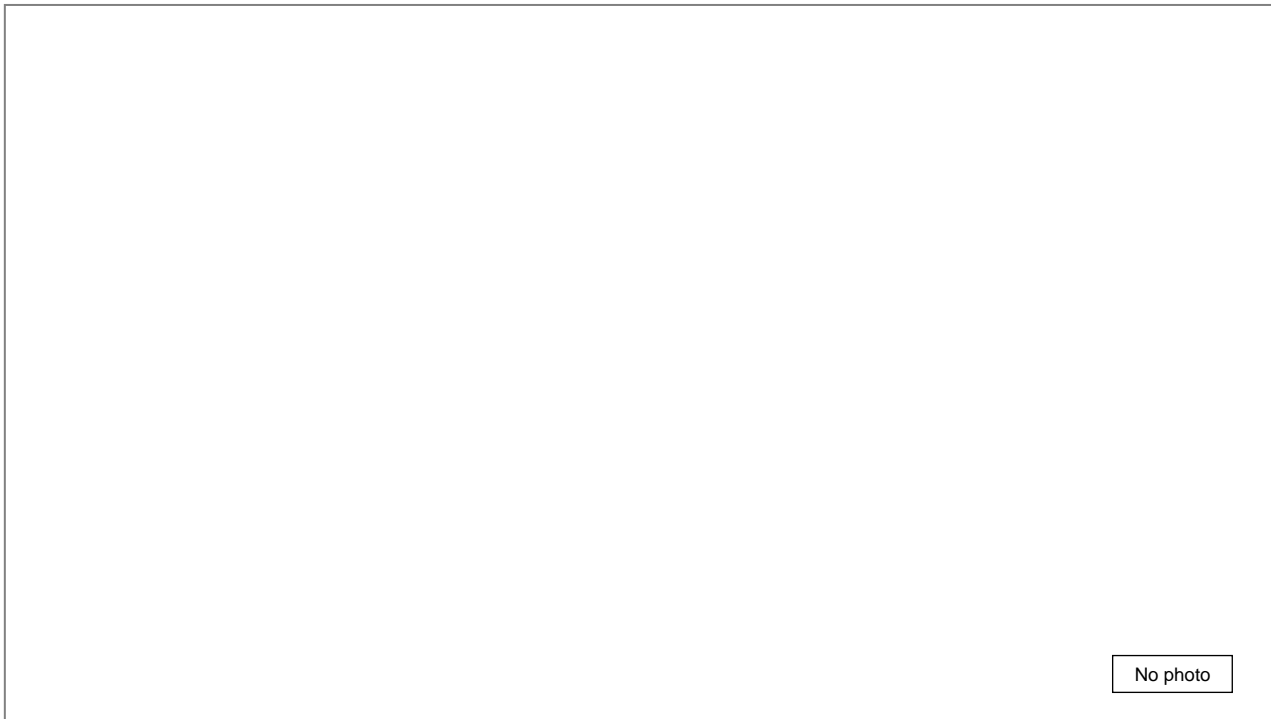
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Hunter Range Dry Ironbark – Grey Gum Forest (21d)

Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Eucalyptus paniculata</i>	-	-	-	✓
	<i>Eucalyptus punctata</i>	-	-	-	✓
	<i>Eucalyptus agglomerata</i>	-	-	-	✓
	<i>Allocasuarina torulosa</i>	-	-	-	✓
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	✓



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Grey Gum/ Smooth-barked Apple/ Blue-leaved Stringybark shrub/ grass open forest on coastal ranges of the Sydney Basin (104)

LHCCREMS: Hunter Range Grey Gum Forest (MU21)

General Description:

Hunter Range Dry Mahogany – Grey Gum Forest is currently mapped from only a single location within Lake Macquarie LGA, along Lemon Tree Road in the Jilliby Ranges. It is a dry, rocky low forest with many eucalypts present but no clear dominants. As with MU21d, this community is yet to be sampled in detail, but key canopy species include *Eucalyptus acmenioides*, *Eucalyptus umbra*, *Eucalyptus punctata*, *Eucalyptus microcorys*, *Eucalyptus scias*, *Syncarpia glomulifera* and *Eucalyptus agglomerata*. No data on understorey species is yet available. Further investigation is required to ascertain relationships between this community and other closely related units within the Hunter Range forest complex. It is likely that sampling and analysis will reveal this community to be a localised form of the more widespread Hunter Ranges Dry Stringybark – Blackbutt Forest (MU21g).

Characteristic Features:

- canopy of a range of species, but White Mahogany, Bastard Mahogany, Grey Gum, Tallowwood and Blue-leaf Stringybark tend to dominate

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

5 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Hunter Range Dry Mahogany – Grey Gum Forest (21e)

Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Eucalyptus acmenioides</i>	-	-	-	✓
	<i>Eucalyptus punctata</i>	-	-	-	✓
	<i>Eucalyptus umbra</i>	-	-	-	✓
	<i>Eucalyptus microcorys</i>	-	-	-	✓
	<i>Eucalyptus scias</i>	-	-	-	✓
	<i>Syncarpia glomulifera subsp. glomuliera</i>	-	-	-	✓
	<i>Eucalyptus agglomerata</i>	-	-	-	✓



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Hunter Range Grey Gum Forest (MU21)

General Description:

Hunter Range Dry Mahogany – Apple Forest is a variable community that generally supports *Eucalyptus umbra* as the key dominant species, but with any of *Angophora floribunda*, *Eucalyptus paniculata*, *Eucalyptus fergusonii*, *Eucalyptus agglomerata*, *Eucalyptus punctata* and *Allocasuarina torulosa* often present. This community is generally best developed on exposed rocky spur ends and exposed slopes within Jilliby State Conservation Area, off Prickly Ridge Road. Understorey vegetation commonly includes *Podolobium aciculiferum*, with *Olearia tomentosa*, *Asterolasia correifolia*, *Entolasia stricta*, *Paspalidium distans*, *Paspalidium criniforme* and *Lomandra longifolia*. Further sampling and analysis is required to determine the relationship of this community with other forms of Hunter Range forest types.

Characteristic Features:

- canopy of Bastard Mahogany, Rough-barked Apple, Ironbarks, Blue-leaf Stringybark and Grey Gum
- mid-storey of Needle Shaggy Pea, Toothed Daisy-bush and Asterolasia
- sparse ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

92 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Hunter Range Dry Mahogany - Apple Forest (21f)
Less than 2 samples in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus agglomerata</i>	-	-	-	4.00
	<i>Eucalyptus fergusonii</i> subsp. <i>fergusonii</i>	-	-	-	3.00
	<i>Angophora floribunda</i>	-	-	-	2.00
	<i>Eucalyptus punctata</i>	-	-	-	2.00
	<i>Allocasuarina torulosa</i>	-	-	-	1.00
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	1.00
Shrub	<i>Podolobium aciculiferum</i>	-	-	-	5.00
	<i>Asterolasia correifolia</i>	-	-	-	2.00
	<i>Olearia tomentosa</i>	-	-	-	1.00
	<i>Maytenus silvestris</i>	-	-	-	1.00
	<i>Exocarpos strictus</i>	-	-	-	1.00
Grass	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Paspalidium distans</i>	-	-	-	2.00
	<i>Oplismenus imbecillis</i>	-	-	-	2.00
	<i>Paspalidium criniforme</i>	-	-	-	2.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	1.00
	<i>Austrodanthonia monticola</i>	-	-	-	1.00
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	-	-	-	2.00
	<i>Lomandra longifolia</i>	-	-	-	1.00
	<i>Dianella revoluta</i> var. <i>revoluta</i>	-	-	-	1.00
Sedge	<i>Lepidosperma laterale</i>	-	-	-	1.00
Herb	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Pseuderanthemum variabile</i>	-	-	-	2.00
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	-	-	-	1.00
Twiner	<i>Parsonsia straminea</i>	-	-	-	1.00
	<i>Billardiera scandens</i>	-	-	-	1.00
	<i>Pandorea pandorana</i>	-	-	-	1.00



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Grey Gum/ Smooth-barked Apple/ Blue-leaved Stringybark shrub/ grass open forest on coastal ranges of the Sydney Basin (104)

LHCCREMS: Hunter Range Grey Gum Forest (MU21)

General Description:

Hunter Range Dry Stringybark - Blackbutt Forest is floristically similar to Hunter Range Dry Mahogany – Apple Forest (MU21f), and some further investigation is required to determine the status of both. Hunter Range Dry Stringybark - Blackbutt Forest is dominated by a canopy of *Eucalyptus agglomerata* and *Eucalyptus pilularis*, with other species such as *Eucalyptus punctata*, *Eucalyptus paniculata*, *Allocasuarina torulosa* and *Angophora floribunda* also present. While *Eucalyptus agglomerata* is occasionally present in MU21f, it is clearly not a dominant feature as it is in this community. Understorey species include *Acacia implexa*, *Podolobium aciculiferum* and *Acacia ulicifolia*, with *Entolasia stricta*, *Cleistochloa rigida* and *Panicum simile* on the ground.

Characteristic Features:

- canopy of Blue-leaf Stringybark and Blackbutt, with Grey Gum, Ironbark Forest Oak and Rough-barked Apple
- mid-storey of Needle Shaggy Pea, Hickory Wattle and Prickly Moses
- ground layer of grasses, herbs and forbs, notable Wiry Panic and *Cleistochloa*

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

119 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Hunter Range Dry Stringybark - Blackbutt Forest (21g)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus agglomerata</i>	-	-	-	5.00
	<i>Angophora floribunda</i>	-	-	-	2.00
	<i>Eucalyptus punctata</i>	-	-	-	2.00
	<i>Allocasuarina torulosa</i>	-	-	-	1.00
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-	1.00
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	-	-	-	1.00
Shrub	<i>Podolobium aciculiferum</i>	-	-	-	6.00
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	-	-	-	2.00
	<i>Persoonia linearis</i>	-	-	-	1.00
	<i>Acacia implexa</i>	-	-	-	1.00
	<i>Breynia oblongifolia</i>	-	-	-	1.00
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	1.00
	<i>Cassinia arcuata</i>	-	-	-	1.00
	<i>Cassinia cunninghamii</i>	-	-	-	1.00
	<i>Jacksonia scoparia</i>	-	-	-	1.00
	<i>Olearia tomentosa</i>	-	-	-	1.00
Low Shrub	<i>Pomax umbellata</i>	-	-	-	1.00
	<i>Plectranthus parviflorus</i>	-	-	-	1.00
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	-	-	-	1.00
Grass	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Eragrostis brownii</i>	-	-	-	2.00
	<i>Panicum simile</i>	-	-	-	1.00
	<i>Imperata cylindrica</i>	-	-	-	1.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	1.00
	<i>Digitaria ramularis</i>	-	-	-	1.00
	<i>Paspalidium distans</i>	-	-	-	1.00
	<i>Aristida vagans</i>	-	-	-	1.00
	<i>Cleistochloa rigida</i>	-	-	-	1.00
<i>Cymbopogon refractus</i>	-	-	-	1.00	
Graminoid	<i>Lomandra longifolia</i>	-	-	-	1.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	1.00
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	-	-	-	1.00
Sedge	<i>Lepidosperma laterale</i>	-	-	-	2.00
Herb	<i>Pseuderanthemum variabile</i>	-	-	-	1.00
	<i>Poranthera microphylla</i>	-	-	-	1.00
	<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	-	-	-	1.00
Ground Orchid	<i>Pterostylis nutans</i>	-	-	-	1.00
Twiner	<i>Kennedia rubicunda</i>	-	-	-	1.00
	<i>Parsonsia straminea</i>	-	-	-	1.00
	<i>Pandorea pandorana</i>	-	-	-	1.00
	<i>Billardiera scandens</i>	-	-	-	1.00
	<i>Passiflora herbertiana</i> subsp. <i>herbertiana</i>	-	-	-	1.00

Hunter Range Dry Stringybark - Blackbutt Forest (21g)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Mistletoe	<i>Amyema spp.</i>	-	-	-	1.00	



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Turpentine/ Smooth-barked Apple/ Broad-leaved Mahogany shrubby open forest on sandstone ranges of the Central Coast (110)
LHCCREMS: Exposed Hawkesbury Woodland (MU26)

General Description:

Watagans Remnant Hawkesbury Forest occurs only on remnant Hawkesbury Sandstone geology in and around ‘The Pines’ picnic area in Olney State Forest. It is dominated in the canopy by *Eucalyptus sieberi*, *Eucalyptus piperita*, *Corymbia gummifera*, *Eucalyptus scias*, and *Banksia serrata*, over an understorey of species such as *Banksia spinulosa*, *Acacia kulnurensis*, *Lambertia formosa*, *Xylomelum pyriforme*, *Styphelia tubiflora*, *Caustis flexuosa*, *Comesperma defoliatum*, *Lomandra cylindrica*, and *Tetrarhena juncea*. Vegetation in this unit is more typical of that found on Hawkesbury Sandstone further to the south and west, where that geological strata outcrops more consistently.

Characteristic Features:

- canopy of Silver-top Ash, Sydney Peppermint, Red Bloodwood, Large-fruited Mahogany and Old Man Banksia
- rich mid-storey of Banksia, Wattles, Peas and Geebung
- sparse ground layer of small sub-shrubs, dry sedges, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

42 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
 TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Watagans Remnant Hawkesbury Forest (26h)					
Average similarity: 46.07					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus piperita</i>	4.33	4.57	3.08	9.93
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2.00	1.66	2.35	3.60
	<i>Corymbia gummifera</i>	2.00	1.23	0.58	2.68
	<i>Eucalyptus scias</i> subsp. <i>scias</i>	1.33	0.84	0.58	1.82
Small Tree	<i>Banksia serrata</i>	2.00	1.23	0.58	2.68
Shrub	<i>Gompholobium latifolium</i>	2.67	2.90	4.17	6.30
	<i>Acacia ulicifolia</i>	2.33	2.49	104.87	5.40
	<i>Platysace linearifolia</i>	2.33	2.49	104.87	5.40
	<i>Podolobium ilicifolium</i>	1.67	0.84	0.58	1.82
	<i>Acacia suaveolens</i>	1.33	0.82	0.58	1.79
	<i>Bossiaea heterophylla</i>	1.33	0.82	0.58	1.79
	<i>Persoonia levis</i>	1.33	0.82	0.58	1.79
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1.00	0.42	0.58	0.91
	<i>Persoonia linearis</i>	1.00	0.42	0.58	0.91
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.00	0.41	0.58	0.89
	<i>Lomatia silaifolia</i>	0.67	0.41	0.58	0.89
	<i>Telopea speciosissima</i>	1.00	0.41	0.58	0.89
Low Shrub	<i>Dampiera stricta</i>	2.33	2.49	104.87	5.40
	<i>Amperea xiphioclada</i> var. <i>xiphioclada</i>	1.67	1.66	2.26	3.61
Ground Fern	<i>Lindsaea linearis</i>	1.67	1.66	2.35	3.60
	<i>Pteridium esculentum</i>	1.33	0.84	0.58	1.82
Grass	<i>Entolasia stricta</i>	2.00	2.49	104.87	5.40
	<i>Tetrarrhena juncea</i>	2.00	2.49	104.87	5.40
	<i>Imperata cylindrica</i>	1.33	0.84	0.58	1.82
Graminoid	<i>Patersonia glabrata</i>	2.00	2.49	104.87	5.40
	<i>Lomandra longifolia</i>	1.00	0.42	0.58	0.91
Sedge	<i>Caustis flexuosa</i>	1.67	0.82	0.58	1.79
	<i>Lepidosperma laterale</i>	1.00	0.42	0.58	0.91
Herb	<i>Scaevola ramosissima</i>	1.67	1.66	2.32	3.60
	<i>Viola hederacea</i>	1.00	0.41	0.58	0.90
Twiner	<i>Billardiera scandens</i>	1.67	1.66	2.35	3.60
	<i>Hibbertia dentata</i>	1.33	0.84	0.58	1.82
	<i>Glycine clandestina</i>	1.00	0.42	0.58	0.91
	<i>Hibbertia scandens</i>	1.00	0.42	0.58	0.91
	<i>Kennedia rubicunda</i>	1.00	0.42	0.58	0.91
	<i>Smilax australis</i>	1.00	0.42	0.58	0.91

Dry Forests (Coastal Sand)



Keith Class: Coastal Dune Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Blackbutt/ Old Man Banksia woodland on coastal sands of the Central and Lower North Coast (128)

LHCCREMS: Coastal Sand Apple-Blackbutt Forest (MU33)

General Description:

Coastal Sand Apple - Blackbutt Forest occurs on coastal sand bodies within parts of Awabakal Nature Reserve and in the Jewells Swamp area. It is dominated by *Eucalyptus pilularis* with *Angophora costata* and *Corymbia gummifera*, and *Banksia serrata* is also prominent. The understorey includes species such as *Bossiaea rhombifolia*, *Pteridium esculentum*, *Acacia longifolia*, *Ricinocarpus pinifolius* and *Acacia terminalis*, over a sparse ground layer of *Dianella caerulea*, *Lomandra longifolia* and *Poa affinis*.

Characteristic Features:

- occurs on sandy wind-blown soils
- canopy of Blackbutt, Smooth-barked Apple, Red Bloodwood and Old Man Banksia
- mid-storey of Peas and Wattles, Wedding Bush and Ti-tree
- ground layer of Paroo Lily, Spiny Mat-rush, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

160 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Coastal Sand Apple - Blackbutt Forest (33)
Average similarity: 38.72

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.67	4.59	5.97	11.85
	<i>Eucalyptus pilularis</i>	2.67	1.75	0.58	4.53
	<i>Corymbia gummifera</i>	2.33	1.36	0.58	3.51
Small Tree	<i>Banksia serrata</i>	2.00	1.83	2.37	4.73
	<i>Allocasuarina littoralis</i>	1.00	0.49	0.58	1.26
Shrub	<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	2.33	2.26	1.54	5.83
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.67	1.83	2.37	4.73
	<i>Ricinocarpos pinifolius</i>	1.67	1.83	2.37	4.73
	<i>Acacia terminalis</i>	1.33	1.38	18.70	3.56
	<i>Eriostemon australasius</i>	1.33	1.38	18.70	3.56
	<i>Leptospermum trinervium</i>	1.33	1.38	18.70	3.56
	<i>Aotus ericoides</i>	1.33	0.91	0.58	2.34
	<i>Dillwynia retorta</i>	1.67	0.91	0.58	2.34
	<i>Acacia suaveolens</i>	1.33	0.88	0.58	2.27
	<i>Monotoca scoparia</i>	1.00	0.49	0.58	1.26
	<i>Correa reflexa</i> var. <i>reflexa</i>	1.00	0.45	0.58	1.17
	<i>Persoonia levis</i>	0.67	0.45	0.58	1.17
	<i>Persoonia linearis</i>	0.67	0.45	0.58	1.17
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.67	0.45	0.58	1.17
<i>Isopogon anemonifolius</i>	1.00	0.44	0.58	1.13	
Low Shrub	<i>Tetradlea thymifolia</i>	1.67	0.91	0.58	2.34
	<i>Pomax umbellata</i>	1.00	0.45	0.58	1.17
Ground Fern	<i>Pteridium esculentum</i>	3.33	3.21	4.18	8.29
Cycad	<i>Macrozamia communis</i>	1.00	0.45	0.58	1.17
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	2.00	0.88	0.58	2.27
Grass	<i>Poa affinis</i>	1.33	0.91	0.58	2.34
	<i>Entolasia stricta</i>	1.00	0.49	0.58	1.26
	<i>Digitaria ramularis</i>	1.00	0.44	0.58	1.13
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.67	1.83	2.37	4.73
	<i>Lomandra longifolia</i>	1.67	1.83	2.37	4.73
Herb	<i>Gonocarpus teucroides</i>	1.33	0.91	0.58	2.34
	<i>Xanthosia pilosa</i>	0.67	0.45	0.58	1.17
Twiner	<i>Billardiera scandens</i>	0.67	0.45	0.58	1.17



Keith Class: Coastal Dune Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Old Man Banksia/ Rough-barked Apple/ Bangalay shrubby open forest on coastal sands of the Central Coast (127)

LHCCREMS: Coastal Sand Apple-Blackbutt Forest (MU33)

General Description:

Pelican Bangalay Forest occurs on the poorly drained sandy plains and rises in the Belmont South and Pelican Flats area. Floristically, this community has strong affinities to the Umina Coastal Sandplain Woodland EEC from the Gosford LGA, but under current legislation this type is not included in that community. In Pelican Bangalay Forest, *Eucalyptus botryoides* dominates the canopy with *Angophora costata*, *Banksia serrata*, and some *Corymbia gummifera*. Understorey vegetation includes *Aotus ericoides*, *Monotoca elliptica*, *Acacia longifolia*, *Pimelea linifolia*, *Acacia suaveolens*, *Pteridium esculentum*, *Lomandra longifolia*, *Pomax umbellata* and *Imperata cylindrica*.

Characteristic Features:

- occurs on sandy wind-blown soils
- canopy of Bangalay Gum, Smooth-barked apple and Old Man Banksia
- mid-storey of Peas, Wattles and Bracken
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

9 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 6 plots]:

Pelican Bangalay Forest (33c)					
Average similarity: 45.64					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus botryoides</i>	2.00	2.24	0.73	4.91
	<i>Angophora costata</i>	1.50	1.61	0.77	3.53
	<i>Eucalyptus robusta</i>	0.50	0.39	0.48	0.85
	<i>Corymbia gummiifera</i>	0.50	0.13	0.26	0.28
	<i>Melaleuca quinquenervia</i>	0.33	0.13	0.26	0.28
Small Tree	<i>Banksia serrata</i>	2.33	3.81	5.54	8.34
Shrub	<i>Aotus ericoides</i>	1.67	2.35	1.33	5.14
	<i>Monotoca elliptica</i>	1.50	2.14	1.16	4.69
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.33	2.02	4.01	4.42
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1.50	1.51	1.22	3.30
	<i>Acacia suaveolens</i>	1.00	1.19	1.32	2.61
	<i>Acacia ulicifolia</i>	1.17	0.97	0.71	2.12
	<i>Woolfsia pungens</i>	1.33	0.94	0.74	2.06
	<i>Banksia aemula</i>	1.17	0.91	0.76	1.98
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.00	0.83	0.74	1.82
	<i>Ricinocarpos piniifolius</i>	0.83	0.47	0.47	1.02
	<i>Leptospermum laevigatum</i>	0.67	0.43	0.47	0.95
	<i>Gompholobium latifolium</i>	0.67	0.37	0.48	0.80
	<i>Dillwynia retorta</i>	0.67	0.25	0.26	0.56
	<i>Omalanthus nutans</i>	0.50	0.15	0.26	0.33
	<i>Exocarpos cupressiformis</i>	0.50	0.11	0.26	0.25
	<i>Correa reflexa</i> var. <i>reflexa</i>	0.50	0.10	0.26	0.22
<i>Eriostemon australasius</i>	0.50	0.10	0.26	0.22	
Low Shrub	<i>Pomax umbellata</i>	1.67	2.38	1.32	5.21
	<i>Platysace ericoides</i>	0.67	0.20	0.26	0.44
	<i>Hibbertia fasciculata</i>	0.33	0.10	0.26	0.22
Ground Fern	<i>Pteridium esculentum</i>	3.67	5.48	3.40	12.01
Grass	<i>Imperata cylindrica</i>	1.67	1.88	1.20	4.13
	<i>Themeda australis</i>	0.50	0.10	0.26	0.22
Graminoid	<i>Lomandra longifolia</i>	2.17	3.09	3.66	6.78
	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	1.48	0.78	3.25
Sedge	<i>Baloskion tetraphyllum</i> subsp. <i>meiostachyum</i>	0.83	0.15	0.26	0.33
	<i>Ficinia nodosa</i>	0.33	0.13	0.26	0.28
	<i>Gahnia clarkei</i>	0.67	0.11	0.26	0.25
Herb	<i>Gonocarpus teucrioides</i>	1.33	1.39	0.78	3.04
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.83	0.44	0.47	0.97
	<i>Mitrasacme polymorpha</i>	0.67	0.19	0.26	0.42
Twiner	<i>Kennedia rubicunda</i>	1.50	2.29	2.56	5.01
	<i>Hardenbergia violacea</i>	1.50	1.83	1.28	4.01
	<i>Billardiera scandens</i>	0.83	0.45	0.44	0.99
	<i>Glycine clandestina</i>	0.83	0.40	0.45	0.88



Keith Class: Coastal Dune Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Smooth-barked Apple/ Blackbutt/ Old Man Banksia woodland on coastal sands of the Central and Lower North Coast (128)

LHCCREMS: Coastal Sand Apple-Blackbutt Forest (MU33)

General Description:

Awabakal Sand Mantled Blackbutt Forest is dominated by a canopy of *Eucalyptus pilularis*, *Eucalyptus paniculata*, *Angophora costata* and *Allocasuarina torulosa*. It occurs on a sandy substrate overlying bedrock, often on slopes, and lies in close proximity to larger aeolian sand bodies, but lacks the full diversity of typical 'sand' species in the understorey. Other species present include *Acacia longifolia*, *Acacia falcata*, *Polyscias sambuccifolia*, and *Pteridium esculentum*, with the grasses *Themeda australis*, *Imperata stricta*, *Entolasia stricta* and *Poa affinis* prominent. At present, this community is noted only for a small section of Awabakal Nature Reserve, and full revision is required to determine its correct place in the classification. It may, for example, represent a minor variant of Coastal Narrabeen Shrub Forest (MU22).

Characteristic Features:

- canopy of Blackbutt, Ironbark, Smooth-barked Apple and Forest Oak
- mid-storey of Wattles, Elderberry Panax and Bracken
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

2 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Awabakal Sand Mantled Blackbutt Forest (33d)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Allocasuarina torulosa</i>	-	-	-	4.00
	<i>Eucalyptus pilularis</i>	-	-	-	4.00
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	-	-	-	3.00
	<i>Angophora costata</i>	-	-	-	3.00
Shrub	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	4.00
	<i>Acacia falcata</i>	-	-	-	2.00
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	2.00
	<i>Dodonaea triquetra</i>	-	-	-	2.00
	<i>Breynia oblongifolia</i>	-	-	-	2.00
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	-	-	-	2.00
	<i>Pultenaea villosa</i>	-	-	-	2.00
	<i>Acacia ulicifolia</i>	-	-	-	1.00
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	-	-	-	1.00
	<i>Rubus parvifolius</i>	-	-	-	1.00
	<i>Platysace lanceolata</i>	-	-	-	1.00
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	-	-	-	1.00
	<i>Pultenaea retusa</i>	-	-	-	1.00
	<i>Acacia myrtifolia</i>	-	-	-	1.00
	<i>Exocarpos cupressiformis</i>	-	-	-	1.00
<i>Notelaea longifolia</i> f. <i>intermedia</i>	-	-	-	1.00	
Prostrate Shrub	<i>Hibbertia vestita</i>	-	-	-	1.00
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	2.00
	<i>Adiantum aethiopicum</i>	-	-	-	2.00
	<i>Lindsaea linearis</i>	-	-	-	1.00
Grass	<i>Themeda australis</i>	-	-	-	5.00
	<i>Imperata cylindrica</i>	-	-	-	3.00
	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Poa affinis</i>	-	-	-	2.00
	<i>Entolasia marginata</i>	-	-	-	2.00
	<i>Echinopogon ovatus</i>	-	-	-	2.00
	<i>Oplismenus aemulus</i>	-	-	-	2.00
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	-	-	-	1.00
Sedge	<i>Lepidosperma neesii</i>	-	-	-	2.00
	<i>Leptocarpus tenax</i>	-	-	-	1.00
	<i>Gahnia melanocarpa</i>	-	-	-	1.00
Herb	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Gonocarpus tetragynus</i>	-	-	-	2.00
	<i>Viola hederacea</i>	-	-	-	2.00
	<i>Desmodium varians</i>	-	-	-	2.00
	<i>Dichondra repens</i>	-	-	-	1.00
	<i>Geranium homeanum</i>	-	-	-	1.00

Awabakal Sand Mantled Blackbutt Forest (33d)**Less than 2 samples in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
	<i>Tricoryne elatior</i>	-	-	-	1.00
	<i>Desmodium rhytidophyllum</i>	-	-	-	1.00
Ground Orchid	<i>Cryptostylis erecta</i>	-	-	-	1.00
Twiner	<i>Billardiera scandens</i>	-	-	-	2.00
	<i>Eustrephus latifolius</i>	-	-	-	2.00
	<i>Kennedia rubicunda</i>	-	-	-	2.00
	<i>Polymeria calycina</i>	-	-	-	2.00
	<i>Glycine microphylla</i>	-	-	-	2.00
	<i>Cuscuta australis</i>	-	-	-	2.00
	<i>Hibbertia dentata</i>	-	-	-	1.00
	<i>Hardenbergia violacea</i>	-	-	-	1.00



Keith Class: Coastal Dune Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: ?Smooth-barked Apple/ Blackbutt/ Old Man Banksia woodland on coastal sands of the Central and Lower North Coast (128)

LHCCREMS: Coastal Sand Apple-Blackbutt Forest (MU33)

General Description:

Sand Mantled Banksia Forest occurs in a few location in the south-east of Lake Macquarie LGA, such as near Catherine Hill Bay and Swansea. It supports an open forest of *Angophora costata*, *Banksia serrata* and *Corymbia gummifera* on sandy wind-blown deposits, and differs from Coastal Sand Apple – Blackbutt Forest most prominently in the absence of *Eucalyptus pilularis*. Common understorey species include *Monotoca elliptica*, *Persoonia linearis*, *Acacia longifolia*, *Pteridium esculentum*, *Macrozamia communis*, *Gonocarpus teucroides*, *Lomandra longifolia*, and *Themeda australis*. The few areas supporting this community occur on small and typically isolated wind-blown sand deposits, often overlying Permian aged, clay-based sediments.

Characteristic Features:

- canopy of Smooth-barked Apple and Old Man Banksia, with some Red Bloodwood
- mid-storey of Tree Broom-heath, Geebung, Bracken and Wattles
- ground layer of Burrawang, Spiny Mat-rush and Kangaroo Grass

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

42 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Sand Mantled Banksia Forest (33m)
Average similarity: 40.56

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.00	3.94	10.50	9.71
	<i>Corymbia gummifera</i>	2.50	1.87	0.91	4.60
Small Tree	<i>Banksia serrata</i>	3.25	3.94	10.50	9.71
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.00	0.25	0.41	0.62
Shrub	<i>Breynia oblongifolia</i>	1.50	0.96	0.79	2.36
	<i>Acacia ulicifolia</i>	1.25	0.81	0.84	2.01
	<i>Correa reflexa</i> var. <i>reflexa</i>	1.25	0.81	0.84	2.01
	<i>Monotoca elliptica</i>	1.75	0.75	0.41	1.85
	<i>Persoonia linearis</i>	0.75	0.71	0.91	1.74
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	0.62	0.91	1.53
	<i>Aotus ericoides</i>	1.00	0.41	0.41	1.01
	<i>Bossiaea heterophylla</i>	1.00	0.38	0.41	0.94
	<i>Dillwynia retorta</i>	1.00	0.38	0.41	0.94
	<i>Dodonaea triquetra</i>	1.00	0.38	0.41	0.94
	<i>Hibbertia linearis</i>	1.00	0.38	0.41	0.94
	<i>Persoonia levis</i>	1.00	0.38	0.41	0.94
	<i>Ricinocarpus pinifolius</i>	1.00	0.38	0.41	0.94
	<i>Acacia suaveolens</i>	0.75	0.19	0.41	0.47
	<i>Gompholobium latifolium</i>	0.75	0.19	0.41	0.47
Low Shrub	<i>Pomax umbellata</i>	1.00	0.45	0.41	1.11
	<i>Tetradlea thymifolia</i>	1.00	0.45	0.41	1.11
Ground Fern	<i>Pteridium esculentum</i>	4.25	4.87	3.46	12.00
Cycad	<i>Macrozamia communis</i>	2.25	2.13	2.41	5.24
Grass	<i>Imperata cylindrica</i>	2.00	2.63	10.50	6.47
	<i>Themeda australis</i>	1.50	1.52	3.16	3.74
	<i>Anisopogon avenaceus</i>	1.25	0.38	0.41	0.94
	<i>Oplismenus imbecillis</i>	0.75	0.23	0.41	0.57
Graminoid	<i>Lomandra longifolia</i>	2.00	2.63	10.50	6.47
	<i>Dianella caerulea</i> var. <i>assera</i>	1.25	0.96	0.79	2.36
	<i>Lomandra glauca</i>	1.00	0.38	0.41	0.94
Herb	<i>Gonocarpus teucroides</i>	2.00	2.63	10.50	6.47
	<i>Pratia purpurascens</i>	1.00	0.50	0.41	1.24
	<i>Xanthosia pilosa</i>	1.00	0.38	0.41	0.94
	<i>Commelina cyanea</i>	0.75	0.25	0.41	0.62
	<i>Dichondra repens</i>	0.75	0.25	0.41	0.62
Twiner	<i>Billardiera scandens</i>	1.00	0.63	0.91	1.56
	<i>Stephania japonica</i> var. <i>discolor</i>	1.00	0.50	0.41	1.24
	<i>Glycine clandestina</i>	1.00	0.46	0.41	1.13
	<i>Hardenbergia violacea</i>	0.75	0.21	0.41	0.51

Dry Forests (Spotted Gum-Ironbark)



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Spotted Gum/ Broad-leaved Mahogany/ Grey Gum grass/ shrub open forest on Coastal Lowlands of the Central Coast (071)
LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Coastal Foothills Spotted Gum – Ironbark Forest (in the broad sense) is dominated in the canopy by *Eucalyptus siderophloia*, *Allocasuarina torulosa* and *Eucalyptus acmenoides*, with *Corymbia maculata* in some areas. The shrub layer supports species such as *Clerodendrum tomentosum*, *Hibbertia aspera*, *Polyscias sambuccifolia*, and *Persoonia linearis*. Ground layer vegetation includes *Microlaena stipoides*, *Imperata cylindrica* var. *major*, *Lomandra longifolia*, *Entolasia stricta*, *Themeda australis* and *Desmodium gunnii*.

Characteristic Features:

- canopy dominated by Northern Ironbark, Forest Oak, White Mahogany and Spotted Gum
- sparse mid-storey of Rough Guinea Flower, Geebung, and Hairy Clerodendrum
- ground layer of grasses including Blady Grass, Basket Grass, Wiry Panic and Kangaroo Grass

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1060 ha

Community Conservation Status:

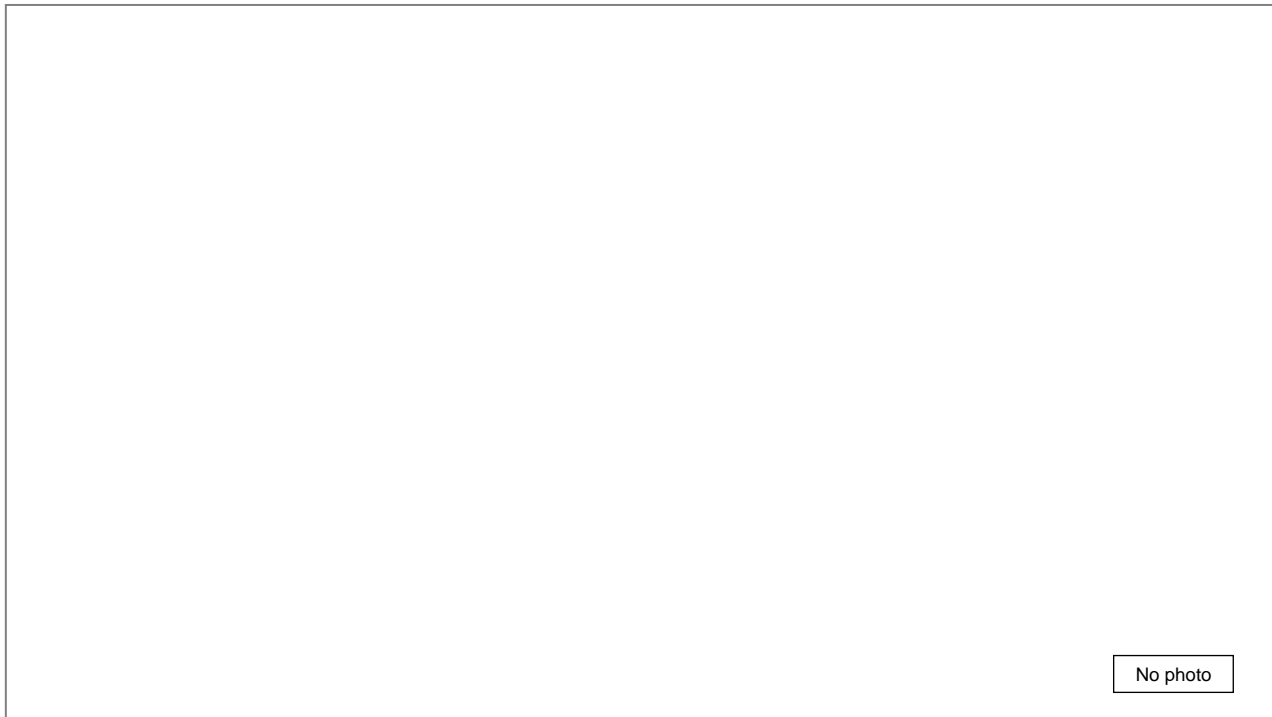
EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Coastal Foothill Spotted Gum - Ironbark Forest (Jilliby) (15)					
Average similarity: 42.26					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus umbra</i>	3.00	3.73	9.54	8.82
	<i>Eucalyptus siderophloia</i>	2.75	3.12	3.72	7.39
	<i>Corymbia maculata</i>	2.75	1.90	0.89	4.49
	<i>Allocasuarina torulosa</i>	1.50	0.76	0.82	1.79
	<i>Backhousia myrtifolia</i>	0.50	0.18	0.41	0.43
Shrub	<i>Maytenus silvestris</i>	1.50	1.42	3.72	3.37
	<i>Leucopogon juniperinus</i>	1.25	0.83	0.86	1.96
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	1.75	0.76	0.80	1.81
	<i>Podolobium aciculiferum</i>	2.00	0.71	0.41	1.68
	<i>Bursaria longisepala</i>	1.00	0.39	0.41	0.93
	<i>Bursaria spinosa</i>	1.00	0.38	0.41	0.89
	<i>Breynia oblongifolia</i>	1.00	0.36	0.41	0.86
	<i>Acacia implexa</i>	0.75	0.21	0.41	0.51
	<i>Cordyline stricta</i>	0.50	0.21	0.41	0.51
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	0.50	0.18	0.41	0.43
Ground Fern	<i>Adiantum aethiopicum</i>	1.00	0.36	0.41	0.86
Grass	<i>Entolasia stricta</i>	2.50	2.68	5.41	6.34
	<i>Oplismenus imbecillis</i>	1.75	1.43	3.38	3.38
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.50	1.13	0.91	2.68
	<i>Imperata cylindrica</i>	1.75	0.93	0.73	2.20
	<i>Themeda australis</i>	1.50	0.75	0.83	1.77
Graminoid	<i>Lomandra longifolia</i>	1.75	1.88	2.46	4.45
	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	1.42	3.72	3.37
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1.00	0.39	0.41	0.93
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	0.75	0.24	0.41	0.56
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.75	0.20	0.41	0.47
Sedge	<i>Lepidosperma laterale</i>	1.75	1.81	3.56	4.28
Herb	<i>Pseuderanthemum variabile</i>	2.00	2.48	9.54	5.88
	<i>Brunoniella australis</i>	1.75	1.81	3.56	4.28
	<i>Pratia purpurascens</i>	1.75	1.81	3.56	4.28
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.25	0.76	0.82	1.79
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	1.00	0.57	0.91	1.34
	<i>Lagenophora stipitata</i>	1.00	0.38	0.41	0.89
	<i>Gonocarpus tetragynus</i>	1.00	0.36	0.41	0.86
	<i>Galium binifolium</i>	0.75	0.24	0.41	0.56
	<i>Oxalis perennans</i>	0.75	0.23	0.41	0.53
Twiner	<i>Geitonoplesium cymosum</i>	1.25	0.80	0.86	1.90
	<i>Billardiera scandens</i>	0.75	0.66	0.91	1.56
	<i>Smilax australis</i>	0.75	0.66	0.91	1.56
	<i>Hibbertia scandens</i>	0.75	0.64	0.91	1.51
	<i>Pandorea pandorana</i>	0.75	0.64	0.91	1.51
	<i>Eustrephus latifolius</i>	1.00	0.57	0.91	1.34
	<i>Glycine clandestina</i>	1.00	0.36	0.41	0.86
	<i>Parsonsia straminea</i>	0.50	0.21	0.41	0.51

Coastal Foothill Spotted Gum - Ironbark Forest (Jilliby) (15)					
Average similarity: 42.26					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Hardenbergia violacea</i>	0.50	0.18	0.41	0.43
	<i>Morinda jasminoides</i>	0.50	0.18	0.41	0.43



Keith Class: Hunter-Macleay Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Grey Ironbark/ Broad-leaved Mahogany/ Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast (070)

LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Coastal Foothills Spotted Gum – Ironbark Forest (Kurri) is yet to be sampled in detail, and occurs on the low rises of Permian sediments in the southern section of Sugarloaf State Conservation Area near Awaba. It is dominated in the canopy by *Corymbia maculata*, *Eucalyptus siderophloia*, *Eucalyptus paniculata*, *Allocasuarina torulosa*, and *Eucalyptus acmenioides*. Common understorey species include *Acacia falcata*, *Podolobium ilicifolium*, *Acacia implexa*, *Bursaria spinosa* and *Dodonaea triquetra*, over *Themeda australis*, *Entolasia stricta* and *Imperata cylindrica*. This community relates to a similar form found in the Cessnock LGA, and further sampling and analysis is required to determine its relationship to Coastal Foothills Spotted Gum – Ironbark Forest (MU15).

Characteristic Features:

- canopy of Spotted Gum, Northern Ironbark, Grey Ironbark, Forest Oak and White Mahogany
- mid-storey of Falcate Wattle, Hickory Wattle, Blackthorn, Hop-bush and Prickly Shaggy Pea
- ground layer of Kangaroo Grass, Wiry Panic, Blady Grass and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

79 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Coastal Foothills Spotted Gum – Ironbark Forest (Kurri) (15d)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Tree	<i>Corymbia maculata</i>	-	-	-	✓	
	<i>Eucalyptus umbra</i>	-	-	-	✓	
	<i>Eucalyptus paniculata</i>	-	-	-	✓	
	<i>Eucalyptus acmenioides</i>	-	-	-	✓	
	<i>Eucalyptus siderophloia</i>	-	-	-	✓	
Shrub	<i>Acacia falcata</i>	-	-	-	✓	
	<i>Acacia ulicifolia</i>	-	-	-	✓	
	<i>Acacia longifolia</i>	-	-	-	✓	
	<i>Podolobium ilicifolium</i>	-	-	-	✓	
	<i>Persoonia linearis</i>	-	-	-	✓	
Grass	<i>Entolasia stricta</i>	-	-	-	✓	
	<i>Themeda australis</i>	-	-	-	✓	
	<i>Joycea pallida</i>	-	-	-	✓	
	<i>Imperata cylindrica</i>	-	-	-	✓	



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Grey Ironbark/ Broad-leaved Mahogany/ Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast (070)
LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Lake Macquarie Spotted Gum Forest is prevalent on the low hills of Permian sediments around Lake Macquarie, where it merges with various forms of forest dominated by *Angophora costata*. In Lake Macquarie Spotted Gum Forest, the canopy is characterised by *Corymbia maculata*, *Eucalyptus punctata*, *Eucalyptus paniculata* and *Eucalyptus umbra*, over an understorey of species such as *Breynia oblongifolia*, *Acacia implexa*, *Persoonia linearis*, *Dodonaea trquetra* and *Daviesia ulicifolia*. On the ground, grasses such as *Entolasia stricta*, *Themeda australis*, *Imperata cylindrica* and *Poa affinis* dominate, together with *Dianella caerulea*, *Desmodium rhytidophyllum* and *Lomandra longifolia*. In places, *Macrozamia reducta* forms a conspicuous ground layer.

Characteristic Features:

- canopy of Spotted Gum, Grey Gum, Grey Ironbark and Bastard Mahogany
- mid-storey of Coffeebush, Hickory Wattle, Geebung and Hop-bush
- ground layer of grasses, herbs and forbs, with Wiry Panic, Kangaroo Grass and Blady Grass dominant

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1134 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 20 plots]:

Lake Macquarie Spotted Gum Forest (15h)					
Average similarity: 35.87					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia maculata</i>	3.85	5.36	3.60	14.94
	<i>Eucalyptus punctata</i>	1.35	0.91	0.62	2.53
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1.20	0.64	0.58	1.78
	<i>Eucalyptus umbra</i>	1.15	0.54	0.51	1.50
	<i>Allocasuarina torulosa</i>	0.95	0.38	0.49	1.07
	<i>Eucalyptus siderophloia</i>	0.50	0.15	0.28	0.41
	<i>Angophora costata</i>	0.45	0.08	0.18	0.21
	<i>Eucalyptus acmenoides</i>	0.35	0.05	0.13	0.14
	<i>Corymbia gummifera</i>	0.40	0.05	0.13	0.13
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	0.30	0.11	0.29	0.31
Shrub	<i>Breynia oblongifolia</i>	0.90	0.79	1.05	2.20
	<i>Acacia implexa</i>	0.80	0.60	0.80	1.67
	<i>Persoonia linearis</i>	0.70	0.57	0.81	1.60
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	1.00	0.52	0.51	1.45
	<i>Dodonaea triquetra</i>	0.85	0.46	0.60	1.27
	<i>Podolobium ilicifolium</i>	0.75	0.45	0.51	1.24
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.65	0.33	0.46	0.91
	<i>Acrotriche divaricata</i>	0.65	0.32	0.45	0.90
	<i>Acacia falcata</i>	0.60	0.25	0.38	0.69
	<i>Pultenaea villosa</i>	0.80	0.25	0.32	0.69
	<i>Exocarpos cupressiformis</i>	0.40	0.24	0.41	0.68
	<i>Notelaea longifolia</i> f. <i>intermedia</i>	0.50	0.18	0.34	0.50
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.45	0.15	0.34	0.43
	<i>Myrsine variabilis</i>	0.45	0.11	0.29	0.30
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.30	0.08	0.23	0.23
	<i>Maytenus silvestris</i>	0.35	0.08	0.23	0.21
	<i>Pittosporum undulatum</i>	0.40	0.07	0.23	0.21
	<i>Jacksonia scoparia</i>	0.30	0.06	0.17	0.16
	<i>Pittosporum revolutum</i>	0.30	0.05	0.18	0.13
	<i>Acacia ulicifolia</i>	0.25	0.03	0.12	0.07
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	0.15	0.03	0.13	0.07	
<i>Leucopogon juniperinus</i>	0.15	0.02	0.13	0.06	
Ground Fern	<i>Pteridium esculentum</i>	0.25	0.06	0.23	0.17
	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	0.25	0.03	0.18	0.09
	<i>Adiantum aethiopicum</i>	0.25	0.03	0.12	0.07
Cycad	<i>Macrozamia communis</i>	0.65	0.18	0.33	0.49
Grass	<i>Entolasia stricta</i>	2.10	2.21	1.45	6.15
	<i>Themeda australis</i>	2.20	1.65	0.92	4.61
	<i>Imperata cylindrica</i>	1.80	0.92	0.63	2.57
	<i>Poa affinis</i>	1.40	0.81	0.54	2.25
	<i>Joycea pallida</i>	1.15	0.65	0.52	1.81
	<i>Echinopogon ovatus</i>	0.85	0.43	0.47	1.21
	<i>Aristida vagans</i>	0.85	0.42	0.44	1.17
	<i>Dichelachne micrantha</i>	0.70	0.35	0.45	0.96
	<i>Panicum simile</i>	0.95	0.30	0.36	0.83
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	0.70	0.22	0.34	0.62

Lake Macquarie Spotted Gum Forest (15h)

Average similarity: 35.87

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Digitaria ramularis</i>	0.80	0.21	0.29	0.59
	<i>Pseudoraphis paradoxa</i>	0.55	0.20	0.34	0.55
	<i>Oplismenus aemulus</i>	0.65	0.14	0.23	0.39
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	0.50	0.05	0.17	0.15
	<i>Cymbopogon refractus</i>	0.25	0.03	0.18	0.10
	<i>Oplismenus imbecillis</i>	0.25	0.02	0.12	0.07
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.25	1.40	2.39	3.90
	<i>Lomandra longifolia</i>	1.00	0.80	1.06	2.24
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.85	0.53	0.68	1.47
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	0.80	0.40	0.41	1.11
	<i>Lomandra obliqua</i>	0.60	0.21	0.33	0.59
	<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	0.55	0.11	0.15	0.31
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.15	0.02	0.13	0.06
Sedge	<i>Lepidosperma neesii</i>	0.85	0.58	0.58	1.63
	<i>Lepidosperma laterale</i>	0.40	0.06	0.23	0.18
	<i>Gymnostachys anceps</i>	0.30	0.04	0.17	0.12
Herb	<i>Desmodium rhytidophyllum</i>	1.25	0.98	0.87	2.73
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.80	0.45	0.45	1.26
	<i>Dichondra repens</i>	0.80	0.41	0.52	1.13
	<i>Pratia purpurascens</i>	0.75	0.33	0.46	0.91
	<i>Desmodium varians</i>	0.50	0.13	0.27	0.36
	<i>Phyllanthus hirtellus</i>	0.40	0.10	0.18	0.29
	<i>Arthropodium minus</i>	0.40	0.10	0.29	0.27
	<i>Arthropodium milleflorum</i>	0.35	0.08	0.22	0.22
	<i>Gonocarpus tetragynus</i>	0.35	0.07	0.17	0.18
	<i>Pseuderanthemum variabile</i>	0.35	0.05	0.17	0.13
	<i>Brunoniella australis</i>	0.25	0.03	0.12	0.07
	<i>Tricoryne elatior</i>	0.15	0.03	0.13	0.07
Twiner	<i>Glycine clandestina</i>	1.30	1.18	1.15	3.30
	<i>Pandorea pandorana</i>	1.15	1.08	1.11	3.00
	<i>Billardiera scandens</i>	1.10	0.99	1.21	2.77
	<i>Eustrephus latifolius</i>	1.20	0.95	0.84	2.66
	<i>Hardenbergia violacea</i>	0.90	0.72	0.86	2.00
	<i>Geitonoplesium cymosum</i>	0.75	0.35	0.54	0.97
	<i>Cayratia clematidea</i>	0.45	0.12	0.23	0.32
	<i>Clematis glycinoides</i> var. <i>glycinoides</i>	0.40	0.11	0.28	0.30
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.40	0.09	0.22	0.25
	<i>Clematis aristata</i>	0.30	0.07	0.23	0.18
	<i>Kennedia rubicunda</i>	0.25	0.04	0.18	0.12
	<i>Polymeria calycina</i>	0.30	0.04	0.17	0.12
	<i>Dioscorea transversa</i>	0.30	0.03	0.13	0.10
	<i>Hibbertia scandens</i>	0.25	0.03	0.12	0.09
	<i>Smilax glycyphylla</i>	0.20	0.02	0.13	0.06



Keith Class: Hunter-Macleay Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Grey Ironbark/ Broad-leaved Mahogany/ Forest Red Gum shrubby open forest on Coastal Lowlands of the Central Coast (070)

LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Lake Macquarie Ironbark Forest occurs in exposed locations on narrow peninsulas on the shores of Lake Macquarie (eg Point Wolstoncroft). It is dominated by *Eucalyptus paniculata*, *Eucalyptus siderophloia* and *Eucalyptus punctata*, with occasional *Angophora costata*. Understorey vegetation includes *Notelaea longifolia*, *Persoonia linearis*, *Bursaria spinosa*, *Acacia longifolia*, *Dodonaea trquetra*, and *Acacia falcata*. The ground layer is rich in grasses and herbs, and includes *Opilismenus imbecillis*, *Dichondra repens*, *Imperata cylindrica*, *Glycine clandestina* and *Poranthera microphylla*. This vegetation type occurs on fine-grained sediments on near-level ground, most likely corresponding to a specific stratum within the Permian rock layers.

Characteristic Features:

- canopy of Ironbarks and Grey Gum
- mid-storey of Wattles, Blackthorn, Hop-bush and Native Olive
- rich ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

22 ha

Community Conservation Status:

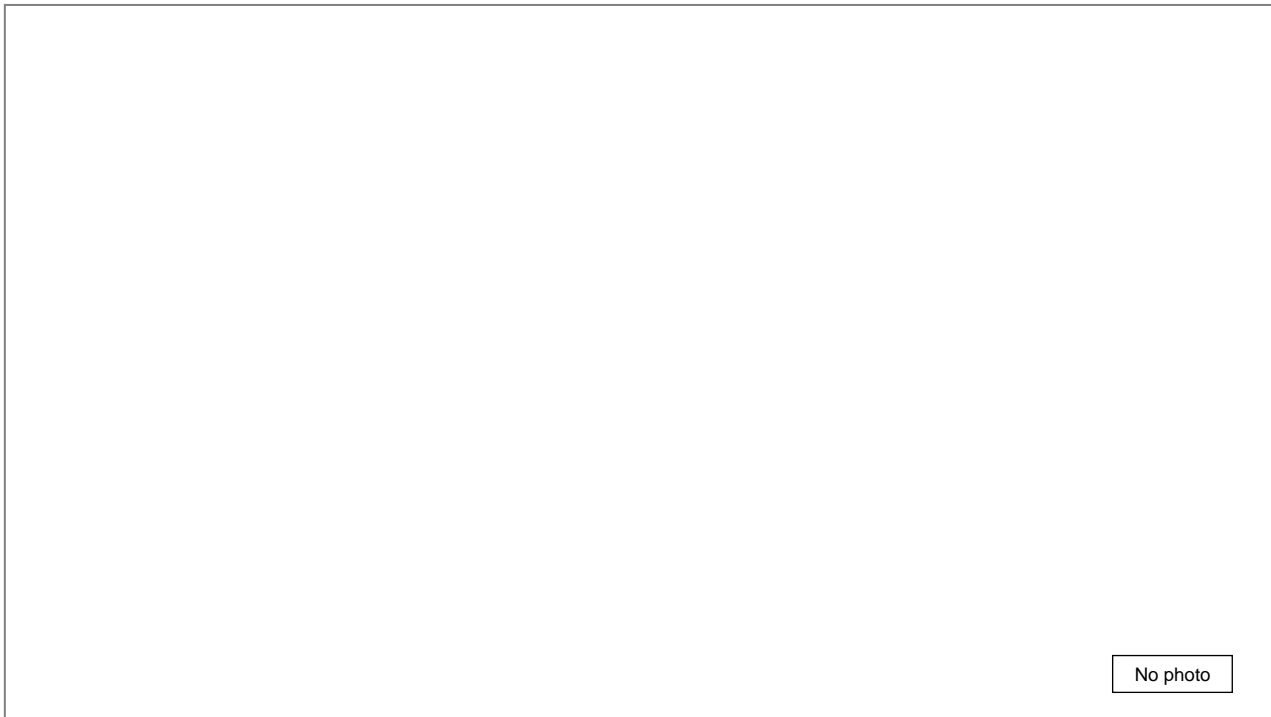
EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Lake Macquarie Ironbark Forest (15i)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	-	-	-	3.00	
	<i>Eucalyptus punctata</i>	-	-	-	3.00	
	<i>Eucalyptus siderophloia</i>	-	-	-	2.00	
	<i>Angophora costata</i>	-	-	-	1.00	
Shrub	<i>Dodonaea triquetra</i>	-	-	-	3.00	
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	2.00	
	<i>Breynia oblongifolia</i>	-	-	-	2.00	
	<i>Acacia falcata</i>	-	-	-	2.00	
	<i>Bursaria spinosa</i>	-	-	-	2.00	
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	-	-	-	2.00	
	<i>Trema tomentosa</i> var. <i>aspera</i>	-	-	-	1.00	
	<i>Persoonia linearis</i>	-	-	-	1.00	
	<i>Acrotriche divaricata</i>	-	-	-	1.00	
Grass	<i>Imperata cylindrica</i>	-	-	-	3.00	
	<i>Oplismenus imbecillis</i>	-	-	-	3.00	
	<i>Entolasia marginata</i>	-	-	-	2.00	
	<i>Entolasia stricta</i>	-	-	-	2.00	
	<i>Panicum simile</i>	-	-	-	2.00	
	<i>Digitaria parviflora</i>	-	-	-	2.00	
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	-	-	-	2.00	
	<i>Paspalidium distans</i>	-	-	-	2.00	
	<i>Poa labillardierei</i> var. <i>labillardierei</i>	-	-	-	2.00	
	<i>Austrodanthonia tenuior</i>	-	-	-	1.00	
	Graminoid	<i>Dianella caerulea</i> var. <i>asserata</i>	-	-	-	1.00
<i>Lomandra longifolia</i>		-	-	-	1.00	
Sedge	<i>Cyperus laevis</i>	-	-	-	2.00	
	<i>Lepidosperma laterale</i>	-	-	-	2.00	
Herb	<i>Dichondra repens</i>	-	-	-	3.00	
	<i>Desmodium gunnii</i>	-	-	-	2.00	
	<i>Plantago debilis</i>	-	-	-	2.00	
	<i>Poranthera microphylla</i>	-	-	-	2.00	
	<i>Pratia purpurascens</i>	-	-	-	2.00	
	<i>Solanum prinophyllum</i>	-	-	-	2.00	
	<i>Desmodium rhytidophyllum</i>	-	-	-	1.00	
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	-	-	-	1.00	
Twiner	<i>Hardenbergia violacea</i>	-	-	-	2.00	
	<i>Clematis aristata</i>	-	-	-	2.00	
	<i>Eustrephus latifolius</i>	-	-	-	2.00	
	<i>Glycine clandestina</i>	-	-	-	2.00	
	<i>Kennedia rubicunda</i>	-	-	-	1.00	
	<i>Cassytha pubescens</i>	-	-	-	1.00	
	<i>Cayratia clematidea</i>	-	-	-	1.00	
	<i>Pandorea pandorana</i>	-	-	-	1.00	
	<i>Stephania japonica</i> var. <i>discolor</i>	-	-	-	1.00	

Lake Macquarie Ironbark Forest (15i)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Epiphytic Orchid	<i>Dendrobium aemulum</i>	-	-	-	1.00



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Coastal Foothills Moist Grey Gum - Mahogany Forest occurs on sheltered slopes in the south-eastern parts of the Lake Macquarie LGA. It is characterised by a canopy of *Eucalyptus propinqua*, *Corymbia maculata* and *Eucalyptus umbra*, with *Eucalyptus microcorys* and *Syncarpia glomulifera* occasionally occurring. The understorey is typified by *Daviesia ulicifolia*, *Podolobium ilicifolium* and *Podolobium aciculiferum*, with *Themeda australis*, *Entolasia stricta* and *Imperata cylindrica* on the ground. This community is yet to be sampled in detail, and hence relationships between it and other units within the Coastal Foothills group (MU15's) are yet to be clarified. However, the presence of *Eucalyptus propinqua* in this community distinguishes it from several others.

Characteristic Features:

- canopy of Small-fruited Grey Gum, Spotted Gum, Bastard Mahogany
- mid-storey of Gorse Bitter Pea, Prickly Shaggy Pea and Needle Shaggy Pea
- ground layer of grasses, herbs and forbs, particularly Kangaroo Grass and Wiry Panic

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

145 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Coastal Foothills Moist Grey Gum - Mahogany Forest (15k)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Tree	<i>Corymbia maculata</i>	-	-	-		✓
	<i>Eucalyptus propinqua</i>	-	-	-		✓
	<i>Eucalyptus umbra</i>	-	-	-		✓
	<i>Eucalyptus siderophloia</i>	-	-	-		✓
	<i>Eucalyptus microcorys</i>	-	-	-		✓
	<i>Syncarpia glomulifera subsp. glomulifera</i>	-	-	-		✓
Shrub	<i>Podolobium aciculiferum</i>	-	-	-		✓
	<i>Daviesia ulicifolia</i>	-	-	-		✓
	<i>Podolobium ilicifolium</i>	-	-	-		✓
	<i>Melaleuca nodosa</i>	-	-	-		✓
Ground Fern	<i>Pteridium esculentum</i>	-	-	-		✓
Grass	<i>Entolasia stricta</i>	-	-	-		✓
	<i>Themeda australis</i>	-	-	-		✓
	<i>Joycea pallida</i>	-	-	-		✓
	<i>Imperata cylindrica</i>	-	-	-		✓
Graminoid	<i>Lomandra longifolia</i>	-	-	-		✓



Keith Class: Hunter-Macleay Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Sugarloaf Uplands Dry Spotted Gum – Ironbark Forest occurs on the higher ridges and exposed slopes of the Sugarloaf Range. It is an open forest dominated by *Corymbia maculata*, *Eucalyptus fergusonii* subsp. *fergusonii*, *Eucalyptus umbra* and *Eucalyptus punctata*. The typical open shrub layer includes *Persoonia linearis*, *Macrozamia reducta*, *Podolobium ilicifolium*, and *Maytenus silvestris*, over a diverse range of grasses and herbs such as *Themeda australis*, *Imperata cylindrica* var. *major*, *Panicum simile*, *Microlaena stipoides* var. *stipoides*, *Entolasia stricta* and *Lepidosperma laterale*. *Eucalyptus fergusonii* subsp. *fergusonii* is a listed rare eucalypt, however it is a community dominant in this community.

Characteristic Features:

- occurs on often steep upper slopes and ridges at exposed aspects
- canopy dominated by Fergusons Ironbark, Spotted Gum, Bastard Mahogany and Grey Gum
- mid-storey dominated by Cycads, Geebungs, Native Holly and *Maytenus*
- ground layer of grasses and grass-like plants, such as Kangaroo Grass, Wiry Panic and Lomandras

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

723 ha

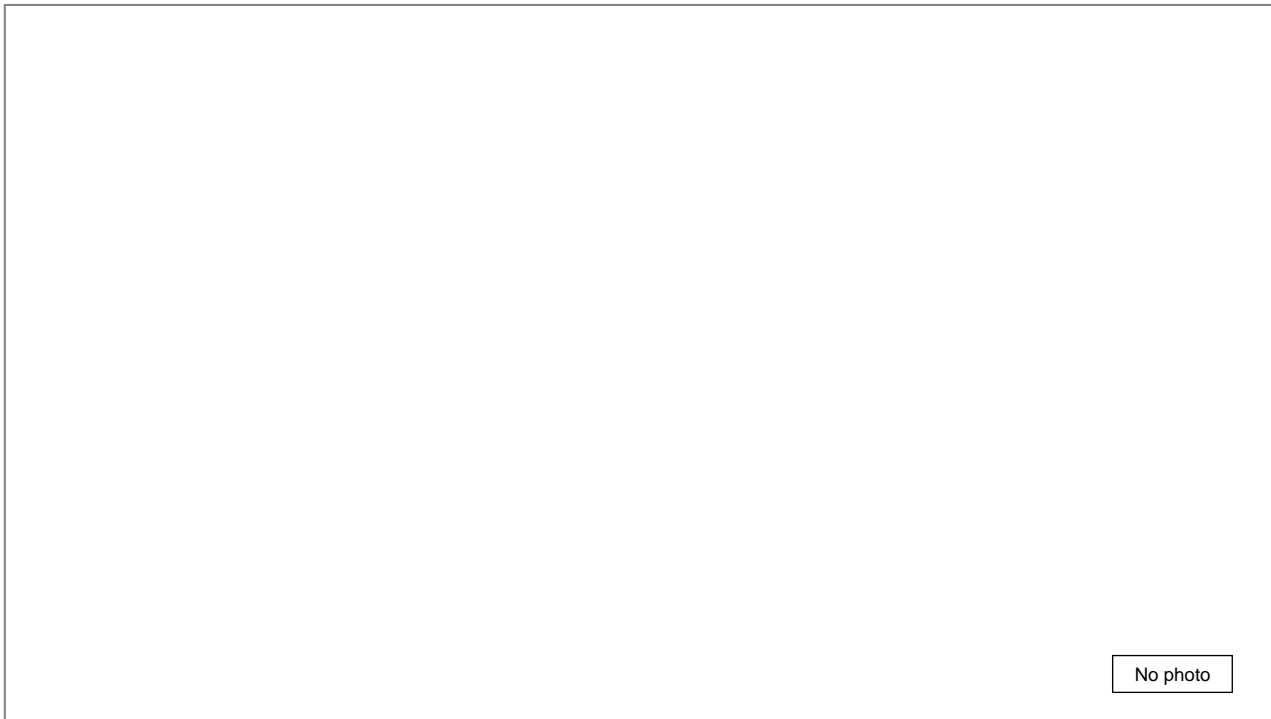
Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Sugarloaf Uplands Dry Spotted Gum - Ironbark Forest (15I)					
Average similarity: 50.27					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus fergusonii</i> subsp. <i>dorsiventralis</i>	3.33	3.73	16.51	7.42
	<i>Allocasuarina torulosa</i>	2.00	1.63	2.62	3.25
	<i>Corymbia gummifera</i>	2.00	1.18	0.58	2.34
	<i>Eucalyptus umbra</i>	2.00	1.18	0.58	2.34
	<i>Eucalyptus globoidea</i>	1.67	0.78	0.58	1.56
	<i>Eucalyptus punctata</i>	1.67	0.78	0.58	1.56
Shrub	<i>Pittosporum undulatum</i>	2.67	1.57	0.58	3.12
	<i>Maytenus silvestris</i>	1.00	1.24	16.51	2.47
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.00	1.24	16.51	2.47
	<i>Dodonaea triquetra</i>	1.00	0.44	0.58	0.88
	<i>Persoonia linearis</i>	0.67	0.44	0.58	0.88
	<i>Acacia implexa</i>	0.67	0.39	0.58	0.78
	<i>Breynia oblongifolia</i>	0.67	0.39	0.58	0.78
Ground Fern	<i>Pteridium esculentum</i>	1.67	1.63	2.62	3.25
Grass	<i>Imperata cylindrica</i>	2.67	2.88	5.02	5.72
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.67	2.88	5.02	5.72
	<i>Entolasia stricta</i>	2.00	2.49	16.51	4.94
	<i>Themeda australis</i>	3.00	2.49	16.51	4.94
	<i>Oplismenus imbecillis</i>	1.33	0.88	0.58	1.76
	<i>Aristida vagans</i>	1.33	0.41	0.58	0.81
Graminoid	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	2.00	2.49	16.51	4.94
	<i>Dianella caerulea</i> var. <i>assera</i>	1.67	1.63	2.62	3.25
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1.33	0.78	0.58	1.56
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.33	0.78	0.58	1.56
Herb	<i>Brunoniella australis</i>	2.00	2.49	16.51	4.94
	<i>Pratia purpurascens</i>	1.67	1.63	2.62	3.25
	<i>Pseuderanthemum variabile</i>	1.67	1.63	2.62	3.25
	<i>Desmodium rhytidophyllum</i>	1.33	0.78	0.58	1.56
	<i>Desmodium gunnii</i>	1.00	0.41	0.58	0.81
	<i>Gonocarpus tetragynus</i>	1.00	0.41	0.58	0.81
	<i>Arthropodium minus</i>	0.67	0.39	0.58	0.78
Ground Orchid	<i>Acianthus fornicatus</i>	1.33	0.78	0.58	1.56
Twiner	<i>Glycine clandestina</i>	1.33	1.24	16.51	2.47
	<i>Hardenbergia violacea</i>	1.33	1.24	16.51	2.47
	<i>Pandorea pandorana</i>	1.33	1.24	16.51	2.47
	<i>Polymeria calycina</i>	1.00	1.24	16.51	2.47
	<i>Eustrephus latifolius</i>	1.33	0.78	0.58	1.56
	<i>Geitonoplesium cymosum</i>	1.00	0.44	0.58	0.88
	<i>Cassytha glabella</i> f. <i>glabella</i>	1.00	0.41	0.58	0.81
	<i>Billardiera scandens</i>	0.67	0.39	0.58	0.78



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Spotted Gum/ Broad-leaved Mahogany/ Grey Gum grass/ shrub open forest on Coastal Lowlands of the Central Coast (071)
LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Jiliby Spotted Gum – Northern Ironbark – Mahogany Forest supports *Corymbia maculata*, *Eucalyptus umbra* and *Eucalyptus siderophloia*, and occurs in the Mandalong Valley in the south-west of the LGA. It fulfils an almost equivalent role to Jiliby Spotted Gum – Fergusons Ironbark – Mahogany Forest (MU15n), which occurs in a similar locality. In this community, an understorey of species such as *Podolobium ilicifolium*, *Leucopogon juniperinus* and *Podolobium aciculiferum* occurs over a ground layer of *Entolasia stricta*, *Themeda australis*, *Aristida vagans* and *Joycea pallida*. This community is yet to be sampled in detail, and hence relationships with MU15n and related units are still to be clarified.

Characteristic Features:

- canopy of Spotted Gum with Bastary Mahogany and Northern Ironbark
- mid-storey of Shaggy Peas and Prickly Beard-heath
- ground layer of Wiry Panic, Themeda australis and Three-awn Grass

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

62 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
 TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Jilliby Spotted Gum – Northern Ironbark – Mahogany Forest (15m)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Tree	<i>Corymbia maculata</i>	-	-	-		✓
	<i>Eucalyptus siderophloia</i>	-	-	-		✓
	<i>Eucalyptus umbra</i>	-	-	-		✓
	<i>Eucalyptus paniculata</i>	-	-	-		✓
	<i>Eucalyptus microcorys</i>	-	-	-		✓
Small Tree	<i>Melaleuca styphelioides</i>	-	-	-		✓
Shrub	<i>Podolobium aciculiferum</i>	-	-	-		✓
	<i>Daviesia ulicifolia</i>	-	-	-		✓
	<i>Podolobium ilicifolium</i>	-	-	-		✓
	<i>Leucopogon juniperinum</i>	-	-	-		✓
Grass	<i>Entolasia stricta</i>	-	-	-		✓
	<i>Themeda australis</i>	-	-	-		✓
	<i>Joycea pallida</i>	-	-	-		✓
	<i>Aristida vagans</i>	-	-	-		✓



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Jiliby Spotted Gum – Fergusons Ironbark - Mahogany Forest occurs in and around the Mandalong Valley, where it adjoins areas currently mapped as Jiliby Spotted Gum – Northern Ironbark – Mahogany Forest (MU15m). These two communities are floristically very similar, and differ most markedly in the different Ironbark species co-dominating. In MU15n, the canopy typically supports *Corymbia maculata* with *Eucalyptus fergusonii* subsp. *fergusonii*, *Eucalyptus punctata* and *Eucalyptus umbra*. Understorey vegetation includes *Podolobium aciculiferum*, *Daviesia ulicifolia*, *Persoonia linearis* and *Bursaria spinosa*, over *Entolasia stricta*, *Dianella caerulea*, *Lomandra filiformis* subsp. *coriacea*, and *Lepidosperma laterale*. Further sampling and analysis is required to clarify the relationship between this community and MU15m.

Characteristic Features:

- canopy of Spotted Gum, Fergusons Ironbark, Grey Gum and Bastard Mahogany
- mid-storey of Needle Shaggy Pea, Gorse Bitter Pea, Geebung and Blackthorn
- ground layer of Wiry Panic, Paroo Lily, Wattle-rush and Sword-sedge

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1442 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Jilliby Spotted Gum-Ferguson's Ironbark-Mahogany Forest (15n)
Average similarity: 41.63

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia maculata</i>	3.75	6.49	3.23	15.58
	<i>Eucalyptus fergusonii</i> subsp. <i>dorsiventralis</i>	2.50	3.90	5.32	9.38
	<i>Eucalyptus punctata</i>	2.25	3.11	0.91	7.47
	<i>Eucalyptus pilularis</i>	1.50	0.98	0.41	2.35
	<i>Eucalyptus microcorys</i>	1.25	0.69	0.41	1.65
	<i>Eucalyptus umbra</i>	1.25	0.50	0.41	1.19
Shrub	<i>Podolobium aciculiferum</i>	3.75	4.49	0.90	10.79
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	1.50	2.16	2.16	5.19
	<i>Persoonia linearis</i>	1.25	1.82	6.18	4.36
	<i>Bursaria longisepala</i>	1.00	0.69	0.41	1.65
	<i>Bursaria spinosa</i>	1.00	0.65	0.41	1.57
	<i>Leucopogon juniperinus</i>	0.75	0.33	0.41	0.78
Grass	<i>Entolasia stricta</i>	2.50	3.63	6.18	8.73
	<i>Themeda australis</i>	1.25	1.16	0.75	2.79
	<i>Joycea pallida</i>	1.25	0.65	0.41	1.57
	<i>Panicum simile</i>	0.75	0.26	0.41	0.63
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	2.09	3.29	5.01
	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1.50	2.08	3.59	4.99
	<i>Lomandra longifolia</i>	1.25	1.36	0.84	3.28
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.50	0.33	0.41	0.78
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.75	0.26	0.41	0.63
	<i>Patersonia glabrata</i>	0.75	0.26	0.41	0.63
Sedge	<i>Lepidosperma laterale</i>	1.50	1.67	0.90	4.02
Herb	<i>Opercularia diphylla</i>	1.00	0.65	0.41	1.57
Twiner	<i>Billardiera scandens</i>	1.00	0.90	0.89	2.16
	<i>Pandorea pandorana</i>	0.50	0.27	0.41	0.65



Keith Class: Hunter-Macleay Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Sugarloaf Uplands Moist Spotted Gum – Ironbark Forest occurs on the more sheltered slopes of the Sugarloaf Range. It supports a canopy of *Corymbia maculata* and *Eucalyptus fergusonii* subsp. *fergusonii*, joined by *Eucalyptus acmenoides* and *Eucalyptus punctata*. Relative to its dryer counterpart (MU15), understorey vegetation is slightly more mesic, supporting species such as *Hibbertia aspera*, *Persoonia linearis*, *Macrozamia reducta* and *Clerodendrum tomentosum*, over a ground layer of *Microlaena stipoides* var. *stipoides*, *Desmodium gunnii*, *Gymnostachys anceps*, *Pratia purpurascens*, *Dichondra repens* and *Oplismenus imbecillus*. Vines and scramblers, such as *Hibbertia scandens*, *Smilax australis*, *Eustrephus latifolius*, and *Pandorea pandorana* are also common. This community is currently not represented on LGA mapping, but is included within other units of the Coastal Foothills complex.

Characteristic Features:

- canopy dominated by Fergusons Ironbark, Spotted Gum, White Mahogany and Grey Gum
- mid-storey dominated by mesic species such as Rough Guinea flower, Geebung, Hairy Clerodendrum and Cycads
- ground layer of more mesic grasses and grass-like plants, such as Basket Grass, Settlers flax, climbers and herbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 5 plots]:

Sugarloaf Uplands Moist Spotted Gum - Ironbark Forest (15o)					
Average similarity: 49.32					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia maculata</i>	3.60	4.47	7.12	9.06
	<i>Eucalyptus umbra</i>	2.60	2.94	2.20	5.96
	<i>Eucalyptus fergusonii</i> subsp. <i>dorsiventralis</i>	1.60	0.91	0.61	1.85
	<i>Allocasuarina torulosa</i>	0.80	0.45	0.62	0.91
	<i>Eucalyptus punctata</i>	1.00	0.15	0.32	0.30
Shrub	<i>Persoonia linearis</i>	0.80	0.79	1.15	1.60
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.80	0.78	1.15	1.57
	<i>Acacia ulicifolia</i>	1.20	0.77	0.62	1.56
	<i>Maytenus silvestris</i>	1.00	0.55	0.59	1.12
	<i>Acacia falcata</i>	1.20	0.50	0.59	1.02
	<i>Podolobium ilicifolium</i>	0.80	0.42	0.62	0.86
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.60	0.40	0.62	0.80
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	0.60	0.37	0.62	0.74
	<i>Daviesia squarrosa</i>	1.00	0.25	0.32	0.51
	<i>Acacia implexa</i>	0.60	0.15	0.32	0.30
Low Shrub	<i>Hibbertia pedunculata</i>	0.60	0.42	0.62	0.85
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	1.40	1.21	1.06	2.45
Cycad	<i>Macrozamia reducta</i>	1.00	0.15	0.32	0.30
Grass	<i>Themeda australis</i>	3.20	3.62	4.81	7.34
	<i>Entolasia stricta</i>	2.60	2.85	6.70	5.77
	<i>Imperata cylindrica</i>	2.00	2.72	10.05	5.51
	<i>Panicum simile</i>	2.20	2.25	3.00	4.57
	<i>Aristida vagans</i>	1.80	2.15	3.26	4.36
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	2.14	3.52	4.33
	<i>Joycea pallida</i>	1.00	0.82	1.15	1.67
	<i>Cymbopogon refractus</i>	0.80	0.41	0.62	0.84
	<i>Dichelachne micrantha</i>	0.80	0.24	0.32	0.48
	<i>Paspalidium distans</i>	0.60	0.14	0.32	0.29
Graminoid	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.40	1.49	3.81	3.01
	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1.60	1.21	1.06	2.45
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	1.20	0.77	0.62	1.56
	<i>Lomandra longifolia</i>	0.60	0.42	0.62	0.85
	<i>Dianella caerulea</i> var. <i>assera</i>	0.80	0.41	0.62	0.84
Sedge	<i>Lepidosperma laterale</i>	1.40	1.21	1.06	2.45
Herb	<i>Desmodium rhytidophyllum</i>	1.20	1.36	10.05	2.76
	<i>Brunoniella australis</i>	1.40	1.22	1.04	2.48
	<i>Opercularia diphylla</i>	1.40	1.19	1.02	2.41
	<i>Phyllanthus hirtellus</i>	1.20	0.79	0.62	1.60
	<i>Pratia purpurascens</i>	1.20	0.77	0.62	1.56
	<i>Gonocarpus tetragynus</i>	0.60	0.16	0.32	0.32
	<i>Desmodium gunnii</i>	0.60	0.13	0.32	0.27

Sugarloaf Uplands Moist Spotted Gum - Ironbark Forest (15o)					
Average similarity: 49.32					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Twiner	<i>Glycine clandestina</i>	1.80	2.15	3.26	4.36
	<i>Eustrephus latifolius</i>	1.20	1.36	10.05	2.76
	<i>Hardenbergia violacea</i>	1.00	0.78	1.15	1.57
	<i>Billardiera scandens</i>	0.80	0.39	0.62	0.78
	<i>Geitonoplesium cymosum</i>	0.40	0.15	0.32	0.30



Keith Class: Hunter-Macleay Dry Sclerophyll Forests

VCA: Spotted Gum/ Broad-leaved Mahogany/ Red Ironbark shrub/grass open forest on foothills of the lower Hunter Valley, Sydney Basin Bioregion

GHV: Spotted Gum/ Red Ironbark/ Large-fruited Grey Gum shrub/ grass open forest of the Lower Hunter (074)

LHCCREMS: Lower Hunter Spotted Gum- Ironbark Forest MU17

General Description:

Hinterland Spotted Gum – Red Ironbark Forest occurs on the lowlands of the north-western side of Lake Macquarie. It supports an open forest dominated by *Corymbia maculata* and *Eucalyptus fibrosa*, with occasional *Angophora costata*, *Eucalyptus umbra* or *Eucalyptus punctata*. Understorey species commonly include *Pultenaea villosa*, *Daviesia ulicifolia* subsp. *ulicifolia* and *Leptospermum polygalifolium* subsp. *cistmontanum* in the shrub layer, over a grassy ground layer of *Themeda australis*, *Entolasia stricta*, *Joycea pallida*, *Microlaena stipoides* var *stipoides*, and *Panicum simile*. In some areas, thickets of *Melaleuca nodosa* can occur.

Characteristic Features:

- canopy dominated by Spotted Gum and Red Ironbark
- mid-storey dominated by wattles, peas and Blackthorn
- ground layer of grasses and grass-like plants, such as Kangaroo Grass, Wallaby Grasses, Wiry Panic and Lomandras

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1153 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 32 plots]:

Hinterland Spotted Gum - Red Ironbark Forest (17o)					
Average similarity: 49.06					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus fibrosa</i>	3.47	4.54	6.49	9.26
	<i>Corymbia maculata</i>	3.03	3.66	2.25	7.46
	<i>Eucalyptus umbra</i>	1.72	1.52	1.00	3.10
	<i>Angophora costata</i>	0.94	0.50	0.54	1.02
	<i>Eucalyptus globoidea</i>	0.91	0.40	0.41	0.81
	<i>Corymbia gummifera</i>	0.50	0.15	0.30	0.30
	<i>Allocasuarina torulosa</i>	0.28	0.04	0.13	0.08
Small Tree	<i>Allocasuarina littoralis</i>	0.25	0.06	0.21	0.13
Shrub	<i>Acacia ulicifolia</i>	1.19	0.87	0.91	1.77
	<i>Dillwynia retorta</i>	1.19	0.64	0.51	1.31
	<i>Pultenaea paleacea</i>	1.00	0.59	0.56	1.21
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.91	0.42	0.50	0.85
	<i>Pultenaea euchila</i>	0.59	0.32	0.50	0.64
	<i>Bursaria spinosa</i>	0.53	0.23	0.41	0.47
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.41	0.13	0.30	0.27
	<i>Pultenaea villosa</i>	0.44	0.11	0.27	0.23
	<i>Persoonia linearis</i>	0.28	0.10	0.28	0.21
	<i>Melaleuca nodosa</i>	0.63	0.10	0.17	0.20
	<i>Acacia falcata</i>	0.25	0.06	0.21	0.12
	<i>Melaleuca decora</i>	0.41	0.06	0.15	0.12
	<i>Podolobium aciculiferum</i>	0.50	0.05	0.09	0.10
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.19	0.04	0.18	0.08
	<i>Dodonaea triquetra</i>	0.28	0.04	0.13	0.07
<i>Leucopogon juniperinus</i>	0.16	0.03	0.14	0.06	
Low Shrub	<i>Hibbertia pedunculata</i>	0.25	0.03	0.13	0.07
	<i>Pomax umbellata</i>	0.19	0.03	0.14	0.06
Sub-shrub	<i>Mirbelia rubiifolia</i>	0.28	0.06	0.17	0.11
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	0.38	0.11	0.27	0.22
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	0.34	0.12	0.31	0.25
Grass	<i>Joycea pallida</i>	3.31	3.51	1.57	7.16
	<i>Entolasia stricta</i>	2.63	3.08	2.99	6.28
	<i>Themeda australis</i>	2.84	2.90	1.53	5.91
	<i>Panicum simile</i>	1.72	1.85	1.45	3.78
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.66	1.69	1.40	3.45
	<i>Paspalidium distans</i>	1.56	1.62	1.28	3.31
	<i>Aristida vagans</i>	1.38	1.25	1.09	2.55
	<i>Imperata cylindrica</i>	0.81	0.35	0.45	0.71
	<i>Eragrostis brownii</i>	0.59	0.25	0.36	0.51
	<i>Dichelachne micrantha</i>	0.47	0.17	0.29	0.34
	<i>Cymbopogon refractus</i>	0.31	0.07	0.24	0.15
<i>Echinopogon ovatus</i>	0.19	0.03	0.14	0.06	
Graminoid	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.59	1.80	1.71	3.67

Hinterland Spotted Gum - Red Ironbark Forest (17o)					
Average similarity: 49.06					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	1.25	0.92	0.69	1.88
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.97	0.90	1.15	1.84
	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1.13	0.90	0.69	1.83
	<i>Lomandra obliqua</i>	1.13	0.89	0.73	1.82
	<i>Dianella caerulea</i> var. <i>assera</i>	0.94	0.68	0.80	1.39
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.78	0.41	0.45	0.84
	<i>Lomandra longifolia</i>	0.31	0.07	0.20	0.14
Sedge	<i>Lepidosperma laterale</i>	1.16	0.97	0.99	1.98
	<i>Ptilothrix deusta</i>	1.34	0.87	0.62	1.77
	<i>Gahnia radula</i>	0.38	0.05	0.13	0.09
Herb	<i>Gonocarpus tetragynus</i>	1.50	1.57	1.35	3.21
	<i>Opercularia diphylla</i>	1.31	1.20	1.00	2.44
	<i>Pratia purpurascens</i>	1.16	0.94	0.91	1.91
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.09	0.88	0.91	1.80
	<i>Brunoniella australis</i>	1.06	0.76	0.74	1.54
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.66	0.33	0.49	0.67
	<i>Phyllanthus hirtellus</i>	0.72	0.32	0.38	0.66
	<i>Lagenophora stipitata</i>	0.47	0.13	0.26	0.27
	<i>Pseuderanthemum variabile</i>	0.22	0.03	0.14	0.07
Ground Orchid	<i>Caladenia catenata</i>	0.44	0.15	0.30	0.30
Twiner	<i>Glycine clandestina</i>	1.00	0.68	0.67	1.39
	<i>Hardenbergia violacea</i>	0.81	0.61	0.83	1.24
	<i>Eustrephus latifolius</i>	0.59	0.25	0.41	0.52
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.53	0.24	0.42	0.49
	<i>Billardiera scandens</i>	0.34	0.16	0.35	0.33
	<i>Polymeria calycina</i>	0.22	0.03	0.14	0.06
Mistletoe	<i>Dendrophthoe vitellina</i>	0.19	0.04	0.18	0.09



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Red Ironbark/ Paperbark Shrubby Open Forest
GHV: Red Ironbark/ Spotted Gum/ Prickly-leaved Paperbark shrubby open forest of the lower Hunter (075)
LHCCREMS: Lower Hunter Spotted Gum- Ironbark Forest MU17

General Description:

Red Ironbark – Paperbark Forest is characterised by a dominance of *Eucalyptus fibrosa* in the canopy, often forming monospecific stands of this species. *Corymbia maculata* is generally present in the surrounding areas, where it forms a component of Hinterland Spotted Gum – Red Ironbark Forest (MU17o). Other canopy species present in MU110a include *Eucalyptus capitellata* and *Corymbia gummifera*. Paperbarks (*Melaleuca decora*, *Melaleuca nodosa*) form a mid-layer, with other shrubs including *Dodonaea triquetra*, *Acacia longifolia* subsp. *longifolia* and *Pultenaea paleacea*. *Themeda australis*, *Ptilothix deusta*, *Entolasia stricta*, *Panicum simile* and *Gahnia radula* are prominent in the ground layer.

Characteristic Features:

- canopy dominated by Red Ironbark, with a mid-storey of *Melaleuca decora*
- mid-storey dominated by Paperbarks
- ground layer of grasses and grass-like plants

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

243 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Lower Hunter Spotted Gum – Ironbark Forest EEC

Key Diagnostic Species [99% contribution, based on 9 plots]:

Red Ironbark - Paperbark Forest (110a)					
Average similarity: 54.46					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus fibrosa</i>	3.67	4.84	7.21	8.88
	<i>Angophora costata</i>	0.78	0.59	0.83	1.09
	<i>Eucalyptus globoidea</i>	0.89	0.45	0.44	0.82
	<i>Eucalyptus umbra</i>	0.56	0.08	0.17	0.14
Shrub	<i>Melaleuca nodosa</i>	4.33	4.38	1.13	8.03
	<i>Melaleuca decora</i>	3.22	3.41	1.65	6.26
	<i>Bursaria spinosa</i>	1.67	1.59	1.16	2.92
	<i>Acacia ulicifolia</i>	1.00	0.83	1.11	1.53
	<i>Dillwynia retorta</i>	0.67	0.38	0.61	0.71
	<i>Pultenaea paleacea</i>	0.56	0.23	0.44	0.43
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.56	0.23	0.44	0.42
	<i>Leptospermum trinervium</i>	0.56	0.15	0.28	0.28
	<i>Callistemon linearis</i>	0.44	0.12	0.30	0.22
	<i>Melaleuca sieberi</i>	0.22	0.05	0.17	0.08
Low Shrub	<i>Hibbertia pedunculata</i>	0.44	0.22	0.44	0.41
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	0.56	0.15	0.28	0.27
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	0.33	0.12	0.30	0.21
Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.56	3.07	5.87	5.64
	<i>Entolasia stricta</i>	2.67	2.63	1.71	4.83
	<i>Panicum simile</i>	1.89	2.54	3.74	4.67
	<i>Themeda australis</i>	2.33	2.39	2.42	4.39
	<i>Paspalidium distans</i>	2.00	2.26	1.79	4.15
	<i>Aristida vagans</i>	1.56	1.44	1.50	2.64
	<i>Joycea pallida</i>	1.67	1.35	1.54	2.49
	<i>Eragrostis brownii</i>	1.00	0.51	0.44	0.93
	<i>Imperata cylindrica</i>	1.00	0.49	0.54	0.91
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	0.78	0.26	0.42	0.48
	<i>Echinopogon ovatus</i>	0.44	0.13	0.30	0.23
	<i>Notodanthonia longifolia</i>	0.44	0.07	0.17	0.14
Graminoid	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.56	1.68	1.58	3.08
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1.44	1.37	1.07	2.52
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.89	0.83	1.16	1.52
	<i>Lomandra obliqua</i>	1.00	0.69	0.76	1.27
	<i>Dianella caerulea</i> var. <i>assera</i>	0.78	0.60	0.83	1.11
Sedge	<i>Ptilothrix deusta</i>	2.11	2.37	2.60	4.35
	<i>Lepidosperma laterale</i>	0.67	0.38	0.61	0.69
Herb	<i>Gonocarpus tetragynus</i>	1.78	2.22	1.82	4.07
	<i>Opercularia diphylla</i>	1.44	1.52	1.43	2.78
	<i>Pratia purpurascens</i>	1.44	1.38	1.09	2.53
	<i>Brunoniella australis</i>	1.22	1.09	0.98	1.99
	<i>Lagenophora stipitata</i>	1.22	1.00	0.77	1.84
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.67	0.41	0.61	0.75
	<i>Oxalis perennans</i>	0.56	0.15	0.28	0.28

Red Ironbark - Paperbark Forest (110a)

Average similarity: 54.46

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.44	0.12	0.30	0.21
	<i>Epaltes australis</i>	0.44	0.08	0.17	0.14
	<i>Dichondra repens</i>	0.44	0.07	0.17	0.13
	<i>Stylidium graminifolium</i>	0.22	0.04	0.17	0.08
Ground Orchid	<i>Caladenia catenata</i>	0.67	0.22	0.30	0.40
Twiner	<i>Glycine clandestina</i>	1.67	1.99	3.10	3.65
	<i>Hardenbergia violacea</i>	0.56	0.41	0.61	0.75
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.44	0.23	0.44	0.41
	<i>Polymeria calycina</i>	0.56	0.15	0.28	0.28

Dry Forests (Smooth-barked Apple)



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Turpentine/ Blackbutt open forest on ranges of the Central Coast (061)

LHCCREMS: Coastal Narabeen Scrub Forest (MU22)

General Description:

Coastal Narrabeen Shrub Forest occurs disjunctly in the Dudley-Whitebridge area, although true relationships between this and related communities characterised by *Eucalyptus pilularis* are unclear. Dominant canopy species here include *Eucalyptus pilularis*, *Angophora costata*, *Allocasuarina torulosa*, *Corymbia gummiifera* and *Eucalyptus umbra*. Important understorey vegetation includes *Pteridium esculentum*, *Persoonia linearis*, *Glochidion ferdinandi*, *Bossiaea obcordata* and *Gompholobium latifolium*. Ground layer species include *Entolasia stricta*, *Panicum simile*, *Dampiera stricta*, *Dianella caerulea* and *Themeda australis*. This community requires additional sampling to clarify its relationship with Coastal Ranges Dry Blackbutt Forest (MU9b).

Characteristic Features:

- canopy of Blackbutt, Smooth-barked Apple, Forest Oak and Red Bloodwood
- mid-storey of Geebung, Bracken, Cheese Tree and various Peas
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

6 ha

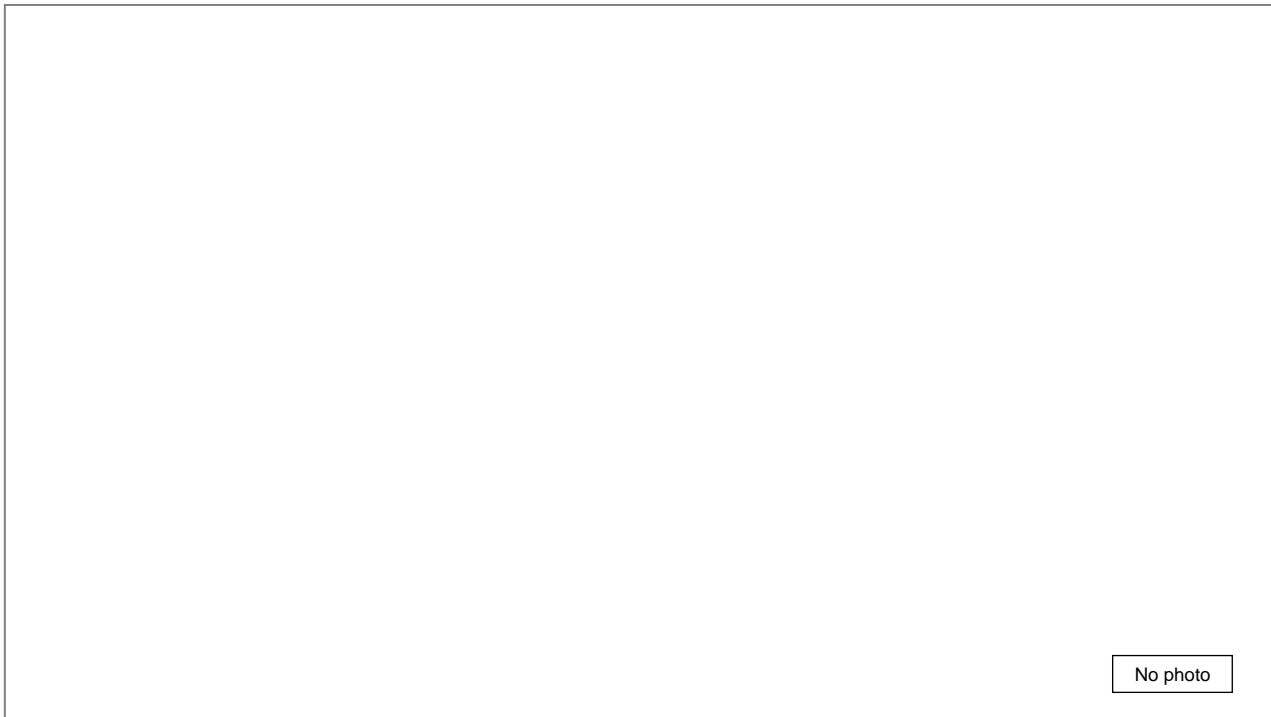
Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Coastal Narrabeen Shrub Forest (22)					
Average similarity: 50.96					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus pilularis</i>	3.25	3.98	20.17	7.81
	<i>Angophora costata</i>	2.75	3.30	5.05	6.48
	<i>Allocasuarina torulosa</i>	2.50	2.87	5.54	5.63
	<i>Corymbia gummifera</i>	1.75	1.38	0.91	2.70
	<i>Eucalyptus umbra</i>	1.50	1.29	0.91	2.54
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.25	1.33	20.17	2.60
Shrub	<i>Persoonia linearis</i>	1.75	1.97	2.91	3.87
	<i>Bossiaea obcordata</i>	1.50	1.29	0.91	2.54
	<i>Gompholobium latifolium</i>	1.25	0.87	0.80	1.71
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	0.75	0.67	0.91	1.32
	<i>Podolobium ilicifolium</i>	1.00	0.67	0.91	1.32
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.75	0.65	0.91	1.27
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.00	0.43	0.41	0.85
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.00	0.43	0.41	0.85
	<i>Breynia oblongifolia</i>	0.50	0.24	0.41	0.47
Low Shrub	<i>Dampiera stricta</i>	2.00	1.97	2.91	3.87
	<i>Tetratheca thymifolia</i>	1.75	1.29	0.91	2.54
Ground Fern	<i>Pteridium esculentum</i>	2.50	2.88	4.88	5.65
Grass	<i>Entolasia stricta</i>	2.25	2.65	20.17	5.21
	<i>Panicum simile</i>	2.25	2.18	2.23	4.28
	<i>Themeda australis</i>	2.00	1.38	0.91	2.70
	<i>Imperata cylindrica</i>	1.50	1.34	0.91	2.63
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.75	1.34	0.91	2.63
	<i>Aristida vagans</i>	1.00	0.45	0.41	0.88
	<i>Digitaria ramularis</i>	0.50	0.23	0.41	0.44
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	1.55	2.74	3.05
	<i>Lomandra longifolia</i>	0.75	0.67	0.91	1.32
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	1.00	0.65	0.91	1.27
Sedge	<i>Lepidosperma laterale</i>	1.50	1.29	0.91	2.54
Herb	<i>Pseuderanthemum variabile</i>	2.00	2.65	20.17	5.21
	<i>Gonocarpus tetragynus</i>	1.50	1.29	0.91	2.54
	<i>Pratia purpurascens</i>	1.25	0.93	0.80	1.82
	<i>Phyllanthus hirtellus</i>	1.00	0.48	0.41	0.93
Twiner	<i>Billardiera scandens</i>	1.50	1.55	2.74	3.05
	<i>Cassytha glabella</i> f. <i>glabella</i>	1.25	0.85	0.83	1.67
	<i>Glycine clandestina</i>	1.25	0.85	0.83	1.67
	<i>Hibbertia scandens</i>	0.75	0.65	0.91	1.27



Keith Class: Northern Hinterland Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Turpentine/ Blackbutt open forest on ranges of the Central Coast (061)

LHCCREMS: Coastal Narabeen Scrub Forest (MU22)

General Description:

Coastal Narrabeen Dry Bloodwood – Apple - Mahogany Forest is currently mapped for a ridge system on Narrabeen sandstone north of Cooranbong, but requires sampling and analysis to determine its relationship to similar communities. On available data, this community supports a canopy of *Angophora costata*, *Corymbia gummifera*, *Eucalyptus umbra*, *Eucalyptus pilularis*, *Eucalyptus scias*, and *Banksia serrata*. Understorey vegetation includes *Allocasuarina littoralis*, *Leptospermum trinervium*, *Banksia spinulosa*, *Xylomelum pyriforme*, *Leptospermum polygalifolium*, *Lambertia formosa*, and *Bossiaea obcordata*, over *Xanthorrhoea latifolia*, *Entolasia stricta*, *Themeda australis*, and *Imperata cylindrica*. Further investigation is required to clarify relationships to Coastal Narrabeen Shrub Forest (MU22).

Characteristic Features:

- canopy of Smooth-barked Apple, Red bloodwood, Bastard Mahogany and Blackbutt
- mid-storey of Banksias, Ti-trees, Black She-oak, Woody Pear, Mountain Devil and Peas
- ground layer of Grass Tree, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

107 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, rapid data points]:

Coastal Narrabeen Dry Bloodwood – Apple – Mahogany Forest (22e)
Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Angophora floribunda</i>	-	-	-	✓
	<i>Corymbia gummifera</i>	-	-	-	✓
	<i>Eucalyptus pilularis</i>	-	-	-	✓
	<i>Eucalyptus umbra</i>	-	-	-	✓
	<i>Eucalyptus capitellata</i>	-	-	-	✓
	<i>Allocasuarina torulosa</i>	-	-	-	✓
	<i>Eucalyptus resinifera</i>	-	-	-	✓
Small Tree	<i>Banksia serrata</i>	-	-	-	✓
	<i>Allocasuarina littoralis</i>	-	-	-	✓
	<i>Xylomelum pyriforme</i>	-	-	-	✓
Shrub	<i>Leptospermum polygalifolium</i> subsp. <i>cistmonatnum</i>	-	-	-	✓
	<i>Leptospermum trinervium</i>	-	-	-	✓
	<i>Banksia spinulosa</i> var. <i>collina</i>	-	-	-	✓
	<i>Lambertia formosa</i>	-	-	-	✓
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	✓
	<i>Bossiaea obcordata</i>	-	-	-	✓
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	✓
Grass Tree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	-	-	-	✓
Grass	<i>Entolasia stricta</i>	-	-	-	✓
	<i>Themeda australis</i>	-	-	-	✓
	<i>Imperata cylindrica</i>	-	-	-	✓
Graminoid	<i>Lomandra longifolia</i>	-	-	-	✓
Sedge	<i>Lepidosperma laterale</i>	-	-	-	✓
	<i>Ptilothrix deusta</i>	-	-	-	✓



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)

LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Coastal Plains Smooth-barked Apple Woodland in an original REMS2000 vegetation unit which has been progressively sub-divided to accommodate more detailed revision across the region. Some areas remain on the current map layer which will require allocation to new divisions. Typically, a canopy of *Angophora costata* occurs with *Corymbia gummifera*, *Eucalyptus umbra* and *Eucalyptus capitellata*, over an understorey of species such as *Allocasuarina littoralis*, *Banksia spinulosa*, *Acacia myrtifolia*, *Leptospermum polygalifolium*, *Lambertia formosa*, *Dillwynia retorta*, *Themeda australis*, *Entolasia stricta*, *Pteridium esculentum*, *Lomandra obliqua*, *Phyllanthus hirtellus*, *Imperata cylindrica*, and *Lepidosperma laterale*.

Characteristic Features:

- canopy of Smooth-barked Apple with Red Bloodwood, Bastard Mahogany and Brown Stringybark
- mid-storey of Black She-oak, Banksias, Wattles, Peas, and Bracken
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

525 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 5 plots]:

Coastal Plains Smooth-barked Apple Woodland (30)					
Average similarity: 45.66					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.40	3.69	12.35	8.09
	<i>Corymbia gummifera</i>	2.20	1.93	1.58	4.24
	<i>Eucalyptus umbra</i>	1.80	1.05	0.62	2.29
	<i>Eucalyptus capitellata</i>	1.80	0.83	0.60	1.82
	<i>Eucalyptus piperita</i>	0.80	0.34	0.62	0.75
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	0.60	0.12	0.32	0.25
Small Tree	<i>Allocasuarina littoralis</i>	2.80	2.34	2.02	5.12
Palm	<i>Livistona australis</i>	0.40	0.12	0.32	0.25
Shrub	<i>Epacris pulchella</i>	1.60	1.55	2.72	3.39
	<i>Podolobium ilicifolium</i>	1.60	1.38	1.16	3.02
	<i>Tetratheca juncea</i>	1.40	1.06	1.02	2.33
	<i>Acrotriche divaricata</i>	1.60	1.04	1.02	2.27
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1.20	0.84	1.02	1.85
	<i>Dodonaea triquetra</i>	1.40	0.83	1.01	1.82
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.20	0.80	1.05	1.75
	<i>Persoonia levis</i>	1.00	0.72	1.16	1.57
	<i>Persoonia linearis</i>	1.00	0.69	1.16	1.51
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.20	0.50	0.56	1.10
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.60	0.35	0.62	0.76
	<i>Acacia myrtifolia</i>	0.60	0.34	0.62	0.75
	<i>Pultenaea paleacea</i>	0.80	0.25	0.32	0.54
	<i>Breynia oblongifolia</i>	0.40	0.12	0.32	0.27
	<i>Comesperma ericinum</i>	0.60	0.12	0.32	0.27
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.60	0.12	0.32	0.27
	<i>Acacia ulicifolia</i>	0.40	0.12	0.32	0.25
<i>Lambertia formosa</i>	0.60	0.12	0.32	0.25	
<i>Leptospermum trinervium</i>	0.40	0.12	0.32	0.25	
Ground Fern	<i>Pteridium esculentum</i>	1.00	0.49	0.58	1.07
	<i>Lindsaea microphylla</i>	0.60	0.12	0.32	0.27
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	3.00	2.73	5.58	5.98
	<i>Xanthorrhoea resinosa</i>	0.80	0.25	0.32	0.54
Grass	<i>Themeda australis</i>	4.40	4.20	3.30	9.19
	<i>Entolasia stricta</i>	1.80	1.93	2.86	4.22
	<i>Joycea pallida</i>	1.00	0.50	0.57	1.09
	<i>Panicum simile</i>	0.80	0.25	0.32	0.54
	<i>Austrodanthonia caespitosa</i>	0.40	0.11	0.32	0.24
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.60	1.53	3.14	3.35
	<i>Lomandra obliqua</i>	1.40	1.09	1.01	2.39
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.80	0.34	0.62	0.75
	<i>Lomandra cylindrica</i>	0.80	0.23	0.32	0.51
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.60	0.12	0.32	0.26
Sedge	<i>Lepidosperma laterale</i>	1.40	1.09	1.05	2.38
	<i>Ptilothrix deusta</i>	1.40	1.07	1.03	2.35

Coastal Plains Smooth-barked Apple Woodland (30)					
Average similarity: 45.66					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Cyathochaeta diandra</i>	0.80	0.25	0.32	0.54
Herb	<i>Phyllanthus hirtellus</i>	2.00	2.39	16.16	5.23
	<i>Pratia purpurascens</i>	1.20	0.70	0.62	1.53
	<i>Brunoniella australis</i>	1.20	0.68	0.62	1.49
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.20	0.67	0.62	1.47
	<i>Stylidium graminifolium</i>	0.80	0.25	0.32	0.54
	<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>	0.80	0.25	0.32	0.54
	<i>Opercularia diphylla</i>	0.60	0.12	0.32	0.27
Twiner	<i>Billardiera scandens</i>	1.20	1.19	16.16	2.62
	<i>Eustrephus latifolius</i>	1.20	0.86	1.04	1.88
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.80	0.24	0.32	0.53
	<i>Hardenbergia violacea</i>	0.40	0.12	0.32	0.26



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)
LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Buttonderry Footslopes Forest was originally defined for the northern Wyong area, and parts of southern Lake Macquarie (mainly south of Morisset) appear to support similar vegetation. In this community, a canopy dominated by *Eucalyptus globoidea*, *Angophora costata*, *Corymbia gummifera*, *Eucalyptus umbra*, and *Eucalyptus capitellata* occurs over an understorey of *Pteridium esculentum*, *Bossiaea obcordata*, *Daviesia squarrosa*, *Banksia spinulosa*, *Epacris pulchella*, *Gompholobium latifolium*, and *Polyscias sambuccifolia*. The ground layer supports *Entolasia stricta*, *Lomandra cylindrica*, *Lomandra obliqua*, *Joycea pallida*, *Xanthorrhoea latifolia*, *Microlaena stipoides* var. *stipoides*, and *Phyllanthus hirtellus*. Further clarification of this type and other defined forms of MU30 is required to it's determine position in the classification.

Characteristic Features:

- canopy of Smooth-barked Apple with White Stringybark, Red Bloodwood, Brown Stringybark, and Bastard Mahogany
- mid-storey of Banksias, Peas, Elderberry Panax and Bracken
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

660 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Buttonderry Foothills Forest (30a)					
Average similarity: 56.00					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus globoidea</i>	4.50	4.57	-	8.16
	<i>Angophora costata</i>	2.50	2.29	-	4.08
Small Tree	<i>Allocasuarina littoralis</i>	2.50	1.14	-	2.04
	<i>Duboisia myoporoides</i>	1.50	1.14	-	2.04
Shrub	<i>Bossiaea obcordata</i>	2.50	2.29	-	4.08
	<i>Epacris pulchella</i>	2.00	2.29	-	4.08
	<i>Gompholobium latifolium</i>	2.00	2.29	-	4.08
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	2.00	2.29	-	4.08
	<i>Acacia suaveolens</i>	1.00	1.14	-	2.04
	<i>Breynia oblongifolia</i>	1.50	1.14	-	2.04
	<i>Maytenus silvestris</i>	1.00	1.14	-	2.04
	<i>Melaleuca nodosa</i>	1.50	1.14	-	2.04
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	1.00	1.14	-	2.04
	<i>Persoonia linearis</i>	1.00	1.14	-	2.04
Ground Fern	<i>Pteridium esculentum</i>	3.50	3.43	-	6.12
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	1.50	1.14	-	2.04
Grass	<i>Entolasia stricta</i>	2.00	2.29	-	4.08
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	2.29	-	4.08
	<i>Aristida vagans</i>	1.00	1.14	-	2.04
Graminoid	<i>Lomandra cylindrica</i>	2.00	2.29	-	4.08
	<i>Lomandra obliqua</i>	2.00	2.29	-	4.08
	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	1.14	-	2.04
Sedge	<i>Lepidosperma laterale</i>	1.50	1.14	-	2.04
Herb	<i>Brunoniella australis</i>	2.00	2.29	-	4.08
	<i>Gonocarpus tetragynus</i>	2.00	2.29	-	4.08
	<i>Phyllanthus hirtellus</i>	2.00	2.29	-	4.08
	<i>Pratia purpurascens</i>	2.00	2.29	-	4.08
	<i>Hydrocotyle laxiflora</i>	1.00	1.14	-	2.04
	<i>Lagenophora stipitata</i>	1.50	1.14	-	2.04
Twiner	<i>Billardiera scandens</i>	1.00	1.14	-	2.04
	<i>Glycine clandestina</i>	1.50	1.14	-	2.04



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)
LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Sugarloaf Uplands Bloodwood - Apple Forest is common across parts of the Sugarloaf Range and surrounding areas, occurring principally on Narrabeen Sandstone geology. The canopy is dominated by *Angophora costata*, *Corymbia gummifera* and *Eucalyptus umbra*, and dominant shrub and understorey species include *Persoonia linearis*, *Podolobium ilicifolium*, *Macrozamia reducta*, *Daviesia ulicifolia* subsp. *ulicifolia*, and *Pteridium esculentum* in the shrub layer, over *Themeda australis*, *Joycia pallida*, *Lomandra confertifolia* subsp. *pallida*, *Lepidosperma laterale* and *Entolasia stricta* on the ground.

Characteristic Features:

- canopy dominated by Smooth-barked Apple, Red Bloodwood, and Bastard Mahogany
- mid-storey dominated by wattles, peas, cycads and Geebung
- ground layer of grasses and grass-like plants, such as Kangaroo Grass, Wallaby Grasses, Wiry Panic and Lomandras

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1879 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 11 plots]:

Sugarloaf Uplands Bloodwood - Apple Forest (30b)					
Average similarity: 49.16					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia gummifera</i>	3.27	3.52	5.30	7.15
	<i>Angophora costata</i>	3.00	2.87	1.89	5.83
	<i>Eucalyptus umbra</i>	2.55	2.35	1.36	4.79
	<i>Eucalyptus punctata</i>	1.18	0.51	0.46	1.03
	<i>Allocasuarina torulosa</i>	1.00	0.37	0.43	0.76
	<i>Eucalyptus sparsifolia</i>	0.82	0.21	0.24	0.43
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	0.27	0.07	0.24	0.13
Shrub	<i>Doryanthes excelsa</i>	1.45	1.20	1.67	2.44
	<i>Acacia ulicifolia</i>	1.55	1.01	1.14	2.05
	<i>Podolobium ilicifolium</i>	1.45	0.96	0.91	1.95
	<i>Persoonia linearis</i>	1.18	0.91	1.17	1.86
	<i>Leptospermum trinervium</i>	1.36	0.79	0.72	1.61
	<i>Tetraloche juncea</i>	1.09	0.68	0.96	1.39
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.27	0.50	0.46	1.03
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	0.91	0.46	0.55	0.94
	<i>Gompholobium latifolium</i>	0.73	0.35	0.58	0.72
	<i>Persoonia levis</i>	0.55	0.33	0.61	0.68
	<i>Dillwynia sieberi</i>	1.00	0.32	0.34	0.66
	<i>Platysace lanceolata</i>	0.64	0.25	0.45	0.50
	<i>Pultenaea paleacea</i>	0.55	0.15	0.33	0.31
	<i>Daviesia squarrosa</i>	0.73	0.11	0.21	0.22
	<i>Acacia linifolia</i>	0.55	0.09	0.22	0.18
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.45	0.09	0.22	0.18
	<i>Epacris pulchella</i>	0.45	0.09	0.23	0.18
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.45	0.08	0.22	0.17
	<i>Acacia myrtifolia</i>	0.36	0.07	0.24	0.14
	<i>Comesperma ericinum</i>	0.36	0.07	0.24	0.14
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.27	0.07	0.24	0.14
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.36	0.06	0.24	0.13
	<i>Pultenaea tuberculata</i>	0.36	0.06	0.24	0.13
<i>Pultenaea villosa</i>	0.27	0.06	0.24	0.12	
<i>Lambertia formosa</i>	0.36	0.04	0.13	0.09	
<i>Daviesia umbellulata</i>	0.36	0.04	0.13	0.08	
Low Shrub	<i>Pomax umbellata</i>	0.45	0.09	0.22	0.18
Sub-shrub	<i>Hovea linearis</i>	0.45	0.09	0.22	0.18
Ground Fern	<i>Pteridium esculentum</i>	1.27	0.99	1.16	2.02
Cycad	<i>Macrozamia reducta</i>	0.82	0.50	0.76	1.01
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	0.91	0.45	0.47	0.92
	<i>Xanthorrhoea resinosa</i>	0.27	0.07	0.24	0.14
Grass	<i>Themeda australis</i>	3.64	3.56	3.02	7.24
	<i>Entolasia stricta</i>	2.27	2.46	10.51	5.01
	<i>Panicum simile</i>	2.00	1.61	1.34	3.28
	<i>Joycea pallida</i>	2.09	1.29	0.72	2.61
	<i>Aristida vagans</i>	1.55	1.23	1.21	2.51

Sugarloaf Uplands Bloodwood - Apple Forest (30b)					
Average similarity: 49.16					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Imperata cylindrica</i>	1.36	0.90	1.22	1.84
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	0.73	0.24	0.35	0.50
	<i>Austrostipa scabra</i> subsp. <i>falcata</i>	0.45	0.08	0.23	0.17
	<i>Cymbopogon refractus</i>	0.36	0.06	0.24	0.13
Graminoid	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1.82	1.97	2.08	4.02
	<i>Lomandra obliqua</i>	1.82	1.97	2.08	4.02
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.45	1.29	1.63	2.63
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	1.55	1.22	1.00	2.48
	<i>Dianella caerulea</i> var. <i>assera</i>	0.91	0.44	0.57	0.89
	<i>Patersonia glabrata</i>	0.64	0.24	0.45	0.49
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.55	0.15	0.33	0.31
	<i>Lomandra glauca</i>	0.36	0.07	0.24	0.14
	<i>Lomandra cylindrica</i>	0.36	0.05	0.13	0.09
Sedge	<i>Lepidosperma laterale</i>	1.55	1.54	2.69	3.12
Herb	<i>Phyllanthus hirtellus</i>	2.00	2.40	16.86	4.89
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.36	1.19	1.68	2.43
	<i>Brunoniella australis</i>	1.09	0.75	0.89	1.52
	<i>Gonocarpus tetragynus</i>	0.73	0.34	0.58	0.70
	<i>Desmodium rhytidophyllum</i>	0.64	0.23	0.45	0.47
	<i>Opercularia diphylla</i>	0.55	0.13	0.24	0.27
	<i>Pseuderanthemum variabile</i>	0.55	0.13	0.24	0.26
	<i>Gonocarpus teucrioides</i>	0.36	0.04	0.13	0.09
Twiner	<i>Glycine clandestina</i>	1.27	1.11	1.73	2.26
	<i>Pandorea pandorana</i>	0.55	0.34	0.61	0.69
	<i>Billardiera scandens</i>	0.55	0.34	0.61	0.68
	<i>Hardenbergia violacea</i>	0.64	0.23	0.45	0.47
	<i>Eustrephus latifolius</i>	0.45	0.13	0.35	0.27



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)

LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Coastal Plains Stringybark – Apple Forest occurs on the lowlands near the F3 Freeway in the north-west of Lake Macquarie LGA. It is dominated by *Eucalyptus globoidea* and *Angophora costata*, with some *Corymbia gummifera*, *Eucalyptus umbra* and *Eucalyptus resinifera* also present. Understorey species include *Pultenaea euchila*, *Acacia terminalis*, *Dodonaea triquetra* and *Leptospermum polygalifolium* subsp. *cismontanum*. It is possible that this community equates to a localised form of MU30h (Sugarloaf Lowlands Bloodwood – Apple Forest), but requires further investigation.

Characteristic Features:

- canopy dominated by White Stringybark, Smooth-barked Apple and Red Bloodwood
- mid-storey dominated by wattles, peas and Lemon-scented Ti-Tree
- ground layer of grasses and herbs, such as Kangaroo Grass, Wallaby Grasses, Wiry Panic and Lomandras

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1048 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 11 plots]:

Coastal Plains Stringybark - Apple Forest (30e)					
Average similarity: 41.91					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.00	3.02	2.75	7.21
	<i>Corymbia gummifera</i>	2.45	2.42	2.40	5.77
	<i>Eucalyptus umbra</i>	2.18	1.66	0.96	3.97
	<i>Eucalyptus globoidea</i>	1.09	0.55	0.57	1.32
	<i>Eucalyptus capitellata</i>	1.09	0.30	0.30	0.72
	<i>Eucalyptus punctata</i>	0.82	0.21	0.24	0.50
	<i>Eucalyptus piperita</i>	0.64	0.14	0.24	0.34
	<i>Eucalyptus fibrosa</i>	0.27	0.06	0.24	0.15
Small Tree	<i>Allocasuarina littoralis</i>	1.55	1.16	1.18	2.76
Shrub	<i>Dillwynia retorta</i>	2.36	1.64	1.12	3.92
	<i>Acacia ulicifolia</i>	1.73	1.13	0.91	2.69
	<i>Leptospermum polygalifolium subsp. cismontanum</i>	0.73	0.38	0.57	0.91
	<i>Pultenaea euchila</i>	0.91	0.36	0.58	0.86
	<i>Dodonaea triquetra</i>	1.00	0.30	0.34	0.73
	<i>Pimelea linifolia subsp. linifolia</i>	0.64	0.25	0.45	0.60
	<i>Pultenaea paleacea</i>	0.82	0.25	0.35	0.60
	<i>Bursaria spinosa</i>	0.55	0.23	0.47	0.54
	<i>Persoonia linearis</i>	0.55	0.23	0.47	0.54
	<i>Daviesia ulicifolia subsp. ulicifolia</i>	0.55	0.16	0.33	0.39
	<i>Epacris pulchella</i>	0.55	0.16	0.32	0.38
	<i>Banksia spinulosa var. collina</i>	0.64	0.15	0.33	0.37
	<i>Persoonia levis</i>	0.36	0.14	0.35	0.33
	<i>Acacia myrtifolia</i>	0.73	0.13	0.35	0.32
	<i>Hibbertia empetrifolia subsp. empetrifolia</i>	0.45	0.13	0.35	0.32
	<i>Leptospermum trinervium</i>	0.45	0.14	0.35	0.32
	<i>Notelaea longifolia f. longifolia</i>	0.36	0.07	0.24	0.17
	<i>Gompholobium latifolium</i>	0.36	0.07	0.24	0.16
	<i>Pultenaea retusa</i>	0.27	0.07	0.24	0.16
	<i>Polyscias sambucifolia subsp. sambucifolia</i>	0.36	0.04	0.13	0.10
<i>Bursaria longisepala</i>	0.27	0.02	0.13	0.06	
<i>Podolobium ilicifolium</i>	0.27	0.02	0.13	0.06	
<i>Pultenaea villosa</i>	0.36	0.02	0.13	0.06	
Low Shrub	<i>Hibbertia pedunculata</i>	0.36	0.14	0.35	0.34
	<i>Opercularia varia</i>	0.36	0.13	0.35	0.30
Sub-shrub	<i>Mirbelia rubiifolia</i>	0.55	0.16	0.33	0.38
Ground Fern	<i>Pteridium esculentum</i>	0.91	0.40	0.57	0.96
	<i>Lindsaea linearis</i>	0.45	0.10	0.23	0.24
Grasstree	<i>Xanthorrhoea latifolia subsp. latifolia</i>	0.91	0.47	0.57	1.11
	<i>Xanthorrhoea macronema</i>	0.27	0.07	0.24	0.17
Grass	<i>Themeda australis</i>	3.27	3.39	2.34	8.09
	<i>Entolasia stricta</i>	3.00	3.22	3.95	7.69
	<i>Panicum simile</i>	1.73	1.82	1.85	4.34
	<i>Joycea pallida</i>	2.00	1.37	0.89	3.26
	<i>Aristida vagans</i>	1.36	1.00	0.92	2.39

Coastal Plains Stringybark - Apple Forest (30e)					
Average similarity: 41.91					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.45	0.96	0.77	2.28
	<i>Imperata cylindrica</i>	1.27	0.71	0.70	1.68
	<i>Paspalidium distans</i>	0.73	0.26	0.35	0.62
	<i>Anisopogon avenaceus</i>	0.36	0.07	0.24	0.17
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	0.36	0.07	0.24	0.16
Graminoid	<i>Lomandra obliqua</i>	1.82	1.88	1.81	4.48
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1.27	1.16	1.81	2.77
	<i>Dianella caerulea</i> var. <i>assera</i>	1.09	0.77	0.90	1.83
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1.09	0.67	0.61	1.61
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	0.73	0.26	0.35	0.61
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.36	0.07	0.24	0.16
Sedge	<i>Ptilothrix deusta</i>	1.27	0.65	0.56	1.55
	<i>Lepidosperma laterale</i>	0.64	0.24	0.45	0.58
	<i>Gahnia radula</i>	0.73	0.14	0.24	0.33
	<i>Lepidosperma neesii</i>	0.18	0.02	0.13	0.06
Herb	<i>Gonocarpus tetragynus</i>	1.55	1.46	1.26	3.48
	<i>Phyllanthus hirtellus</i>	1.00	0.58	0.57	1.39
	<i>Pratia purpurascens</i>	0.91	0.47	0.55	1.11
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.82	0.41	0.57	0.97
	<i>Brunoniella australis</i>	0.73	0.29	0.44	0.69
	<i>Boronia polygalifolia</i>	0.64	0.21	0.33	0.49
	<i>Gonocarpus teucrioides</i>	0.45	0.09	0.23	0.21
	<i>Desmodium rhytidophyllum</i>	0.27	0.07	0.24	0.16
	<i>Opercularia diphylla</i>	0.36	0.06	0.24	0.15
	<i>Stylidium graminifolium</i>	0.36	0.06	0.24	0.15
Ground Orchid	<i>Calochilus</i> spp.	0.27	0.06	0.24	0.15
Twiner	<i>Billardiera scandens</i>	1.00	0.71	0.96	1.69
	<i>Glycine clandestina</i>	0.91	0.45	0.57	1.08
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.73	0.30	0.43	0.71
	<i>Hardenbergia violacea</i>	0.55	0.23	0.47	0.54
	<i>Eustrephus latifolius</i>	0.45	0.12	0.35	0.30
	<i>Parsonsia straminea</i>	0.27	0.06	0.24	0.15
	<i>Pandorea pandorana</i>	0.36	0.05	0.13	0.11



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)
LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Centred on Freeman’s Waterhole, this vegetation type is characterised by *Eucalyptus piperita* in the canopy, where it occurs with *Angophora costata* and *Corymbia gummifera*. Understorey species include the dominant presence of *Doryanthes excelsa* in the shrub layer, with *Pteridium esculentum*, *Gompholobium latifolium*, *Acacia myrtifolia*, *Hibbertia empetrifolia* subsp. *empetrifolia*, *Podolobium ilicifolium*, *Bossiaea obcordata*, *Banksia spinulosa* var. *collina* and *Leptospermum trinervium*. On the ground, *Themeda australis* is common, along with *Entolasia stricta*, *Gonocarpus tetragynus*, *Brunoniella australis*, *Lomandra obliqua* and *Patersonia glabrata*.

Characteristic Features:

- canopy dominated by Sydney Peppermint, Smooth-barked Apple, and Red Bloodwood
- mid-storey dominated by Hairpin Banksia, wattles, peas and Gynea Lily
- ground layer of grasses such as Kangaroo Grass, Wiry Panic and Lomandras
- often supports extensive stands of Gynea Lily

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

2807 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 9 plots]:

Freemans Peppermint - Apple - Bloodwood Forest (30f)					
Average similarity: 54.85					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus piperita</i>	3.22	3.49	5.60	6.36
	<i>Angophora costata</i>	3.11	3.44	5.42	6.27
	<i>Corymbia gummifera</i>	3.00	3.18	4.87	5.80
	<i>Eucalyptus umbra</i>	1.00	0.42	0.44	0.77
	<i>Allocasuarina torulosa</i>	0.67	0.14	0.28	0.26
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	0.44	0.10	0.30	0.18
Shrub	<i>Doryanthes excelsa</i>	2.89	2.42	1.43	4.40
	<i>Gompholobium latifolium</i>	1.78	1.92	3.29	3.51
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1.44	1.42	3.33	2.58
	<i>Acacia myrtifolia</i>	1.67	1.28	1.50	2.33
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.33	0.90	1.04	1.64
	<i>Bossiaea obcordata</i>	1.11	0.82	1.07	1.49
	<i>Leptospermum trinervium</i>	1.00	0.73	1.12	1.34
	<i>Podolobium ilicifolium</i>	0.89	0.71	1.16	1.29
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.22	0.69	0.77	1.26
	<i>Pultenaea paleacea</i>	0.89	0.53	0.81	0.97
	<i>Tetradlea juncea</i>	1.11	0.44	0.43	0.80
	<i>Pultenaea euchila</i>	0.89	0.39	0.44	0.70
	<i>Persoonia linearis</i>	0.67	0.34	0.61	0.62
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.67	0.33	0.61	0.61
	<i>Persoonia levis</i>	0.56	0.33	0.61	0.60
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.67	0.22	0.42	0.41
	<i>Epacris pulchella</i>	0.67	0.19	0.30	0.35
	<i>Dodonaea triquetra</i>	0.67	0.13	0.28	0.25
	<i>Lomatia silaifolia</i>	0.44	0.11	0.30	0.19
	<i>Acacia terminalis</i>	0.44	0.10	0.30	0.18
<i>Platylobium formosum</i> subsp. <i>parviflorum</i>	0.33	0.10	0.30	0.18	
Low Shrub	<i>Dampiera stricta</i>	1.56	1.44	1.54	2.63
	<i>Tetradlea thymifolia</i>	0.44	0.10	0.30	0.18
Ground Fern	<i>Pteridium esculentum</i>	2.22	1.96	2.98	3.57
	<i>Lindsaea linearis</i>	0.89	0.43	0.57	0.78
	<i>Lindsaea microphylla</i>	0.33	0.11	0.30	0.19
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	0.67	0.13	0.27	0.24
Grass	<i>Themeda australis</i>	3.89	3.79	2.29	6.92
	<i>Entolasia stricta</i>	3.00	3.18	4.94	5.80
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.67	1.65	1.64	3.01
	<i>Imperata cylindrica</i>	1.44	1.06	1.02	1.94
	<i>Aristida vagans</i>	1.00	0.55	0.57	1.01
	<i>Panicum simile</i>	1.00	0.54	0.58	0.98
	<i>Anisopogon avenaceus</i>	0.67	0.20	0.30	0.36
	<i>Paspalidium distans</i>	0.56	0.14	0.28	0.26
Graminoid	<i>Lomandra obliqua</i>	1.56	1.40	1.16	2.55
	<i>Dianella caerulea</i> var. <i>asserata</i>	1.00	1.22	21.89	2.23
	<i>Lomandra cylindrica</i>	1.44	1.20	1.09	2.19
	<i>Patersonia glabrata</i>	1.44	1.03	1.05	1.88

Freemans Peppermint - Apple - Bloodwood Forest (30f)					
Average similarity: 54.85					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	0.89	0.32	0.42	0.58
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.33	0.10	0.30	0.19
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.33	0.10	0.30	0.19
Sedge	<i>Lepidosperma laterale</i>	1.44	1.22	1.09	2.22
	<i>Gahnia radula</i>	0.89	0.29	0.42	0.53
Herb	<i>Gonocarpus tetragynus</i>	1.78	1.89	1.84	3.44
	<i>Brunoniella australis</i>	1.67	1.65	1.65	3.00
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.56	0.34	0.61	0.63
	<i>Phyllanthus hirtellus</i>	0.78	0.32	0.41	0.58
	<i>Desmodium rhytidophyllum</i>	0.44	0.11	0.30	0.19
Twiner	<i>Billardiera scandens</i>	1.11	0.81	1.07	1.48
	<i>Glycine clandestina</i>	1.11	0.81	1.05	1.48
	<i>Hardenbergia violacea</i>	0.67	0.52	0.83	0.95
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.78	0.50	0.83	0.91
	<i>Eustrephus latifolius</i>	0.78	0.31	0.41	0.57



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)

LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Closely related to the Sugarloaf Uplands Bloodwood – Apple Forest (MU30b), Sugarloaf Lowlands Bloodwood - Apple Forest occurs largely on Narrabeen and Permian sediment (Moon Island Beach subgroup) geology, and is floristically simpler. *Angophora costata*, *Corymbia gummifera* and *Eucalyptus umbra* dominate the canopy, while *Dillwynia retorta*, *Pultenaea paleacea*, *Pimelea linifolia* subsp. *linifolia* and *Epacris pulchella* are common in the shrub layer. *Themeda australis*, *Entolasia stricta*, *Ptilothrix deusta*, *Joycia pallida*, *Lepidosperma laterale*, *Lomandra obliqua*, *Aristida warburgii*, *Mirbelia rubifolia*, *Paspalidium distans* and *Gompholobium pinnatum* are common in the ground layer.

Characteristic Features:

- occurs at low elevations on Permian sediments
- canopy dominated by Smooth-barked Apple, Red Bloodwood and Bastard Mahogany
- mid-storey dominated by peas and Slender Rice Flower
- ground layer of grasses and grass-like plants, such as Kangaroo Grass, Wallaby Grasses, Three-awned Grass, Wiry Panic and Lomandras

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1697 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 11 plots]:

Sugarloaf Lowlands Bloodwood - Apple Forest (30h)					
Average similarity: 38.15					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.09	3.50	3.50	9.17
	<i>Corymbia gummifera</i>	2.36	2.15	1.20	5.64
	<i>Eucalyptus umbra</i>	2.00	1.69	0.97	4.43
	<i>Eucalyptus capitellata</i>	1.45	0.65	0.45	1.71
	<i>Allocasuarina torulosa</i>	0.55	0.10	0.23	0.25
	<i>Corymbia maculata</i>	0.36	0.07	0.24	0.19
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	0.27	0.07	0.24	0.19
	<i>Eucalyptus piperita</i>	0.36	0.07	0.24	0.18
Small Tree	<i>Allocasuarina littoralis</i>	0.73	0.50	0.78	1.32
Shrub	<i>Podolobium ilicifolium</i>	1.27	0.86	0.73	2.26
	<i>Dillwynia retorta</i>	1.36	0.76	0.70	1.99
	<i>Persoonia linearis</i>	0.91	0.57	0.73	1.50
	<i>Pultenaea paleacea</i>	1.09	0.52	0.54	1.37
	<i>Epacris pulchella</i>	0.91	0.49	0.56	1.29
	<i>Acacia myrtifolia</i>	0.64	0.26	0.47	0.67
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.55	0.23	0.47	0.61
	<i>Gompholobium latifolium</i>	0.64	0.21	0.33	0.55
	<i>Doryanthes excelsa</i>	0.73	0.18	0.30	0.48
	<i>Banksia spinulosa</i> var. <i>collina</i>	0.55	0.17	0.33	0.44
	<i>Leptospermum trinervium</i>	0.55	0.17	0.33	0.44
	<i>Pultenaea villosa</i>	0.55	0.16	0.32	0.43
	<i>Breynia oblongifolia</i>	0.27	0.08	0.24	0.21
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.36	0.08	0.24	0.20
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.36	0.07	0.24	0.19
	<i>Dodonaea triquetra</i>	0.36	0.07	0.24	0.18
	<i>Monotoca scoparia</i>	0.36	0.07	0.24	0.18
	<i>Daviesia umbellulata</i>	0.36	0.05	0.13	0.13
	<i>Leucopogon microphyllus</i> var. <i>microphyllus</i>	0.55	0.05	0.13	0.13
	<i>Acacia implexa</i>	0.18	0.03	0.13	0.07
<i>Acrotriche divaricata</i>	0.27	0.03	0.13	0.07	
<i>Leucopogon juniperinus</i>	0.27	0.03	0.13	0.07	
Low Shrub	<i>Dampiera stricta</i>	0.55	0.16	0.33	0.42
Sub-shrub	<i>Hovea linearis</i>	0.55	0.23	0.47	0.61
	<i>Mirbelia rubiifolia</i>	0.64	0.21	0.33	0.56
	<i>Gompholobium pinnatum</i>	0.36	0.07	0.24	0.19
Ground Fern	<i>Pteridium esculentum</i>	0.64	0.27	0.45	0.71
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	1.27	0.49	0.41	1.29
	<i>Xanthorrhoea resinosa</i>	0.36	0.07	0.24	0.19
	<i>Xanthorrhoea macronema</i>	0.18	0.03	0.13	0.07
Grass	<i>Themeda australis</i>	3.55	3.88	2.78	10.18

Sugarloaf Lowlands Bloodwood - Apple Forest (30h)					
Average similarity: 38.15					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Entolasia stricta</i>	2.18	2.06	1.77	5.40
	<i>Joycea pallida</i>	2.00	1.52	0.97	4.00
	<i>Panicum simile</i>	1.55	1.34	1.01	3.51
	<i>Imperata cylindrica</i>	1.55	1.04	0.78	2.73
	<i>Aristida vagans</i>	1.27	1.02	0.92	2.68
	<i>Eragrostis brownii</i>	0.55	0.14	0.24	0.37
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	0.45	0.13	0.35	0.35
	<i>Poa affinis</i>	0.45	0.11	0.23	0.28
	<i>Aristida warburgii</i>	0.36	0.05	0.13	0.13
	<i>Echinopogon ovatus</i>	0.36	0.05	0.13	0.13
	<i>Paspalidium distans</i>	0.36	0.05	0.13	0.12
Graminoid	<i>Lomandra obliqua</i>	1.55	1.58	1.26	4.14
	<i>Dianella caerulea</i> var. <i>assera</i>	0.91	0.59	0.74	1.54
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.91	0.49	0.47	1.28
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.55	0.23	0.47	0.60
	<i>Lomandra cylindrica</i>	0.64	0.21	0.33	0.54
	<i>Lomandra longifolia</i>	0.64	0.18	0.32	0.46
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.45	0.14	0.35	0.38
	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	0.36	0.08	0.24	0.20
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	0.36	0.05	0.13	0.12
	<i>Patersonia glabrata</i>	0.36	0.04	0.13	0.12
	<i>Dianella caerulea</i> var. <i>caerulea</i>	0.27	0.03	0.13	0.07
Sedge	<i>Lepidosperma laterale</i>	1.27	1.00	0.78	2.62
	<i>Ptilothrix deusta</i>	0.91	0.19	0.22	0.50
	<i>Lepidosperma neesii</i>	0.27	0.03	0.13	0.07
Herb	<i>Phyllanthus hirtellus</i>	1.73	1.94	1.86	5.08
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.09	0.73	0.61	1.91
	<i>Gonocarpus teucroides</i>	0.82	0.39	0.44	1.02
	<i>Gonocarpus tetragynus</i>	0.73	0.29	0.35	0.76
	<i>Desmodium rhytidophyllum</i>	0.55	0.18	0.33	0.47
	<i>Pseuderanthemum variabile</i>	0.55	0.13	0.24	0.35
	<i>Pratia purpurascens</i>	0.36	0.08	0.24	0.20
	<i>Opercularia diphylla</i>	0.36	0.07	0.24	0.19
	<i>Brunoniella australis</i>	0.36	0.05	0.13	0.13
	<i>Stylidium graminifolium</i>	0.18	0.03	0.13	0.07
	<i>Tricoryne elatior</i>	0.18	0.03	0.13	0.07
Ground Orchid	<i>Acianthus fornicatus</i>	0.36	0.04	0.13	0.12
Twiner	<i>Billardiera scandens</i>	1.00	0.66	0.72	1.72
	<i>Glycine clandestina</i>	0.82	0.53	0.75	1.38
	<i>Pandorea pandorana</i>	0.73	0.39	0.59	1.03
	<i>Eustrephus latifolius</i>	0.55	0.25	0.47	0.65
	<i>Hardenbergia violacea</i>	0.55	0.25	0.47	0.65
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.27	0.03	0.13	0.07
	<i>Hibbertia scandens</i>	0.27	0.03	0.13	0.07



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)

LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

West Wallsend Stringybark Forest is currently mapped for areas immediately around West Wallsend in the north-west of the LGA. This community is characterised by a dominance of stringybarks over a grassy understorey, including *Eucalyptus globoidea*, *Eucalyptus capitellata* and *Eucalyptus umbra*. *Angophora costata* is also occasionally present. Understorey vegetation includes a sparse shrub layer of *Acacia ulicifolia*, *Callistemon linearis* and *Leptospermum trinervium*, over a dense grassy layer of *Aristida vagans*, *Dichelachne micrantha*, *Entolasia stricta*, *Eragrostis brownii*, *Lomandra filiformis* subsp. *filiformis*, *Panicum simile*, *Joycea pallida* and *Themeda australis*. The current floristic composition of this community may reflect a history of disturbance, particular frequent fire, and further investigation is required to determine if such disturbance drives the differences to other units in the MU30 complex.

Characteristic Features:

- canopy of Stringybarks, particularly Brown Stringybark, White Stringybark and Bastard Mahogany
- sparse or absent mid-storey of Prickly Moses, Bottlebrush and Ti-tree
- well developed ground layer of various grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

242 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

West Wallsend Stringybark Forest (30i)					
Average similarity: 42.18					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus umbra</i>	3.00	4.08	-	9.68
	<i>Angophora costata</i>	2.00	1.36	-	3.23
	<i>Eucalyptus fibrosa</i>	1.00	1.36	-	3.23
Shrub	<i>Acacia ulicifolia</i>	1.00	1.36	-	3.23
	<i>Callistemon linearis</i>	1.50	1.36	-	3.23
	<i>Leptospermum trinervium</i>	1.50	1.36	-	3.23
	<i>Melaleuca nodosa</i>	3.00	1.36	-	3.23
Grass	<i>Aristida vagans</i>	2.00	2.72	-	6.45
	<i>Dichelachne micrantha</i>	2.00	2.72	-	6.45
	<i>Entolasia stricta</i>	3.00	2.72	-	6.45
	<i>Eragrostis brownii</i>	2.00	2.72	-	6.45
	<i>Panicum simile</i>	2.50	2.72	-	6.45
	<i>Imperata cylindrica</i>	1.00	1.36	-	3.23
Graminoid	<i>Lomandra filiformis subsp. filiformis</i>	2.00	2.72	-	6.45
	<i>Lomandra multiflora subsp. multiflora</i>	1.00	1.36	-	3.23
	<i>Lomandra obliqua</i>	1.50	1.36	-	3.23
Herb	<i>Phyllanthus hirtellus</i>	2.00	2.72	-	6.45
	<i>Pratia purpurascens</i>	2.00	2.72	-	6.45
	<i>Gonocarpus tetragynus</i>	1.00	1.36	-	3.23
	<i>Opercularia diphylla</i>	1.50	1.36	-	3.23
Twiner	<i>Glycine clandestina</i>	1.50	1.36	-	3.23



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Red Bloodwood/ Brown Stringybark/ Hairpin Banksia heathy open forest of coastal lowlands (101)

LHCCREMS: Coastal Plains Smooth-barked Apple Woodland (MU30)

General Description:

Sugarloaf Lowlands Bloodwood – Apple – Scribbly Gum Forest occurs in the Cardiff to Valentine and Kahibah areas of the north-eastern portion of the LGA. It occurs principally on the Boolaroo subgroup of the Permian sediments in these areas, and supports a canopy of *Corymbia gummifera*, *Eucalyptus capitellata*, *Eucalyptus haemastoma*, and *Angophora costata*. Understorey vegetation includes *Leptospermum trinervium*, *Lambertia formosa*, *Epacris pulchella*, *Dillwynia retorta*, *Banksia spinulosa* and *Allocasuarina littoralis*, over *Xanthorrhoea latifolia*, *Entolasia stricta*, *Ptilothrix deusta*, *Lomandra obliqua* and *Themeda australis*. This community is floristically very similar to Sugarloaf Lowlands Bloodwood – Apple Forest (MU30h), but supports *Eucalyptus haemastoma* as a prominent canopy component. That community also occurs on different geological strata (Narrabeen sediments and Permian Moon Island Beach subgroup). Some limited further investigation may help clarify relationships with this and similar units.

Characteristic Features:

- canopy where Broad-leaf Scribbly Gum is prominent, and occurs with Red Bloodwood, Brown Stringybark and Smooth-barked Apple
- mid-storey of Ti-tree, Mountain Devil, Banksias, Black She-oak and Peas
- ground layer of Grass Tree, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

203 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 19 plots]:

Sugarloaf Lowlands Bloodwood - Apple - Scribbly Gum Forest (30j)					
Average similarity: 51.71					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia gummifera</i>	3.05	3.30	5.26	6.38
	<i>Eucalyptus capitellata</i>	2.58	2.60	1.94	5.03
	<i>Eucalyptus haemastoma</i>	2.58	2.52	2.01	4.87
	<i>Angophora costata</i>	2.32	2.30	2.13	4.45
	<i>Eucalyptus umbra</i>	0.47	0.07	0.17	0.14
	<i>Eucalyptus piperita</i>	0.37	0.04	0.13	0.07
Small Tree	<i>Allocasuarina littoralis</i>	1.79	1.37	1.68	2.65
Shrub	<i>Leptospermum trinervium</i>	2.21	1.86	1.73	3.60
	<i>Lambertia formosa</i>	1.95	1.63	1.44	3.16
	<i>Epacris pulchella</i>	1.63	1.62	2.09	3.14
	<i>Dillwynia retorta</i>	1.84	1.46	1.28	2.82
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.68	1.25	1.10	2.42
	<i>Persoonia levis</i>	1.21	1.16	2.36	2.25
	<i>Gompholobium latifolium</i>	1.05	0.69	0.83	1.34
	<i>Persoonia linearis</i>	0.79	0.49	0.77	0.96
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	0.84	0.45	0.65	0.87
	<i>Tetradlea juncea</i>	0.89	0.40	0.49	0.77
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.63	0.39	0.68	0.75
	<i>Monotoca scoparia</i>	0.63	0.38	0.68	0.74
	<i>Isopogon anemonifolius</i>	0.89	0.36	0.42	0.70
	<i>Bossiaea obcordata</i>	0.84	0.34	0.48	0.66
	<i>Pultenaea paleacea</i>	0.53	0.20	0.43	0.38
	<i>Pultenaea tuberculata</i>	0.53	0.17	0.35	0.33
	<i>Acacia myrtifolia</i>	0.53	0.15	0.36	0.30
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.53	0.14	0.29	0.27
	<i>Comesperma ericinum</i>	0.37	0.11	0.31	0.22
	<i>Acacia suaveolens</i>	0.42	0.11	0.30	0.21
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.37	0.11	0.31	0.21
	<i>Astrotricha obovata</i>	0.42	0.09	0.23	0.18
	<i>Grevillea sericea</i> subsp. <i>sericea</i>	0.26	0.07	0.25	0.14
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.37	0.07	0.24	0.14
	<i>Persoonia laurina</i> subsp. <i>laurina</i>	0.26	0.07	0.25	0.14
	<i>Pittosporum undulatum</i>	0.26	0.07	0.25	0.13
<i>Banksia oblongifolia</i>	0.32	0.05	0.18	0.09	
<i>Hakea sericea</i>	0.26	0.05	0.19	0.09	
<i>Bossiaea stephensonii</i>	0.32	0.04	0.13	0.08	
<i>Podolobium ilicifolium</i>	0.26	0.03	0.12	0.06	
Low Shrub	<i>Dampiera stricta</i>	1.37	1.02	0.88	1.98
	<i>Melichrus procumbens</i>	0.26	0.07	0.25	0.13
	<i>Platysace ericoides</i>	0.32	0.07	0.25	0.13
Sub-shrub	<i>Mirbelia rubiifolia</i>	1.21	0.73	0.66	1.42
	<i>Hovea linearis</i>	0.63	0.33	0.59	0.64
	<i>Gompholobium pinnatum</i>	0.47	0.11	0.23	0.22
Prostrate	<i>Hibbertia vestita</i>	0.53	0.14	0.29	0.27

Sugarloaf Lowlands Bloodwood - Apple - Scribbly Gum Forest (30j)					
Average similarity: 51.71					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub					
Ground Fern	<i>Lindsaea linearis</i>	0.89	0.43	0.50	0.84
	<i>Pteridium esculentum</i>	0.89	0.34	0.48	0.67
	<i>Schizaea bifida</i>	0.42	0.08	0.23	0.16
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	3.00	3.11	4.22	6.02
Grass	<i>Entolasia stricta</i>	2.95	2.96	3.89	5.72
	<i>Themeda australis</i>	2.11	1.96	1.88	3.79
	<i>Anisopogon avenaceus</i>	1.32	0.82	0.80	1.59
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	0.95	0.51	0.64	0.99
	<i>Aristida vagans</i>	0.95	0.48	0.51	0.94
	<i>Imperata cylindrica</i>	0.53	0.17	0.36	0.32
	<i>Joycea pallida</i>	0.53	0.05	0.17	0.11
Graminoid	<i>Lomandra obliqua</i>	1.84	2.03	2.63	3.93
	<i>Dianella caerulea</i> var. <i>assera</i>	0.95	0.56	0.73	1.09
	<i>Lomandra glauca</i>	1.00	0.51	0.51	0.99
	<i>Lomandra cylindrica</i>	0.84	0.40	0.44	0.76
	<i>Patersonia sericea</i>	0.68	0.27	0.41	0.52
	<i>Patersonia glabrata</i>	0.58	0.18	0.30	0.35
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.47	0.16	0.36	0.30
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.53	0.14	0.25	0.26
Sedge	<i>Ptilothrix deusta</i>	2.16	2.13	2.33	4.12
	<i>Lepidosperma laterale</i>	1.11	0.71	0.72	1.38
	<i>Cyathochaeta diandra</i>	1.00	0.40	0.44	0.78
Herb	<i>Phyllanthus hirtellus</i>	1.37	1.09	0.91	2.11
	<i>Gonocarpus tetragynus</i>	0.68	0.28	0.49	0.55
	<i>Brunoniella australis</i>	0.53	0.13	0.25	0.26
	<i>Drosera auriculata</i>	0.47	0.11	0.24	0.21
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.37	0.07	0.24	0.14
	<i>Pratia purpurascens</i>	0.32	0.07	0.25	0.14
	<i>Scaevola ramosissima</i>	0.37	0.07	0.24	0.14
	<i>Logania pusilla</i>	0.26	0.07	0.25	0.13
Ground Orchid	<i>Cryptostylis subulata</i>	0.58	0.19	0.35	0.36
Twiner	<i>Billardiera scandens</i>	1.47	1.28	1.34	2.48
	<i>Cassytha glabella</i> f. <i>glabella</i>	1.05	0.68	0.83	1.32
	<i>Glycine clandestina</i>	0.26	0.04	0.19	0.07



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Grey Ironbark/ Broad-leaved Mahogany/ Smooth-barked Apple coastal headland low open forest of the Central Coast (102)

LHCCREMS: Coastal Headland Complex (MU51)

General Description:

Coastal Headland Low Forest occurs on coastal headlands and associated low hills where there is some immediate protection from onshore winds. It is a low forest dominated by *Eucalyptus umbra* and *Angophora costata*, over an understorey of *Banksia spinulosa*, *Hibbertia aspera*, *Lasiopetalum parvifolium*, *Acrotriche divaricata*, *Leptospermum polygalifolium* and *Polyscias sambuccifolia*. Ground vegetation includes species such as *Entolasia stricta*, *Dianella caerulea*, *Imperata cylindrica* and *Lomandra longifolia*. In some areas, *Eucalyptus paniculata* may also occur in the canopy.

Characteristic Features:

- low or stunted canopy of Bastard Mahogany and Smooth-barked Apple
- mid-storey of Banksia, Rough Guinea-flower, Ti-tree, Elderberry Panax
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

65 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - may support Themeda grasslands on seacliffs and headlands EEC in some areas

Key Diagnostic Species [99% contribution, based on 4 plots]:

Coastal Headland Low Forest (51c)
Average similarity: 32.39

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus umbra</i>	4.25	6.41	7.74	19.79
	<i>Angophora costata</i>	2.75	3.52	3.17	10.88
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	0.75	0.24	0.41	0.74
Shrub	<i>Banksia spinulosa</i> var. <i>collina</i>	2.00	1.22	0.76	3.77
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1.25	1.18	0.82	3.64
	<i>Lasiopetalum parviflorum</i>	1.50	0.95	0.41	2.94
	<i>Acrotriche divaricata</i>	0.75	0.81	0.90	2.50
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.50	0.77	0.90	2.38
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.25	0.74	0.91	2.29
	<i>Logania albiflora</i>	0.50	0.32	0.41	0.98
	<i>Acacia myrtifolia</i>	0.75	0.29	0.41	0.90
	<i>Pultenaea villosa</i>	1.00	0.29	0.41	0.90
	<i>Acacia ulicifolia</i>	0.50	0.24	0.41	0.74
	<i>Breyenia oblongifolia</i>	0.50	0.24	0.41	0.74
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	0.23	0.41	0.70
	<i>Melaleuca nodosa</i>	0.75	0.23	0.41	0.70
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.75	0.23	0.41	0.70	
Ground Fern	<i>Pteridium esculentum</i>	0.75	0.29	0.41	0.90
Grass	<i>Entolasia stricta</i>	2.00	2.34	3.27	7.23
	<i>Imperata cylindrica</i>	1.75	1.83	3.98	5.64
	<i>Themeda australis</i>	1.50	0.51	0.41	1.56
	<i>Panicum simile</i>	0.75	0.25	0.41	0.78
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.50	1.83	3.98	5.64
	<i>Lomandra longifolia</i>	1.25	1.18	0.82	3.64
	<i>Lomandra obliqua</i>	1.00	0.51	0.41	1.56
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.50	0.32	0.41	0.98
Twiner	<i>Pandorea pandorana</i>	1.50	1.77	0.91	5.47
	<i>Eustrephus latifolius</i>	1.25	1.06	0.83	3.28
	<i>Cassytha glabella</i> f. <i>glabella</i>	1.25	1.02	0.77	3.14
	<i>Billardiera scandens</i>	1.00	0.58	0.41	1.81
	<i>Hibbertia dentata</i>	0.75	0.32	0.41	0.98
	<i>Smilax glycyphylla</i>	0.50	0.24	0.41	0.74
	<i>Hardenbergia violacea</i>	0.75	0.23	0.41	0.70

Dry Forests (Scribbly Gum, colluvial soils)



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Scribbly Gum/ Red Bloodwood/ Angophora inopina heathy woodland of Central Coast lowlands, northern Sydney Basin

GHV: Scribbly Gum/ Red Bloodwood/ Angophora inopina heathy woodland on lowlands of the Central Coast (118)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)

General Description:

Coastal Plains Scribbly Gum Woodland is a widespread community on Narrabeen sediments of the Central Coast hinterland, which is consistently composed of *Eucalyptus haemastoma*, *Corymbia gummifera*, *Eucalyptus capitellata* and *Angophora costata* in the canopy, over a diverse understorey of heathy shrubs, sub-shrubs and forbs. This community also provides abundant habitat for threatened plant species such as *Tetratheca juncea*, *Angophora inopina*, *Cryptostylis hunteriana* and *Acacia bynoeana*.

Characteristic Features:

- canopy of Scribbly Gum, Red Bloodwood, Brown Stringybark and Smooth-barked Apple
- understorey dominated by heathy shrubs and sub-shrubs, such as Hill Banksia, Mountain Devil, Drumsticks and wattles
- occurs on gently undulating to hilly sediments of Triassic Narrabeen geology

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

4761 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 45 plots]:

Coastal Plains Scribbly Gum Woodland (31)					
Average similarity: 45.59					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus haemastoma</i>	2.73	3.04	2.71	6.68
	<i>Corymbia gummifera</i>	2.22	2.36	2.60	5.18
	<i>Eucalyptus capitellata</i>	1.51	0.97	0.75	2.13
	<i>Angophora inopina</i>	1.00	0.38	0.37	0.83
	<i>Angophora costata</i>	0.51	0.12	0.27	0.27
Small Tree	<i>Allocasuarina littoralis</i>	0.78	0.34	0.48	0.74
Shrub	<i>Epacris pulchella</i>	1.80	2.11	2.57	4.62
	<i>Leptospermum trinervium</i>	2.09	1.95	1.93	4.27
	<i>Banksia oblongifolia</i>	1.91	1.72	1.25	3.78
	<i>Lambertia formosa</i>	1.84	1.72	1.57	3.77
	<i>Pultenaea tuberculata</i>	1.49	1.33	1.14	2.92
	<i>Persoonia levis</i>	1.02	1.07	1.81	2.34
	<i>Hakea laevipes</i> subsp. <i>laevipes</i>	1.22	1.01	1.01	2.23
	<i>Isopogon anemonifolius</i>	1.04	0.93	1.23	2.03
	<i>Dillwynia retorta</i>	1.29	0.85	0.76	1.86
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1.02	0.71	0.76	1.57
	<i>Platysace linearifolia</i>	0.93	0.51	0.57	1.12
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.00	0.50	0.57	1.09
	<i>Comesperma ericinum</i>	0.76	0.46	0.63	1.00
	<i>Grevillea sericea</i> subsp. <i>sericea</i>	0.80	0.41	0.55	0.89
	<i>Petrophile pulchella</i>	0.67	0.27	0.43	0.60
	<i>Tetradlea juncea</i>	0.69	0.27	0.42	0.59
	<i>Bossiaea stephensonii</i>	0.53	0.25	0.48	0.55
	<i>Leucopogon microphyllus</i> var. <i>microphyllus</i>	0.71	0.25	0.33	0.55
	<i>Acacia myrtifolia</i>	0.53	0.24	0.44	0.52
	<i>Acacia suaveolens</i>	0.49	0.21	0.42	0.46
	<i>Pultenaea paleacea</i>	0.58	0.16	0.29	0.34
	<i>Hakea bakeriana</i>	0.53	0.14	0.30	0.31
	<i>Bossiaea heterophylla</i>	0.38	0.09	0.23	0.20
	<i>Hibbertia obtusifolia</i>	0.38	0.08	0.17	0.17
	<i>Monotoca scoparia</i>	0.24	0.07	0.24	0.16
	<i>Bossiaea obcordata</i>	0.31	0.05	0.18	0.12
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.33	0.06	0.16	0.12
	<i>Acacia terminalis</i>	0.27	0.05	0.19	0.11
	<i>Gompholobium latifolium</i>	0.24	0.05	0.19	0.10
	<i>Leucopogon esquamatus</i>	0.29	0.04	0.14	0.10
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.24	0.04	0.17	0.09
	<i>Melaleuca sieberi</i>	0.18	0.04	0.17	0.08
Low Shrub	<i>Dampiera stricta</i>	1.16	0.88	0.87	1.93
	<i>Melichrus procumbens</i>	0.42	0.24	0.45	0.52
	<i>Comesperma sphaerocarpum</i>	0.27	0.06	0.21	0.13
	<i>Leucopogon attenuatus</i>	0.36	0.05	0.15	0.12
	<i>Platysace ericoides</i>	0.27	0.05	0.16	0.10
	<i>Mirbelia rubifolia</i>	1.00	0.62	0.67	1.36
	<i>Gompholobium pinnatum</i>	0.64	0.33	0.49	0.72
<i>Hovea linearis</i>	0.24	0.05	0.19	0.11	
Sub-shrub	<i>Gompholobium glabratum</i>	0.24	0.03	0.14	0.07

Coastal Plains Scribbly Gum Woodland (31)

Average similarity: 45.59

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Prostrate Shrub	<i>Hibbertia vestita</i>	0.58	0.22	0.32	0.48
Ground Fern	<i>Lindsaea linearis</i>	1.22	0.97	0.87	2.13
	<i>Schizaea bifida</i>	0.24	0.05	0.19	0.11
Grasstree	<i>Xanthorrhoea latifolia subsp. latifolia</i>	2.20	2.22	2.70	4.87
Grass	<i>Entolasia stricta</i>	2.67	2.59	1.89	5.67
	<i>Anisopogon avenaceus</i>	1.67	1.21	0.88	2.65
	<i>Themeda australis</i>	1.00	0.44	0.48	0.97
	<i>Aristida warburgii</i>	0.82	0.29	0.33	0.63
	<i>Panicum simile</i>	0.67	0.28	0.42	0.61
	<i>Aristida vagans</i>	0.56	0.18	0.28	0.39
	<i>Eragrostis brownii</i>	0.38	0.07	0.18	0.15
	<i>Aristida ramosa</i>	0.33	0.05	0.14	0.11
Graminoid	<i>Lomandra obliqua</i>	1.56	1.53	1.30	3.36
	<i>Patersonia sericea</i>	1.36	1.28	1.13	2.80
	<i>Patersonia glabrata</i>	0.91	0.51	0.58	1.12
	<i>Lomandra filiformis subsp. filiformis</i>	0.67	0.28	0.38	0.61
	<i>Lomandra glauca</i>	0.60	0.20	0.32	0.44
	<i>Haemodorum planifolium</i>	0.33	0.07	0.21	0.15
Sedge	<i>Ptilothrix deusta</i>	2.71	2.05	0.89	4.50
	<i>Cyathochaeta diandra</i>	0.96	0.45	0.52	0.99
	<i>Lepidosperma laterale</i>	0.71	0.31	0.40	0.68
	<i>Lepidosperma concavum</i>	0.76	0.26	0.35	0.56
	<i>Lepyrodia scariosa</i>	0.36	0.05	0.15	0.11
Herb	<i>Burchardia umbellata</i>	0.62	0.31	0.53	0.69
	<i>Actinotus minor</i>	0.69	0.22	0.29	0.49
	<i>Drosera auriculata</i>	0.47	0.15	0.30	0.34
	<i>Goodenia bellidifolia subsp. bellidifolia</i>	0.40	0.11	0.25	0.24
	<i>Poranthera ericifolia</i>	0.38	0.11	0.28	0.24
	<i>Goodenia hederacea subsp. hederacea</i>	0.40	0.09	0.21	0.21
	<i>Hybanthus monopetalus</i>	0.36	0.10	0.26	0.21
	<i>Goodenia heterophylla subsp. heterophylla</i>	0.36	0.08	0.20	0.17
	<i>Phyllanthus hirtellus</i>	0.31	0.06	0.19	0.13
	<i>Stylidium graminifolium</i>	0.31	0.06	0.18	0.13
	<i>Scaevola ramosissima</i>	0.24	0.04	0.17	0.08
	<i>Stackhousia nuda</i>	0.20	0.03	0.14	0.07
	<i>Tricoryne elatior</i>	0.22	0.03	0.14	0.06
	<i>Xanthosia tridentata</i>	0.22	0.03	0.14	0.06
Twiner	<i>Cassytha glabella f. glabella</i>	1.16	0.90	0.91	1.98
	<i>Billardiera scandens</i>	0.36	0.14	0.34	0.30



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Scribbly Gum/ Red Bloodwood/ Angophora inopina heathy woodland on lowlands of the Central Coast (118)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)

General Description:

Snappy Gum Ridgetop Heathy Forest is a substantial variant of Coastal Plains Scribbly Gum Woodland (MU31), as it replaces *Eucalyptus haemastoma* in that community with *Eucalyptus racemosa*. *Angophora costata* and *Corymbia gummifera* are additional key canopy species in this community, which are also shared with MU31. Other key differences include the presence of understorey species such as *Pultenaea paleacea*, *Daviesia ulicifolia*, *Pimelea linifolia* and *Acacia myrtifolia*, together with *Xanthorrhoea latifolia*, *Entolasia stricta* and *Themeda australis* on the ground. Known from Narrabeen sandstone ridgetops between Morisset and Catherine Hill Bay (separated by the southern reaches of Lake Macquarie), with a small outlier near Toronto. With further investigation, this latter site may instead form the southern extent of Killingworth Snappy Gum Forest (MU111c).

Characteristic Features:

- canopy of Snappy Gum, with Smooth-barked Apple and Red Bloodwood
- mid-storey of Peas, Slender Rice-flower and Wattles
- ground layer of grasses and Grass Trees

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

631 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 5 plots]:

Snappy Gum Ridgetop Heathy Forest (31j)					
Average similarity: 47.37					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.00	4.07	28.98	8.59
	<i>Eucalyptus racemosa</i>	3.20	4.07	28.98	8.59
	<i>Corymbia gummifera</i>	2.60	3.11	5.19	6.56
	<i>Eucalyptus capitellata</i>	1.00	0.56	0.57	1.18
Small Tree	<i>Allocasuarina littoralis</i>	0.60	0.13	0.32	0.28
Shrub	<i>Pultenaea paleacea</i>	2.40	2.31	2.43	4.88
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	1.20	0.84	0.62	1.78
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1.20	0.84	0.62	1.77
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1.20	0.83	0.62	1.76
	<i>Acacia myrtifolia</i>	1.00	0.80	1.16	1.69
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.40	0.69	0.52	1.46
	<i>Lambertia formosa</i>	1.40	0.67	0.52	1.41
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.80	0.42	0.62	0.89
	<i>Grevillea sericea</i> subsp. <i>sericea</i>	0.80	0.42	0.62	0.88
	<i>Podolobium ilicifolium</i>	0.80	0.40	0.62	0.85
	<i>Banksia oblongifolia</i>	0.80	0.27	0.32	0.58
	<i>Epacris pulchella</i>	0.80	0.26	0.32	0.54
	<i>Acacia terminalis</i>	0.60	0.14	0.32	0.30
	<i>Dodonaea triquetra</i>	0.60	0.14	0.32	0.30
	<i>Dillwynia retorta</i>	0.60	0.14	0.32	0.29
	<i>Melaleuca sieberi</i>	0.40	0.14	0.32	0.29
	<i>Persoonia levis</i>	0.40	0.14	0.32	0.29
	<i>Acacia ulicifolia</i>	0.40	0.13	0.32	0.28
	<i>Monotoca scoparia</i>	0.60	0.13	0.32	0.28
	Low Shrub	<i>Platysace ericoides</i>	0.40	0.14	0.32
<i>Melichrus procumbens</i>		0.40	0.13	0.32	0.28
Sub-shrub	<i>Mirbelia rubiifolia</i>	0.80	0.26	0.32	0.54
Ground Fern	<i>Pteridium esculentum</i>	0.80	0.13	0.32	0.27
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	3.40	4.20	11.29	8.86
Grass	<i>Entolasia stricta</i>	2.00	2.71	28.98	5.73
	<i>Themeda australis</i>	2.80	2.61	2.08	5.50
	<i>Panicum simile</i>	1.60	1.78	2.50	3.75
	<i>Joycea pallida</i>	1.80	1.62	1.16	3.43
	<i>Dichelachne micrantha</i>	0.60	0.14	0.32	0.30
Graminoid	<i>Lomandra obliqua</i>	1.60	1.67	1.16	3.52
	<i>Dianella caerulea</i> var. <i>assera</i>	0.80	0.42	0.62	0.88
	<i>Dianella revoluta</i> var. <i>revoluta</i>	0.60	0.40	0.62	0.84
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.80	0.28	0.32	0.59
	<i>Haemodorum planifolium</i>	1.00	0.27	0.32	0.58
	<i>Lomandra cylindrica</i>	0.80	0.26	0.32	0.55
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.60	0.14	0.32	0.30
	<i>Patersonia sericea</i>	0.60	0.14	0.32	0.29

Snappy Gum Ridgetop Heathy Forest (31j)					
Average similarity: 47.37					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Sedge	<i>Ptilothrix deusta</i>	2.20	1.81	1.12	3.81
	<i>Cyathochaeta diandra</i>	2.00	1.76	1.12	3.72
	<i>Lepidosperma laterale</i>	1.20	0.81	0.62	1.71
Herb	<i>Desmodium rhytidophyllum</i>	0.40	0.14	0.32	0.30
	<i>Pratia purpurascens</i>	0.60	0.14	0.32	0.30
	<i>Thysanotus tuberosus subsp. tuberosus</i>	0.60	0.14	0.32	0.30
	<i>Goodenia heterophylla subsp. heterophylla</i>	0.60	0.13	0.32	0.28
	<i>Brunoniella australis</i>	0.60	0.13	0.32	0.27
Ground Orchid	<i>Cryptostylis subulata</i>	0.60	0.39	0.62	0.83
Twiner	<i>Hardenbergia violacea</i>	1.40	1.25	1.02	2.65
	<i>Glycine clandestina</i>	1.20	0.94	1.05	1.98
	<i>Billardiera scandens</i>	0.80	0.39	0.62	0.83



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)?

General Description:

Lake Macquarie Snappy Gum Forest occurs in low elevations areas on Narrabeen sediments around southern and south-western Lake Macquarie, in between the drainage line swamp forests and the higher elevation Coastal Plains Scribbly Gum Woodland (MU31). Although similar to that community, it consistently supports *Eucalyptus racemosa* in the place of *Eucalyptus haemastoma*, and the understorey vegetation does not contain the high abundances of heathy species present in MU31. This vegetation type has been described and mapped for the northern parts of Wyong LGA, with which Lake Macquarie stands are analogous.

Characteristic Features:

- canopy of Snappy Gum with Red Bloodwood, Brown Stringybark and Smooth-barked Apple
- understorey characterised by Bracken Fern, Hop-Bush and Sydney Golden Wattle
- ground layer of Kangaroo Grass, GrassTree and Wiry Panic

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

904 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 21 plots]:

Lake Macquarie Snappy Gum Forest (111a)					
Average similarity: 39.69					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Angophora costata</i>	3.05	3.31	3.10	8.34
	<i>Eucalyptus racemosa</i>	3.00	3.01	1.62	7.58
	<i>Corymbia gummifera</i>	2.00	1.70	1.16	4.29
	<i>Eucalyptus capitellata</i>	1.10	0.49	0.52	1.24
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	0.67	0.20	0.27	0.51
	<i>Eucalyptus globoidea</i>	0.62	0.10	0.16	0.24
	<i>Eucalyptus haemastoma</i>	0.29	0.04	0.16	0.10
	<i>Allocasuarina torulosa</i>	0.29	0.03	0.11	0.07
	<i>Eucalyptus piperita</i>	0.29	0.02	0.11	0.06
Small Tree	<i>Allocasuarina littoralis</i>	2.24	1.54	0.84	3.88
Shrub	<i>Gompholobium latifolium</i>	1.10	0.71	0.70	1.78
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	0.69	0.90	1.73
	<i>Dodonaea triquetra</i>	1.29	0.63	0.58	1.58
	<i>Epacris pulchella</i>	0.90	0.54	0.71	1.37
	<i>Acacia myrtifolia</i>	1.14	0.44	0.52	1.10
	<i>Pultenaea paleacea</i>	0.81	0.39	0.48	0.99
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.76	0.37	0.48	0.93
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	0.67	0.31	0.49	0.78
	<i>Leptospermum trinervium</i>	0.62	0.30	0.50	0.76
	<i>Lambertia formosa</i>	0.71	0.28	0.43	0.71
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	0.71	0.26	0.38	0.64
	<i>Banksia spinulosa</i> var. <i>collina</i>	0.52	0.22	0.45	0.57
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.67	0.22	0.44	0.56
	<i>Dillwynia retorta</i>	0.71	0.21	0.36	0.53
	<i>Persoonia levis</i>	0.52	0.21	0.44	0.53
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.52	0.16	0.31	0.41
	<i>Persoonia linearis</i>	0.38	0.16	0.39	0.41
	<i>Bossiaea obcordata</i>	0.62	0.15	0.24	0.37
	<i>Acacia ulicifolia</i>	0.48	0.14	0.32	0.34
	<i>Platysace linearifolia</i>	0.38	0.12	0.33	0.31
	<i>Acacia terminalis</i>	0.43	0.10	0.27	0.25
	<i>Pultenaea retusa</i>	0.33	0.09	0.28	0.23
	<i>Bossiaea stephensonii</i>	0.43	0.08	0.21	0.20
	<i>Lomatia silaifolia</i>	0.29	0.06	0.22	0.15
	<i>Pittosporum undulatum</i>	0.24	0.06	0.22	0.15
	<i>Tetraloche juncea</i>	0.33	0.05	0.16	0.12
	<i>Hibbertia obtusifolia</i>	0.29	0.04	0.16	0.11
	<i>Acacia falcata</i>	0.33	0.04	0.16	0.10
	<i>Acacia implexa</i>	0.24	0.04	0.17	0.10
	<i>Breynia oblongifolia</i>	0.19	0.04	0.17	0.10
	<i>Persoonia laurina</i> subsp. <i>laurina</i>	0.24	0.04	0.17	0.10
	<i>Acacia suaveolens</i>	0.24	0.04	0.17	0.09
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.33	0.04	0.17	0.09
<i>Hakea bakeriana</i>	0.19	0.04	0.17	0.09	
<i>Pultenaea daphnoides</i>	0.19	0.03	0.17	0.08	
<i>Jacksonia scoparia</i>	0.29	0.02	0.11	0.05	
<i>Melaleuca sieberi</i>	0.14	0.02	0.12	0.05	
Low Shrub	<i>Dampiera stricta</i>	0.33	0.06	0.16	0.14

Lake Macquarie Snappy Gum Forest (111a)					
Average similarity: 39.69					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Opercularia varia</i>	0.24	0.03	0.17	0.08
	<i>Pomax umbellata</i>	0.19	0.03	0.17	0.08
	<i>Mirbelia rubiifolia</i>	0.67	0.21	0.32	0.53
Sub-shrub	<i>Hovea linearis</i>	0.33	0.09	0.28	0.22
Prostrate Shrub	<i>Hibbertia vestita</i>	0.24	0.02	0.11	0.06
Ground Fern	<i>Pteridium esculentum</i>	1.57	1.39	1.54	3.51
	<i>Lindsaea linearis</i>	0.86	0.47	0.54	1.17
	<i>Adiantum aethiopicum</i>	0.43	0.05	0.16	0.11
Grasstree	<i>Xanthorrhoea latifolia subsp. latifolia</i>	2.24	1.94	1.41	4.89
Grass	<i>Entolasia stricta</i>	2.43	2.53	2.66	6.39
	<i>Themeda australis</i>	2.33	2.08	1.92	5.23
	<i>Imperata cylindrica</i>	1.33	1.11	1.17	2.80
	<i>Aristida vagans</i>	1.14	0.73	0.72	1.84
	<i>Panicum simile</i>	1.00	0.53	0.57	1.33
	<i>Joycea pallida</i>	0.67	0.22	0.37	0.56
	<i>Microlaena stipoides var. stipoides</i>	0.62	0.22	0.32	0.56
	<i>Anisopogon avenaceus</i>	0.43	0.08	0.21	0.20
	<i>Digitaria ramularis</i>	0.29	0.04	0.17	0.11
	<i>Echinopogon caespitosus var. caespitosus</i>	0.24	0.04	0.17	0.10
Graminoid	<i>Dianella caerulea var. assera</i>	1.19	1.06	1.44	2.67
	<i>Lomandra obliqua</i>	1.29	1.02	0.84	2.57
	<i>Lomandra cylindrica</i>	0.67	0.27	0.36	0.68
	<i>Lomandra multiflora subsp. multiflora</i>	0.43	0.22	0.45	0.55
	<i>Lomandra filiformis subsp. filiformis</i>	0.57	0.18	0.31	0.44
	<i>Lomandra longifolia</i>	0.48	0.16	0.32	0.40
	<i>Haemodorum planifolium</i>	0.33	0.08	0.28	0.21
	<i>Lomandra glauca</i>	0.38	0.08	0.21	0.21
	<i>Patersonia glabrata</i>	0.33	0.06	0.21	0.16
Sedge	<i>Lepidosperma laterale</i>	1.05	0.77	0.89	1.94
	<i>Cyathochaeta diandra</i>	0.48	0.12	0.26	0.30
	<i>Ptilothrix deusta</i>	0.43	0.11	0.26	0.28
	<i>Lepidosperma neesii</i>	0.29	0.04	0.12	0.09
Herb	<i>Phyllanthus hirtellus</i>	1.29	1.02	0.84	2.57
	<i>Brunoniella australis</i>	0.90	0.51	0.55	1.27
	<i>Pratia purpurascens</i>	0.81	0.44	0.55	1.10
	<i>Gonocarpus tetragynus</i>	0.67	0.27	0.37	0.68
	<i>Opercularia diphylla</i>	0.52	0.17	0.32	0.42
	<i>Goodenia heterophylla subsp. heterophylla</i>	0.48	0.12	0.26	0.31
	<i>Gonocarpus teucrioides</i>	0.43	0.11	0.26	0.28
	<i>Desmodium rhytidophyllum</i>	0.33	0.08	0.28	0.21
	<i>Drosera auriculata</i>	0.33	0.07	0.22	0.17
	<i>Stylidium graminifolium</i>	0.33	0.04	0.16	0.10
Ground Orchid	<i>Cryptostylis subulata</i>	0.43	0.14	0.33	0.35
	<i>Acianthus fornicatus</i>	0.38	0.06	0.17	0.16

Lake Macquarie Snappy Gum Forest (111a)					
Average similarity: 39.69					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Twiner	<i>Billardiera scandens</i>	1.24	1.09	1.40	2.74
	<i>Glycine clandestina</i>	1.05	0.82	1.05	2.07
	<i>Hardenbergia violacea</i>	0.57	0.27	0.52	0.68
	<i>Cassytha glabella f. glabella</i>	0.48	0.13	0.26	0.33
	<i>Parsonsia straminea</i>	0.29	0.10	0.28	0.24
	<i>Glycine microphylla</i>	0.29	0.04	0.16	0.11
	<i>Eustrephus latifolius</i>	0.19	0.02	0.12	0.05



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)?

General Description:

Killingworth Snappy Gum Forest is floristically similar to Snappy Gum Ridgetop Heathy Forest (MU31j) and Kahibah Snappy Gum Forest (MU119), and with further analysis the three may be shown to be variants of the one type. Of the three, only MU31j occurs on Narrabeen sandstone geology while the other two lie on older Permian sediments (MU111c on Moon Island Beach subgroup; MU119 on Adamstown subgroup). At present, Killingworth Snappy Gum Forest has been mapped for areas immediately around the township of Killingworth in north-western Lake Macquarie, with a smaller outlier near Fassifern. It is characterised by a canopy of *Eucalyptus racemosa* and *Angophora costata*, with occasional *Corymbia gummifera* or *Eucalyptus capitellata*. Understorey vegetation includes *Dillwynia retorta*, *Gonocarpus tetragynus*, *Leptospermum trinervium* and *Acacia ulicifolia*, over high abundance of *Entolasia stricta*, *Aristida vagans*, *Joycea pallida* and *Lomandra obliqua*.

Characteristic Features:

- canopy of Snappy Gum and Smooth-barked Apple
- mid-storey of Peas, Ti-trees and Wattles
- well developed ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

174 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Killingworth Snappy Gum Forest (111c)					
Average similarity: 56.21					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus racemosa</i>	3.50	3.92	-	6.98
	<i>Angophora costata</i>	2.50	2.61	-	4.65
Shrub	<i>Dillwynia retorta</i>	2.50	2.61	-	4.65
	<i>Leptospermum trinervium</i>	2.00	2.61	-	4.65
	<i>Acacia ulicifolia</i>	2.00	1.31	-	2.33
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	1.50	1.31	-	2.33
	<i>Dodonaea triquetra</i>	1.50	1.31	-	2.33
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	2.00	2.61	-	4.65
Grass	<i>Entolasia stricta</i>	4.00	5.23	-	9.30
	<i>Aristida vagans</i>	2.00	2.61	-	4.65
	<i>Joycea pallida</i>	2.50	2.61	-	4.65
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	2.61	-	4.65
	<i>Themeda australis</i>	2.50	2.61	-	4.65
	<i>Panicum simile</i>	1.50	1.31	-	2.33
Graminoid	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	2.00	2.61	-	4.65
	<i>Lomandra obliqua</i>	2.00	2.61	-	4.65
	<i>Dianella revoluta</i> var. <i>revoluta</i>	1.00	1.31	-	2.33
Sedge	<i>Ptilothrix deusta</i>	3.00	2.61	-	4.65
Herb	<i>Gonocarpus tetragynus</i>	2.00	2.61	-	4.65
	<i>Phyllanthus hirtellus</i>	2.00	2.61	-	4.65
	<i>Pratia purpurascens</i>	2.00	2.61	-	4.65
Twiner	<i>Billardiera scandens</i>	1.50	1.31	-	2.33
	<i>Cassytha glabella</i> f. <i>glabella</i>	1.50	1.31	-	2.33
	<i>Hardenbergia violacea</i>	1.00	1.31	-	2.33



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)?

General Description:

Kahibah Snappy Gum Forest, as currently mapped, occurs principally on ridges and slopes of Permian geology (Adamstown subgroup), in and around the townships of Kahibah and Whitebridge and extending to near Jewells. As with other similar communities, *Eucalyptus racemosa* is diagnostic for this type, where it occurs with *Corymbia gummifera*, *Angophora costata* and occasionally *Eucalyptus piperita*. Understorey vegetation includes *Pteridium esculentum*, *Allocasuarina littoralis*, *Hibbertia empetrifolia*, *Polyscias sambuccifolia*, *Dodonaea triquetra*, *Tetratheca juncea*, *Entolasia stricta*, *Themeda australis* and *Lomandra obliqua*. Some further targeted sampling and analysis is required to confirm relationships between this unit and Snappy Gum Ridgetop Heathy Forest (MU31j) and Killingworth Snappy Gum Forest (MU111c).

Characteristic Features:

- canopy of Snappy Gum, Red Bloodwood and Smooth-barked Apple
- mid-storey of Black She-oak, Bracken, Elderberry Panax, Hop Bush and Hibbertia
- ground layer of grasses, herbs and forbs, particularly Kangaroo Grass and Wiry Panic

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

129 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Kahibah Snappy Gum Forest (119)					
Average similarity: 52.96					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus racemosa</i>	3.33	3.49	22.59	6.60
	<i>Corymbia gummifera</i>	2.67	2.73	3.62	5.15
	<i>Angophora costata</i>	2.67	2.70	5.04	5.09
	<i>Eucalyptus piperita</i>	1.67	0.80	0.58	1.51
Small Tree	<i>Allocasuarina littoralis</i>	2.33	2.33	22.59	4.40
Shrub	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	2.00	2.33	22.59	4.40
	<i>Dodonaea triquetra</i>	1.67	1.56	2.19	2.95
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.67	1.56	2.17	2.95
	<i>Tetradlea juncea</i>	1.67	1.56	2.17	2.95
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.33	1.16	22.59	2.20
	<i>Persoonia levis</i>	1.33	1.16	22.59	2.20
	<i>Epacris pulchella</i>	1.33	0.74	0.58	1.39
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	0.40	0.58	0.75
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.67	0.40	0.58	0.75
	<i>Notelaea ovata</i>	1.00	0.40	0.58	0.75
	<i>Persoonia linearis</i>	1.00	0.40	0.58	0.75
Ground Fern	<i>Pteridium esculentum</i>	3.33	3.49	22.59	6.60
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	1.67	1.53	2.61	2.89
Grass	<i>Entolasia stricta</i>	3.00	3.49	22.59	6.60
	<i>Themeda australis</i>	3.00	2.73	3.69	5.15
	<i>Aristida vagans</i>	1.33	1.16	22.59	2.20
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	1.33	0.80	0.58	1.51
	<i>Joycea pallida</i>	1.33	0.79	0.58	1.50
	<i>Anisopogon avenaceus</i>	1.00	0.40	0.58	0.75
	<i>Imperata cylindrica</i>	1.00	0.40	0.58	0.75
Graminoid	<i>Lomandra obliqua</i>	2.00	2.33	22.59	4.40
	<i>Dianella caerulea</i> var. <i>assera</i>	1.67	1.56	2.19	2.95
	<i>Patersonia sericea</i>	1.33	0.79	0.58	1.50
	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1.00	0.40	0.58	0.75
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.67	0.40	0.58	0.75
Sedge	<i>Ptilothrix deusta</i>	1.67	0.79	0.58	1.50
	<i>Lepidosperma laterale</i>	0.67	0.40	0.58	0.75
Herb	<i>Brunoniella australis</i>	2.00	2.33	22.59	4.40
	<i>Phyllanthus hirtellus</i>	2.00	2.33	22.59	4.40
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	1.33	0.79	0.58	1.50
Twiner	<i>Billardiera scandens</i>	1.33	1.16	22.59	2.20
	<i>Hardenbergia violacea</i>	0.67	0.40	0.58	0.75
	<i>Pandorea pandorana</i>	0.67	0.40	0.58	0.75

Dry Forests (Scribbly Gum, sand deposits)



Keith Class: Sydney Coastal Dry Sclerophyll Forests
VCA: Not yet assigned
GHV: Smooth-barked Apple/ Blackbutt/ Old Man Banksia woodland on coastal sands of the Central and Lower North Coast (128)
LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)

General Description:

Narrabeen Dune Forest is evident as small sandy old alluvial dunes within the wider Narrabeen Sandstone landscape. These deeper sand deposits support some species more typical of larger Pleistocene sand deposits along the coast, and which are rare within the surrounding Coastal Plains Scribbly Gum Woodland (MU31). This community supports a canopy of *Corymbia gummifera* with *Eucalyptus haemastoma* and *Angophora costata*, over a shrub layer of *Ricinocarpus pinifolius*, *Dillwynia retorta*, *Leptospermum polygalifolium*, *Platysace linearifolia*, *Acacia suaveolens* and *Bossiaea heterophylla*. At present, this type has been noted in only two locations in the Morisset district.

Characteristic Features:

- canopy of Red Bloodwood, Broad-leaved Scribbly Gum and Smooth-barked Apple
- dense mid-storey of Wedding Bush, Ti-tree, Wattles and peas
- sparse ground layer of grasses and Grass Tree

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

3 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Narrabeen Dune Forest (31k)					
Average similarity: 59.68					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia gummifera</i>	3.33	3.65	39.12	6.11
	<i>Angophora costata</i>	2.33	1.62	2.35	2.71
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	2.00	1.61	2.42	2.70
	<i>Eucalyptus haemastoma</i>	2.67	1.59	0.58	2.66
Small Tree	<i>Allocasuarina littoralis</i>	1.33	1.22	39.12	2.04
Shrub	<i>Ricinocarpos pinifolius</i>	3.67	4.04	6.45	6.77
	<i>Dillwynia retorta</i>	3.67	3.65	39.12	6.11
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	3.67	3.22	2.42	5.40
	<i>Platysace linearifolia</i>	2.67	2.83	4.16	4.74
	<i>Acacia suaveolens</i>	2.00	2.43	39.12	4.07
	<i>Acacia ulicifolia</i>	2.00	2.43	39.12	4.07
	<i>Epacris pulchella</i>	2.00	2.43	39.12	4.07
	<i>Bossiaea heterophylla</i>	1.67	1.62	2.35	2.71
	<i>Banksia oblongifolia</i>	1.67	1.61	2.42	2.70
	<i>Gompholobium latifolium</i>	1.67	1.61	2.42	2.70
	<i>Monotoca scoparia</i>	1.33	1.22	39.12	2.04
	<i>Leptospermum trinervium</i>	1.67	0.80	0.58	1.35
	<i>Tetradlea juncea</i>	1.33	0.79	0.58	1.33
	<i>Bossiaea ensata</i>	1.00	0.42	0.58	0.70
	<i>Persoonia levis</i>	0.67	0.40	0.58	0.66
Low Shrub	<i>Dampiera stricta</i>	1.33	0.79	0.58	1.33
Sub-shrub	<i>Mirbelia rubrifolia</i>	1.33	0.79	0.58	1.33
Ground Fern	<i>Pteridium esculentum</i>	2.33	2.43	39.12	4.07
	<i>Lindsaea linearis</i>	1.67	1.61	2.42	2.70
	<i>Schizaea bifida</i>	1.33	0.79	0.58	1.33
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	3.00	3.65	39.12	6.11
Grass	<i>Entolasia stricta</i>	2.00	2.43	39.12	4.07
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.67	1.63	2.17	2.73
	<i>Lomandra longifolia</i>	1.00	0.42	0.58	0.70
Sedge	<i>Empodisma minus</i>	1.33	0.79	0.58	1.33
	<i>Cyathochaeta diandra</i>	1.00	0.40	0.58	0.66
	<i>Gahnia clarkei</i>	0.67	0.40	0.58	0.66
Herb	<i>Drosera auriculata</i>	1.33	0.79	0.58	1.33
	<i>Gonocarpus teucroides</i>	1.33	0.79	0.58	1.33
	<i>Mitrasacme polymorpha</i>	1.33	0.79	0.58	1.33
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	1.33	0.79	0.58	1.33
Clubmoss	<i>Selaginella uliginosa</i>	1.33	0.80	0.58	1.35



Keith Class: Coastal Dune Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Sand Apple-Blackbutt Forest (MU33)?

General Description:

Cockle Creek Dune Forest is a distinct vegetation type occurring presumably on old fluvial dunes formed by Cockle Creek, in the north-eastern parts of the LGA. It is characterised by a canopy of *Eucalyptus racemosa* with *Corymbia gummifera*, *Banksia serrata* and *Angophora costata*. *Xanthorrhoea glauca* is prominent in the understorey, together with *Lambertia formosa*, *Pteridium esculentum*, *Acacia ulicifolia*, and *Allocasuarina littoralis*. Grasses, such as *Entolasia stricta*, *Imperata cylindrica* and *Themeda australis*, comprise the ground layer vegetation. This community is broadly similar to several threatened communities elsewhere in the region, but supports a differing suite of component species.

Characteristic Features:

- canopy of Snappy Gum, Red Bloodwood, Old Man Banksia and Smooth-barked Apple
- mid-storey characterised by often dense stands of Grass Tree, with Mountain Devil, Bracken and Wattles
- ground layer of grasses, herbs and forbs, and including *Tetratheca juncea*

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

13 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 6 plots]:

Cockle Creek Dune Forest (122)
Average similarity: 68.27

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus racemosa</i>	3.50	4.29	7.25	6.28
	<i>Corymbia gummifera</i>	3.33	4.11	9.87	6.02
	<i>Angophora costata</i>	1.67	1.40	1.20	2.05
Small Tree	<i>Banksia serrata</i>	2.67	2.75	2.36	4.03
	<i>Allocasuarina littoralis</i>	2.17	2.10	2.12	3.08
Shrub	<i>Lambertia formosa</i>	3.67	3.69	2.02	5.41
	<i>Acacia ulicifolia</i>	1.83	2.23	3.39	3.27
	<i>Hibbertia linearis</i>	1.83	2.23	3.39	3.27
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	1.67	1.88	2.63	2.76
	<i>Leptospermum trinervium</i>	1.33	1.43	4.10	2.09
	<i>Melaleuca nodosa</i>	1.17	1.34	20.81	1.96
	<i>Persoonia linearis</i>	1.17	1.34	20.81	1.96
	<i>Lomatia silaifolia</i>	1.50	1.14	1.15	1.67
	<i>Acacia suaveolens</i>	1.33	1.02	0.79	1.50
	<i>Persoonia levis</i>	1.00	0.87	1.36	1.28
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.17	0.81	0.73	1.19
	<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	1.17	0.60	0.73	0.88
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.83	0.54	0.79	0.79
	<i>Gompholobium latifolium</i>	0.83	0.53	0.79	0.78
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.67	0.26	0.48	0.38
	<i>Tetradlea juncea</i>	0.67	0.26	0.48	0.38
<i>Gompholobium minus</i>	0.50	0.26	0.48	0.37	
Ground Fern	<i>Pteridium esculentum</i>	3.17	3.00	1.32	4.39
	<i>Lindsaea linearis</i>	1.67	1.74	1.36	2.55
Cycad	<i>Macrozamia flexuosa</i>	0.33	0.09	0.26	0.13
Grasstree	<i>Xanthorrhoea glauca</i> subsp. <i>glauca</i>	5.00	6.26	7.48	9.18
Grass	<i>Entolasia stricta</i>	2.00	2.68	20.81	3.92
	<i>Imperata cylindrica</i>	2.17	2.68	20.81	3.92
	<i>Themeda australis</i>	2.00	2.68	20.81	3.92
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	1.90	1.32	2.78
Graminoid	<i>Lomandra obliqua</i>	1.67	1.74	1.36	2.55
	<i>Lomandra cylindrica</i>	1.50	1.43	1.23	2.10
	<i>Dianella caerulea</i> var. <i>assera</i>	0.83	0.54	0.79	0.80
Herb	<i>Pratia purpurascens</i>	1.83	2.24	3.22	3.29
	<i>Drosera auriculata</i>	1.33	1.06	0.79	1.55
	<i>Opercularia diphylla</i>	0.67	0.54	0.79	0.79
Twiner	<i>Glycine clandestina</i>	1.67	1.87	2.77	2.74
	<i>Billardiera scandens</i>	1.67	1.86	2.86	2.73
	<i>Hardenbergia violacea</i>	0.50	0.26	0.48	0.39

Swamp Forests (Alluvial Soils)



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Swamp Mahogany/ Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (200)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Swamp Mahogany-Paperbark Forest is typified by the presence of *Eucalyptus robusta* in the canopy, and may occur with a range of associates including *Melaleuca linariifolia*, *Melaleuca sieberi*, *Eucalyptus resinifera*, and *Eucalyptus tereticornis*. The understorey is variable, often with a dense shrub layer of species such as *Acacia longifolia*, *Omalanthus nutans*, *Leptospermum juniperinum*, *Melaleuca thymifolia* and *Pultenaea villosa*, and the sedges *Gahnia clarkei*, *Chorizandra cymbaria* and *Baloskion tetraphyllum* subsp. *meiostachyus*. This vegetation type is common in the better defined drainage lines. It is also a stronghold for *Eucalyptus robusta* in the area, a known Koala feed tree, and an important winter-flowering eucalypt providing a food source for several other threatened fauna species.

Characteristic Features:

- canopy of the dominant Swamp Mahogany
- mid-storey dominated by paperbarks
- ground layer of sedges and scattered shrubs, often waterlogged

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

868 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 7 plots]:

Swamp Mahogany - Paperbark Forest (37)					
Average similarity: 33.87					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus robusta</i>	3.71	7.18	3.39	21.19
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	0.57	0.23	0.40	0.68
	<i>Angophora costata</i>	0.57	0.22	0.40	0.65
	<i>Eucalyptus tereticornis</i>	0.71	0.14	0.22	0.41
Small Tree	<i>Melaleuca linariifolia</i>	4.14	6.53	1.25	19.27
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.29	1.15	0.61	3.40
	<i>Callicoma serratifolia</i>	1.14	0.58	0.33	1.70
	<i>Callistemon salignus</i>	0.29	0.08	0.22	0.23
Shrub	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.86	0.94	0.91	2.78
	<i>Leptospermum juniperinum</i>	0.71	0.23	0.40	0.68
	<i>Dodonaea triquetra</i>	0.57	0.15	0.22	0.43
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.29	0.12	0.22	0.36
Ground Fern	<i>Blechnum indicum</i>	1.14	1.47	0.61	4.34
	<i>Pteridium esculentum</i>	0.86	0.55	0.57	1.62
	<i>Hypolepis muelleri</i>	1.29	0.36	0.22	1.07
	<i>Adiantum aethiopicum</i>	0.57	0.18	0.22	0.52
	<i>Gleichenia dicarpa</i>	0.86	0.17	0.22	0.49
Grass	<i>Entolasia marginata</i>	1.00	0.74	0.60	2.18
	<i>Oplismenus imbecillis</i>	1.14	0.55	0.39	1.63
	<i>Imperata cylindrica</i>	0.86	0.30	0.38	0.89
	<i>Paspalidium distans</i>	0.86	0.30	0.37	0.87
	<i>Entolasia stricta</i>	0.29	0.12	0.22	0.36
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	0.86	0.89	0.90	2.63
	<i>Lomandra longifolia</i>	0.86	0.35	0.39	1.02
Sedge	<i>Gahnia clarkei</i>	4.00	5.91	1.90	17.45
	<i>Chorizandra cymbaria</i>	0.57	0.34	0.40	0.99
	<i>Baloskion tetraphyllum</i> subsp. <i>meiostachyum</i>	1.14	0.24	0.22	0.70
	<i>Schoenus melanostachys</i>	0.57	0.12	0.22	0.35
Herb	<i>Centella asiatica</i>	0.86	0.48	0.40	1.41
	<i>Pratia purpurascens</i>	0.86	0.48	0.40	1.41
	<i>Hydrocotyle sibthorpioides</i>	0.86	0.46	0.40	1.37
	<i>Hydrocotyle geraniifolia</i>	0.57	0.18	0.22	0.52
	<i>Hydrocotyle tripartita</i>	0.57	0.17	0.22	0.52
	<i>Dichondra repens</i>	0.57	0.15	0.22	0.43
	<i>Persicaria strigosa</i>	0.29	0.12	0.22	0.36
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.29	0.09	0.22	0.28
	<i>Viola hederacea</i>	0.43	0.08	0.22	0.25
	<i>Gonocarpus tetragynus</i>	0.43	0.08	0.22	0.23
Twiner	<i>Parsonsia straminea</i>	0.57	0.56	0.60	1.65
	<i>Glycine clandestina</i>	0.71	0.31	0.38	0.92
	<i>Cassytha glabella</i> f. <i>glabella</i>	0.43	0.12	0.22	0.35
	<i>Morinda jasminoides</i>	0.29	0.11	0.22	0.32
	<i>Kennedia rubicunda</i>	0.29	0.08	0.22	0.25

Swamp Mahogany - Paperbark Forest (37)**Average similarity: 33.87**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
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Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Melaleuca biconvexa/ Swamp Mahogany/ Cabbage Palm swamp forest of the Central Coast (205)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Alluvial Paperbark Sedge Forest is a vegetation type more common in the Wyong and Gosford LGAs to the south. Within Lake Macquarie, remnants have been noted in the Coorangong and Martinsville valleys on private lands. Typical species present in this type include *Eucalyptus robusta*, the characteristic *Melaleuca biconvexa*, and *Melaleuca linariifolia* and *Gahnia clarkei*. No detailed sampling has yet been undertaken in this community in Lake Macquarie due to access constraints, but it is anticipated that the full floristic composition will differ little from the more southern stands on the Central Coast.

Characteristic Features:

- canopy of emergent Swamp Mahogany, which may be absent in some small stands
- dense mid-storey dominated by Biconvex Paperbark, occasionally with Flax-leaf Paperbark
- ground layer of Tall Saw-sedge sedges and scattered shrubs, often waterlogged

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

26 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [species presence, rapid data points]:

Alluvial Paperbark Sedge Forest (37a)

Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Angophora floribunda</i>	-	-	-	✓
	<i>Eucalyptus robusta</i>	-	-	-	✓
	<i>Eucalyptus resinifera</i>	-	-	-	✓
Small Tree	<i>Melaleuca biconvexa</i>	-	-	-	✓
	<i>Melaleuca linariifolia</i>	-	-	-	✓
Shrub	<i>Melaleuca nodosa</i>	-	-	-	✓
Sedge	<i>Gahnia clarkei</i>	-	-	-	✓



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: ?Swamp Mahogany/ Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (200)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Alluvial Floodplain Woollybutt Forest is currently not shown on associated mapping, as the only remaining stands on the Cocked Hat Creek floodplain near Edgeworth are small and fragmented, and were unknown at the time of map production there. In this area, a partial canopy of *Eucalyptus longifolia* still remains, along with some *Melaleuca decora*, *Melaleuca nodosa* and *Melaleuca ericifolia*. Few other native species are evident. Plot sampling is also problematic here, as previous clearing under the canopy has resulted in dense invasion by tall grassy weeds such as *Paspalum urvillei*. Ideally, better condition remnants require location and sampling, and are seen as a priority. A small area also occurs near Wyee, but at present this patch is not included on mapping.

Characteristic Features:

- canopy of Woollybutt with lower Paperbarks
- mid-storey of Paperbarks
- ground layer of grassy weed species

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Alluvial Floodplain Woollybutt Forest (37b)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Angophora costata</i>	-	-	-	3.00	
	<i>Eucalyptus longifolia</i>	-	-	-	3.00	
	<i>Eucalyptus robusta</i>	-	-	-	1.00	
Shrub	<i>Pultenaea villosa</i>	-	-	-	5.00	
	<i>Dodonaea triquetra</i>	-	-	-	4.00	
	<i>Pultenaea retusa</i>	-	-	-	4.00	
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	3.00	
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	2.00	
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	-	-	-	1.00	
	<i>Breynia oblongifolia</i>	-	-	-	1.00	
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	-	-	-	1.00	
	<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	-	-	-	1.00	
	<i>Melaleuca nodosa</i>	-	-	-	1.00	
	<i>Persoonia linearis</i>	-	-	-	1.00	
Low Shrub	<i>Pomax umbellata</i>	-	-	-	1.00	
Prostrate Shrub	<i>Hibbertia vestita</i>	-	-	-	1.00	
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	3.00	
	<i>Blechnum cartilagineum</i>	-	-	-	1.00	
Grass	<i>Entolasia marginata</i>	-	-	-	2.00	
	<i>Imperata cylindrica</i>	-	-	-	2.00	
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00	
Sedge	<i>Gahnia clarkei</i>	-	-	-	2.00	
Herb	<i>Gonocarpus teucroides</i>	-	-	-	1.00	
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	2.00	
	<i>Hardenbergia violacea</i>	-	-	-	2.00	
	<i>Kennedia rubicunda</i>	-	-	-	2.00	
	<i>Glycine microphylla</i>	-	-	-	1.00	



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: ?*Melaleuca biconvexa*/ Swamp Mahogany/ Cabbage Palm swamp forest of the Central Coast (205)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Alluvial Floodplain Cabbage Gum Forest occupies the broader creeklines and flats on deep alluvial soils, particularly in the south-west of Lake Macquarie LGA. Dominant canopy species include *Eucalyptus amplifolia* subsp. *amplifolia* and occasionally *Angophora floribunda*. In better condition sites, a sub-canopy of *Melaleuca styphelioides*, *Melaleuca linariifolia* and *Melaleuca decora* is also present. Understorey vegetation includes the shrubs *Breyenia oblongifolia*, *Notelaea longifolia* forma *longifolia*, and *Bursaria spinosa*; the grasses *Microlaena stipoides*, *Cymbopogon refractus* and *Cynodon dactylon*; the herbs *Dichondra repens* and *Commelina cyanea*; the vines *Glycine tabacina*, *Parsonsia straminea*, *Cayratia clematidea* and *Geitonoplesium cymosum*; and the fern *Cheilanthes sieberi* subsp. *sieberi*.

Characteristic Features:

- canopy dominated by Cabbage Gum, Rough-barked Apple, and Paperbarks
- mid-storey dominated by Paperbarks
- ground layer of grasses and sedges

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

534 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Alluvial Floodplain Cabbage Gum Forest (37d)
Average similarity: 56.58

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	4.00	5.26	-	9.30
Small Tree	<i>Melaleuca linariifolia</i>	3.00	2.63	-	4.65
	<i>Acacia parramattensis</i>	2.00	1.32	-	2.33
Shrub	<i>Breynia oblongifolia</i>	1.00	1.32	-	2.33
	<i>Maytenus silvestris</i>	1.00	1.32	-	2.33
	<i>Melaleuca nodosa</i>	3.50	1.32	-	2.33
	<i>Pittosporum revolutum</i>	1.50	1.32	-	2.33
Grass	<i>Digitaria diffusa</i>	2.00	2.63	-	4.65
	<i>Entolasia marginata</i>	2.00	2.63	-	4.65
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	2.63	-	4.65
	<i>Oplismenus imbecillis</i>	2.50	2.63	-	4.65
Graminoid	<i>Lomandra longifolia</i>	2.00	2.63	-	4.65
	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	1.32	-	2.33
Sedge	<i>Carex longebrachiata</i>	2.00	2.63	-	4.65
	<i>Gahnia clarkei</i>	2.50	1.32	-	2.33
Herb	<i>Dichondra repens</i>	3.00	3.95	-	6.98
	<i>Hydrocotyle laxiflora</i>	2.50	2.63	-	4.65
	<i>Oxalis perennans</i>	2.00	2.63	-	4.65
	<i>Pratia purpurascens</i>	2.50	2.63	-	4.65
	<i>Viola hederacea</i>	2.00	2.63	-	4.65
	<i>Pseuderanthemum variabile</i>	1.50	1.32	-	2.33
Twiner	<i>Morinda jasminoides</i>	2.00	2.63	-	4.65
	<i>Glycine clandestina</i>	1.50	1.32	-	2.33
	<i>Hibbertia scandens</i>	1.50	1.32	-	2.33
	<i>Pandorea pandorana</i>	1.00	1.32	-	2.33
	<i>Parsonsia straminea</i>	1.50	1.32	-	2.33



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: ?Swamp Mahogany/ Flax-leaved Paperbark swamp forest of coastal lowlands of the Central Coast (200)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Swamp Mahogany – Tallowwood Swamp Forest is an interesting swamp forest variant where *Eucalyptus microcorys* co-dominants with *Eucalyptus robusta*. Mid-layer vegetation includes *Melaleuca styphelioides*, *Callistemon salignus* and *Glochidion ferdinandi*, with *Gahnia clarkei*, *Microlaena stipoides* var. *stipoides*, *Adiantum aethiopicum* and *Oplismenus imbecillis* prominent on the ground. At present, this form has only been recorded at Wyee near the M1 motorway, and additional stands may become apparent with further work, particularly to the west. There is some uncertainty regarding how this community differs from other forms of MU37.

Characteristic Features:

- canopy of Swamp Mahogany, Tallowwood and Willow Bottlebrush
- mid-storey of Prickly-leaf Paperbark, Willow Bottlebrush and Cheese Tree
- ground layer of Tall Saw-sedge, grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

3 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Swamp Mahogany - Tallowood Swamp Forest (37g)
Less than 2 samples in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus robusta</i>	-	-	-	4.00
	<i>Eucalyptus microcorys</i>	-	-	-	4.00
	<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	-	-	-	1.00
Small Tree	<i>Melaleuca styphelioides</i>	-	-	-	5.00
	<i>Callistemon salignus</i>	-	-	-	4.00
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	3.00
	<i>Melaleuca linariifolia</i>	-	-	-	1.00
Shrub	<i>Pittosporum revolutum</i>	-	-	-	2.00
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	1.00
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	-	-	-	1.00
	<i>Maytenus silvestris</i>	-	-	-	1.00
Ground Fern	<i>Adiantum aethiopicum</i>	-	-	-	3.00
Grass	<i>Oplismenus imbecillis</i>	-	-	-	5.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	4.00
	<i>Imperata cylindrica</i>	-	-	-	2.00
	<i>Poa affinis</i>	-	-	-	2.00
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	1.00
Sedge	<i>Gahnia clarkei</i>	-	-	-	4.00
	<i>Carex longibrachiata</i>	-	-	-	2.00
Herb	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Dichondra repens</i>	-	-	-	2.00
	<i>Galium propinquum</i>	-	-	-	2.00
	<i>Hydrocotyle laxiflora</i>	-	-	-	2.00
	<i>Pseuderanthemum variabile</i>	-	-	-	2.00
	<i>Viola banksii</i>	-	-	-	2.00
	<i>Oxalis perennans</i>	-	-	-	1.00
	<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	-	-	-	1.00
Twiner	<i>Glycine clandestina</i>	-	-	-	2.00
	<i>Parsonsia straminea</i>	-	-	-	2.00
	<i>Eustrephus latifolius</i>	-	-	-	1.00
	<i>Pandorea pandorana</i>	-	-	-	1.00
	<i>Hibbertia scandens</i>	-	-	-	1.00



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: ?Cabbage Gum/ Forest Red Gum/ Red Mahogany/ Flax-leaved Paperbark
Floodplain Forest of the Central Coast (202)

LHCCREMS: Redgum - Rough-barked Apple Forest (MU38)

General Description:

Floodplain Redgum – Rough-barked Apple Forest is related to Foreshore Redgum – Rough-barked Apple Forest (MU38), but occurs on larger floodplain environments distant from and to the west of the current lake shoreline (eg: Killingworth-Teralba). Floristically the two share several species, although in this case the canopy of *Eucalyptus tereticornis* and *Angophora floribunda* occurs over a moderately dense mid-storey of *Acacia irrorata*, and a rich ground layer of species such as *Entolasia marginata*, *Dichondra repens*, *Oplismenus imbecillis*, *Pratia purpurascens* and *Microlaena stipoides* var. *stipoides*.

Characteristic Features:

- canopy of Forest Redgum and Rough-barked Apple
- mid-storey of Green Wattle
- well developed ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

395 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 5 plots]:

Floodplain Redgum - Rough-barked Apple Forest (38a)					
Average similarity: 35.69					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus tereticornis</i>	3.40	4.30	8.29	12.04
	<i>Angophora floribunda</i>	2.00	1.43	0.92	4.01
Small Tree	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	3.00	2.67	1.14	7.47
	<i>Melaleuca linariifolia</i>	1.20	0.42	0.32	1.18
	<i>Melaleuca styphelioides</i>	1.40	0.42	0.32	1.18
Shrub	<i>Melaleuca nodosa</i>	1.60	0.84	1.16	2.36
	<i>Breynia oblongifolia</i>	1.20	0.80	1.16	2.24
	<i>Dodonaea triquetra</i>	1.00	0.80	1.16	2.24
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.20	0.56	0.56	1.57
	<i>Bursaria spinosa</i>	0.60	0.14	0.32	0.39
	<i>Exocarpos cupressiformis</i>	0.40	0.13	0.32	0.35
Grass	<i>Entolasia marginata</i>	3.00	3.05	3.35	8.55
	<i>Oplismenus imbecillis</i>	2.60	2.23	1.08	6.24
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.00	1.33	0.62	3.71
	<i>Imperata cylindrica</i>	1.60	1.24	1.00	3.49
	<i>Oplismenus aemulus</i>	1.20	0.82	0.62	2.30
	<i>Echinopogon ovatus</i>	1.40	0.80	0.62	2.24
	<i>Digitaria diffusa</i>	0.80	0.31	0.32	0.87
	<i>Paspalidium distans</i>	1.00	0.27	0.32	0.75
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	0.80	0.86	1.16	2.41
	<i>Lomandra longifolia</i>	0.80	0.14	0.32	0.39
Sedge	<i>Carex longebrachiata</i>	1.20	0.53	0.57	1.50
	<i>Gahnia clarkei</i>	0.40	0.14	0.32	0.39
Herb	<i>Dichondra repens</i>	2.40	2.91	6.87	8.14
	<i>Pratia purpurascens</i>	1.60	1.69	1.16	4.72
	<i>Hydrocotyle laxiflora</i>	1.20	0.83	0.62	2.32
	<i>Galium propinquum</i>	1.20	0.80	0.62	2.24
	<i>Oxalis perennans</i>	1.20	0.80	0.62	2.24
	<i>Centella asiatica</i>	0.80	0.28	0.32	0.78
	<i>Hydrocotyle tripartita</i>	0.80	0.28	0.32	0.78
	<i>Pseuderanthemum variabile</i>	0.80	0.25	0.32	0.71
	<i>Commelina cyanea</i>	0.60	0.15	0.32	0.41
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.40	0.14	0.32	0.39
	Twiner	<i>Glycine clandestina</i>	1.60	1.72	1.16
<i>Polymeria calycina</i>		1.00	0.54	0.56	1.51
<i>Geitonoplesium cymosum</i>		0.80	0.41	0.62	1.16
<i>Clematis glycinoides</i> var. <i>glycinoides</i>		0.40	0.14	0.32	0.39
<i>Hardenbergia violacea</i>		0.40	0.14	0.32	0.39
<i>Hibbertia scandens</i>		0.40	0.14	0.32	0.39



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Cabbage Palm/ Broad-leaved Mahogany woodland on Wallarah Peninsular (163)

LHCCREMS: Apple-Palm Gully Forest (MU39)

General Description:

Apple - Palm Gully Forest was originally defined during the REMS2000 regional project, but has not yet been examined since in any detail. This community occurs on narrow alluvial deposits in the well-protected gullies of the Wallarah Peninsula in the south-east, and is typified by a canopy of *Livistona australis*, *Corymbia maculata* and *Eucalyptus paniculata*. Other characteristic species include *Melaleuca styphelioides*, *Acmena smithii*, *Diospyros australis*, *Pittosporum undulatum* and *Glochidion ferdinandi*, over a ground layer of *Adiantum aethiopicum*, *Oplismenus imbecillis* and *Dioscorea transversa*. Apple (*Angophora costata*), as defined in the original circumscription, is not apparent in areas sampled to date.

Characteristic Features:

- emergent canopy of Cabbage tree Palm with Spotted Gum and Grey Ironbark
- mid-storey of Cabbage Tree Palm, Paperbark, Lily Pily and Sweet Pittosporum
- sparse ground layer of ferns and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

21 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Apple Palm Gully Forest (39)					
Average similarity: 53.97					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Acmena smithii</i>	3.50	4.76	-	8.82
	<i>Corymbia maculata</i>	3.00	4.76	-	8.82
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3.00	4.76	-	8.82
Small Tree	<i>Melaleuca styphelioides</i>	3.00	4.76	-	8.82
	<i>Diospyros australis</i>	3.00	3.17	-	5.88
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	2.00	3.17	-	5.88
Palm	<i>Livistona australis</i>	4.50	6.35	-	11.76
Shrub	<i>Notelaea longifolia</i> f. <i>longifolia</i>	2.50	3.17	-	5.88
	<i>Pittosporum undulatum</i>	2.00	3.17	-	5.88
	<i>Pittosporum revolutum</i>	1.00	1.59	-	2.94
Ground Fern	<i>Adiantum aethiopicum</i>	2.00	3.17	-	5.88
Grass	<i>Oplismenus imbecillis</i>	2.00	3.17	-	5.88
Sedge	<i>Lepidosperma laterale</i>	1.00	1.59	-	2.94
Herb	<i>Pseuderanthemum variabile</i>	1.50	1.59	-	2.94
Twiner	<i>Dioscorea transversa</i>	2.00	3.17	-	5.88
	<i>Smilax australis</i>	1.50	1.59	-	2.94



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Smooth-barked Apple/ Red Mahogany/ Swamp Mahogany/ *Melaleuca sieberi* heathy swamp woodland of coastal lowlands (131)

LHCCREMS: Riparian *Melaleuca* Swamp Woodland (MU42)

General Description:

Red Mahogany – Apple – Paperbark Forest occupies shallow drainage lines and open depressions, such as on the lowlands around Awaba. It comprises *Eucalyptus resinifera*, *Angophora costata*, *Melaleuca linariifolia*, *Melaleuca sieberi* and *Eucalyptus globoidea* in the canopy, over a sparse understorey of *Acacia longifolia*, *Pultenaea villosa* and *Banksia spinulosa* var. *collina* in the shrub layer, and several grasses and sedges on the ground. *Gahnia clarkei* can be common, although generally not in large, dense stands.

Characteristic Features:

- occurs in broad drainage lines
- canopy dominated by Red Mahogany, Smooth-barked Apple, White Stringybark and paperbarks
- mid-storey dominated by Sydney Golden Wattle, peas and Hairpin Banksia
- ground layer of sedges and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

855 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

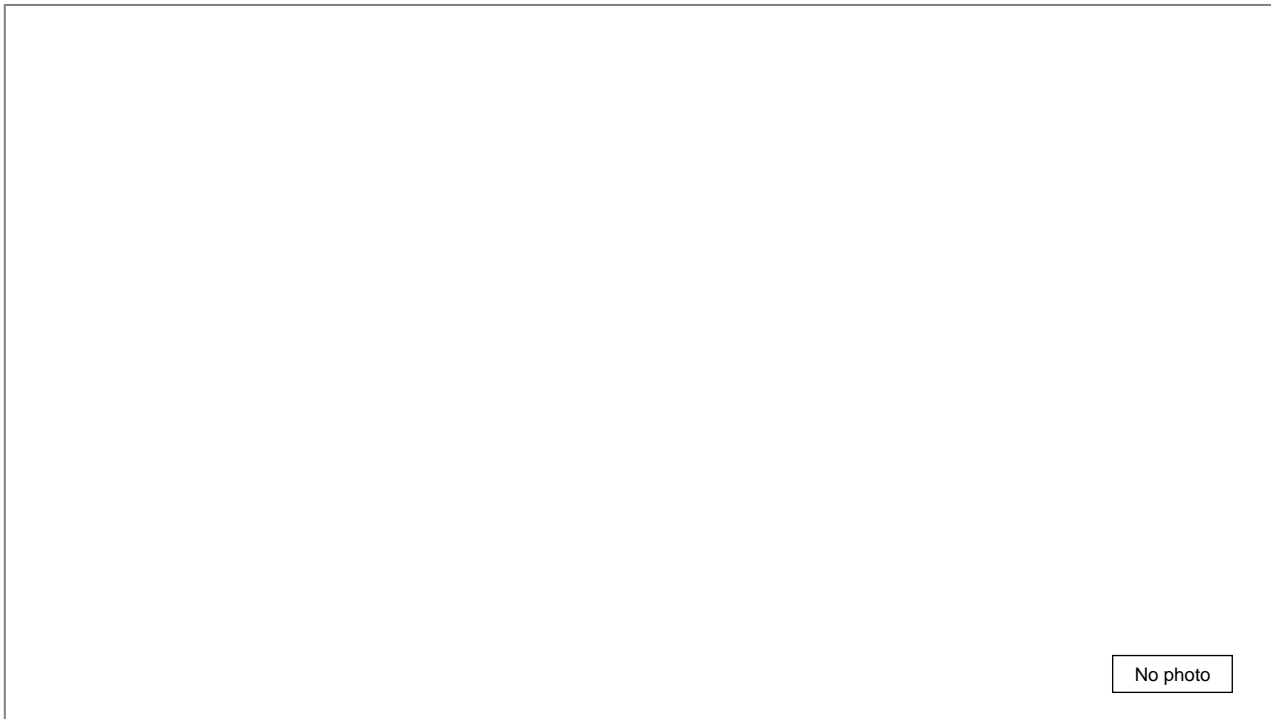
Key Diagnostic Species [99% contribution, based on 11 plots]:

Red Mahogany - Apple Paperbark Forest (42)					
Average similarity: 29.95					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	2.27	2.20	1.14	7.34
	<i>Angophora costata</i>	1.45	1.01	0.58	3.36
	<i>Eucalyptus robusta</i>	1.55	0.98	0.59	3.27
	<i>Angophora inopina</i>	0.73	0.23	0.33	0.77
	<i>Corymbia gummifera</i>	0.36	0.08	0.24	0.26
	<i>Eucalyptus globoidea</i>	0.36	0.03	0.13	0.09
Small Tree	<i>Melaleuca linariifolia</i>	1.64	0.78	0.42	2.61
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	0.64	0.26	0.33	0.86
	<i>Callistemon salignus</i>	0.27	0.08	0.24	0.26
	<i>Allocasuarina littoralis</i>	0.36	0.07	0.24	0.24
	<i>Callicoma serratifolia</i>	0.36	0.06	0.13	0.21
Shrub	<i>Melaleuca sieberi</i>	2.18	1.58	0.74	5.27
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.91	1.55	1.03	5.16
	<i>Leptospermum juniperinum</i>	1.45	1.01	0.92	3.37
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.27	0.88	0.86	2.92
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.09	0.83	0.93	2.77
	<i>Pultenaea paleacea</i>	1.09	0.51	0.47	1.69
	<i>Pultenaea villosa</i>	1.00	0.47	0.57	1.58
	<i>Banksia oblongifolia</i>	0.82	0.41	0.59	1.37
	<i>Melaleuca thymifolia</i>	0.91	0.31	0.31	1.03
	<i>Dodonaea triquetra</i>	0.64	0.20	0.33	0.66
	<i>Melaleuca nodosa</i>	0.91	0.16	0.19	0.53
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	0.45	0.10	0.22	0.34
	<i>Epacris pulchella</i>	0.45	0.10	0.22	0.32
	<i>Dillwynia retorta</i>	0.27	0.07	0.24	0.25
	<i>Pultenaea retusa</i>	0.36	0.05	0.13	0.16
Low Shrub	<i>Dampiera stricta</i>	0.36	0.08	0.24	0.26
	<i>Opercularia varia</i>	0.18	0.03	0.13	0.09
Ground Fern	<i>Pteridium esculentum</i>	0.36	0.09	0.24	0.29
	<i>Adiantum aethiopicum</i>	0.45	0.06	0.13	0.19
	<i>Calochlaena dubia</i>	0.27	0.03	0.13	0.10
Grass	<i>Entolasia stricta</i>	2.55	2.69	1.59	8.98
	<i>Themeda australis</i>	1.27	0.83	0.70	2.78
	<i>Imperata cylindrica</i>	0.91	0.55	0.47	1.85
	<i>Panicum simile</i>	1.00	0.44	0.43	1.47
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	0.73	0.19	0.23	0.64
	<i>Oplismenus imbecillis</i>	0.55	0.17	0.24	0.55
	<i>Entolasia marginata</i>	0.64	0.16	0.24	0.52
	<i>Dichelachne micrantha</i>	0.45	0.11	0.22	0.37
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	0.45	0.08	0.24	0.27
	<i>Digitaria diffusa</i>	0.36	0.06	0.13	0.19
Graminoid	<i>Lomandra longifolia</i>	1.09	0.73	0.71	2.45
	<i>Dianella caerulea</i> var. <i>assera</i>	0.91	0.66	0.71	2.19
Sedge	<i>Gahnia clarkei</i>	2.45	2.48	1.38	8.29

Red Mahogany - Apple Paperbark Forest (42)

Average similarity: 29.95

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Lepyrodia scariosa</i>	1.82	1.06	0.59	3.55
	<i>Empodisma minus</i>	1.36	0.68	0.46	2.28
	<i>Schoenus melanostachys</i>	1.18	0.56	0.47	1.86
	<i>Schoenus brevifolius</i>	0.73	0.23	0.32	0.76
	<i>Schoenus apogon</i>	0.55	0.15	0.24	0.51
	<i>Chorizandra cymbaria</i>	0.36	0.05	0.13	0.17
	<i>Eurychorda complanata</i>	0.55	0.05	0.13	0.17
	<i>Ptilothrix deusta</i>	0.73	0.05	0.13	0.16
Herb	<i>Gonocarpus tetragynus</i>	1.55	1.50	1.01	5.01
	<i>Hydrocotyle sibthorpioides</i>	0.55	0.17	0.24	0.57
	<i>Gonocarpus micranthus</i> subsp. <i>ramosissimus</i>	0.55	0.15	0.24	0.51
	<i>Burchardia umbellata</i>	0.45	0.15	0.35	0.50
	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	0.45	0.10	0.23	0.35
	<i>Lobelia anceps</i>	0.36	0.06	0.13	0.19
	<i>Pratia purpurascens</i>	0.36	0.05	0.13	0.18
	<i>Dichondra repens</i>	0.27	0.03	0.13	0.10
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	1.00	0.74	0.71	2.48
	<i>Polymeria calycina</i>	0.64	0.31	0.45	1.03
	<i>Glycine clandestina</i>	0.18	0.03	0.13	0.10
Clubmoss	<i>Selaginella uliginosa</i>	0.45	0.11	0.22	0.36



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: ?Smooth-barked Apple/ Red Mahogany/ Swamp Mahogany/ *Melaleuca sieberi* heathy swamp woodland of coastal lowlands (131)

LHCCREMS: Riparian *Melaleuca* Swamp Woodland (MU42)

General Description:

Wyee Turpentine – Red Mahogany – Apple Riparian Forest represents a riparian community of interest requiring further investigation. It is currently known from two locations at Wyee and near Morisset, and the presence of *Syncarpia glomulifera* in it distinguished it from related types. Dominant canopy species include *Eucalyptus resinifera*, *Angophora costata* and *Syncarpia glomulifera*, over *Glochidion ferdinandi*, *Melaleuca sieberi* and *Allocasuarina littoralis*. Targeted sampling and assessment will likely subsume this type back as a localised variant of Red Mahogany – Apple – Paperbark Forest (MU42).

Characteristic Features:

- canopy of Red Mahogany and Smooth-barked Apple with Turpentine
- mid-storey of Cheese Tree, Paperbark and She-oak
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

14 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [species presence, rapid data points]:

Wye Turpentine – Red Mahogany – Apple Riparian Forest (42c)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Tree	<i>Angophora costata</i>	-	-	-		✓
	<i>Eucalyptus resinifera</i>	-	-	-		✓
	<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	-	-	-		✓
Small Tree	<i>Allocasuarina littoralis</i>	-	-	-		✓
	<i>Melaleuca sieberi</i>	-	-	-		✓
Shrub	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-		✓
	<i>Banksia oblongifolia</i>	-	-	-		✓
Grass	<i>Entolasia stricta</i>	-	-	-		✓

Swamp Forests (Coastal Sands)



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Swamp Mahogany/ Broad-leaved Paperbark/ Swamp Water Fern/ Plume Rush swamp forest on coastal lowlands of the Central Coast and lower North Coast (207)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Coastal Sand Swamp Forest occurs on coastal sand deposits where drainage is poor. It is characterised by dense stands of *Melaleuca quinquenervia* with scattered *Eucalyptus robusta*. Understorey vegetation generally contains *Gahnia clarkei*, various ground ferns and a small number of other sedge species, and is dependent on water depth and degree of waterlogging. Coastal Sand Swamp Forest is a common component of coastal sandplain vegetation along the New South Wales coastline.

Characteristic Features:

- canopy of Broad-leaved Paperbark with scattered Swamp Mahogany
- little or no understorey vegetation
- often waterlogged and supports grasses, ferns, herbs and/or sedges on the ground

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

346 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC (?)

Key Diagnostic Species [99% contribution, based on 3 plots]:

Coastal Sand Swamp Forest (37e)					
Average similarity: 24.65					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Melaleuca quinquenervia</i>	6.00	19.38	4.76	78.64
Small Tree	<i>Melaleuca linariifolia</i>	0.67	1.15	0.58	4.66
Shrub	<i>Breynia oblongifolia</i>	0.67	0.82	0.58	3.34
Grass	<i>Entolasia marginata</i>	1.67	1.65	0.58	6.68
	<i>Oplismenus imbecillis</i>	1.00	0.82	0.58	3.34
Herb	<i>Viola hederacea</i>	1.67	0.82	0.58	3.34



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Broad-leaved Paperbark/ Swamp Mahogany/ Swamp Oak/ Saw Sedge swamp forest of the Central Coast and lower North Coast (199)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Swamp Mahogany – Livistona Swamp Forest occurs principally on the poorly drained sand flats around Pelican and Belmont South. It comprises a distinct canopy of *Livistona australis* with *Eucalyptus robusta* and occasional *Melaleuca quinquenervia* and *Casuarina glauca*. A scattered mid-layer of species such as *Ficus coronata* and *Omalanthus populifolius* occurs with young *Livistona* over a ground layer of *Hypolepis muelleri*, *Oplismenus imbecillis*, *Commelina cyanea* and *Gahnia clarkei*. As with many communities where *Livistona* is characteristic, considerable frond-fall litter prevents the development of a diverse ground layer.

Characteristic Features:

- canopy of Cabbage Tree Palm, Broad-leaf Paperbark, Swamp Mahogany and Swamp Oak
- mid-storey of Cabbage Tree Palm and Sandpaper Fig
- ground layer of extensive frond-fall, with some ferns and Tall Saw-sedge

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

54 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 3 plots]:

Swamp Mahogany - Livistonia Swamp Forest (37f)

Average similarity: 60.78

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Melaleuca quinquenervia</i>	3.00	6.81	5.56	11.21
	<i>Casuarina glauca</i>	2.33	4.94	1.42	8.13
Small Tree	<i>Ficus coronata</i>	2.00	5.90	15.13	9.71
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1.33	1.83	0.58	3.01
Palm	<i>Livistona australis</i>	5.33	14.75	15.13	24.27
Shrub	<i>Omalanthus nutans</i>	1.67	2.95	15.13	4.85
Ground Fern	<i>Hypolepis muelleri</i>	2.00	2.95	15.13	4.85
Grass	<i>Oplismenus imbecillis</i>	2.00	5.90	15.13	9.71
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	0.91	0.58	1.50
Sedge	<i>Gahnia clarkei</i>	1.00	2.95	15.13	4.85
Herb	<i>Commelina cyanea</i>	1.67	3.94	2.24	6.49
	<i>Hydrocotyle laxiflora</i>	1.33	2.08	0.58	3.43
	<i>Dichondra repens</i>	1.00	0.91	0.58	1.50
Twiner	<i>Stephania japonica</i> var. <i>discolor</i>	1.67	3.94	2.24	6.49



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Swamp Mahogany/ Flax-leaved Paperbark swamp forest of coastal lowlands of the Central Coast (200)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Dune Swale Swamp Forest occurs in poorly drained drainage lines on coastal sandplains. It supports a low canopy of *Eucalyptus robusta* over a scrubby understorey of species such as *Callicoma serratifolia*, *Elaeocarpus reticulatus*, *Dodonaea triquetra*, *Leptospermum polygalifolium* subsp. *cismontanum* and *Pteridium esculentum*. Ground layer vegetation is distinct in the high abundance of *Baloskion tetraphyllum*, *Gahnia clarkei* and *Entolasia marginata*. This vegetation type is currently poorly sampled (a single sample from Awabakal NR), and further clarification of species composition is required through additional sampling.

Characteristic Features:

- low canopy of Swamp Mahogany
- scrubby mid-storey of Black Wattle, Blueberry Ash, Hop-bush and Ti-tree
- dense ground layer of Plume Rush and Tall Saw-sedge

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

52 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC (?)

Key Diagnostic Species [cover abundances, based on 1 plot]:

Dune Swale Swamp Forest (37j)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus robusta</i>	-	-	-	4.00
Small Tree	<i>Callicoma serratifolia</i>	-	-	-	5.00
	<i>Elaeocarpus reticulatus</i>	-	-	-	2.00
	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	-	-	-	1.00
Shrub	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	2.00
	<i>Dodonaea triquetra</i>	-	-	-	2.00
	<i>Banksia spinulosa</i> var. <i>collina</i>	-	-	-	2.00
	<i>Leptospermum juniperinum</i>	-	-	-	2.00
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	-	-	-	2.00
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	1.00
	<i>Callistemon citrinus</i>	-	-	-	1.00
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	3.00
	<i>Blechnum indicum</i>	-	-	-	2.00
Grass	<i>Entolasia marginata</i>	-	-	-	3.00
	<i>Echinopogon ovatus</i>	-	-	-	1.00
	<i>Dichelachne micrantha</i>	-	-	-	1.00
Sedge	<i>Gahnia clarkei</i>	-	-	-	5.00
	<i>Baloskion tetraphyllum</i> subsp. <i>meiostachyum</i>	-	-	-	5.00
Herb	<i>Centella asiatica</i>	-	-	-	2.00
Twiner	<i>Hibbertia dentata</i>	-	-	-	2.00
	<i>Cassytha pubescens</i>	-	-	-	1.00
	<i>Smilax glyciophylla</i>	-	-	-	1.00
Aquatic Herb	<i>Villarsia exaltata</i>	-	-	-	2.00

Swamp Forests (Lake Foreshore)



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: ?Cabbage Gum/ Forest Red Gum/ Red Mahogany/ Flax-leaved Paperbark
Floodplain Forest of the Central Coast (202)

LHCCREMS: Redgum - Rough-barked Apple Forest (MU38)

General Description:

Foreshore areas on alluvial flats of Lake Macquarie and associated lagoons support a fringing community of Foreshore Redgum – Apple Forest. This community of *Eucalyptus tereticornis* and *Angophora floribunda* is restricted in distribution in the region, and has commonly been converted to foreshore parks and picnic areas. Some good intact examples occur in the Eraring area, and Landcare groups have been removing extensive stands of Lantana from these stands.

Characteristic Features:

- canopy of Forest Redgum, Rough-barked Apple and occasionally Swamp Oak occurring as a fringe along estuarine water bodies
- understorey often with Lantana, but otherwise supporting scattered shrubs
- ground layer vegetation includes sedges and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

369 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 5 plots]:

Foreshore Redgum - Rough-barked Apple Forest (38)					
Average similarity: 26.19					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus tereticornis</i>	3.40	5.48	2.45	20.92
	<i>Angophora floribunda</i>	1.80	1.77	0.62	6.75
	<i>Casuarina glauca</i>	1.80	1.74	0.61	6.63
Small Tree	<i>Allocasuarina littoralis</i>	1.00	0.34	0.32	1.32
	<i>Melaleuca styphelioides</i>	0.60	0.19	0.32	0.73
Shrub	<i>Breynia oblongifolia</i>	1.20	1.44	0.96	5.50
	<i>Dodonaea triquetra</i>	2.00	0.82	0.50	3.13
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	0.48	0.62	1.82
	<i>Clerodendrum tomentosum</i>	0.80	0.47	0.32	1.80
	<i>Pittosporum undulatum</i>	0.80	0.47	0.32	1.80
	<i>Acacia implexa</i>	0.60	0.24	0.32	0.90
	<i>Exocarpos cupressiformis</i>	0.40	0.21	0.32	0.80
	<i>Rubus parvifolius</i>	0.40	0.21	0.32	0.79
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	0.60	0.17	0.32	0.66
Ground Fern	<i>Pteridium esculentum</i>	0.80	0.59	0.62	2.25
	<i>Adiantum aethiopicum</i>	0.80	0.38	0.32	1.47
Grass	<i>Imperata cylindrica</i>	2.60	2.02	0.97	7.72
	<i>Oplismenus aemulus</i>	1.20	1.26	0.62	4.81
	<i>Themeda australis</i>	2.20	0.93	0.48	3.56
	<i>Entolasia marginata</i>	1.00	0.58	0.61	2.21
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	0.80	0.47	0.32	1.80
	<i>Aristida vagans</i>	0.40	0.17	0.32	0.66
Graminoid	<i>Lomandra longifolia</i>	1.20	1.21	0.98	4.64
	<i>Dianella caerulea</i> var. <i>assera</i>	0.40	0.17	0.32	0.66
	<i>Dianella caerulea</i> var. <i>caerulea</i>	0.60	0.15	0.32	0.57
Sedge	<i>Gahnia clarkei</i>	0.60	0.15	0.32	0.58
Herb	<i>Viola hederacea</i>	0.80	0.33	0.32	1.26
	<i>Gonocarpus tetragynus</i>	0.80	0.30	0.32	1.15
	<i>Pratia purpurascens</i>	0.80	0.30	0.32	1.15
	<i>Geranium homeanum</i>	0.60	0.18	0.32	0.68
	<i>Hydrocotyle sibthorpioides</i>	0.60	0.15	0.32	0.58
Twiner	<i>Eustrephus latifolius</i>	1.00	0.74	0.57	2.83
	<i>Polymeria calycina</i>	1.00	0.63	0.58	2.39
	<i>Cayratia clematidea</i>	0.80	0.47	0.32	1.80
	<i>Stephania japonica</i> var. <i>discolor</i>	1.00	0.47	0.32	1.80
	<i>Glycine clandestina</i>	0.60	0.19	0.32	0.72
	<i>Glycine microphylla</i>	0.60	0.15	0.32	0.58



Keith Class: Coastal Valley Grassy Woodlands

VCA: Not yet assigned

GHV: ?Cabbage Gum/ Forest Red Gum/ Red Mahogany/ Flax-leaved Paperbark
Floodplain Forest of the Central Coast (202)

LHCCREMS: Redgum - Rough-barked Apple Forest (MU38)

General Description:

Related to Foreshore Redgum – Rough-barked Apple Forest (MU38), Foreshore Redgum – Ironbark Forest occurs as remnant stands around the foreshore of Lake Macquarie, typically on clayey footslopes rather than alluvial deposits. *Eucalyptus tereticornis* and *Angophora floribunda* are joined by *Eucalyptus paniculata* and *Eucalyptus siderophloia* in the canopy, over a scattered shrub layer of *Melaleuca nodosa*, *Acacia falcata* and *Glochidion ferdinandi*. The well-developed ground layer is dominated by *Lomandra longifolia*, *Entolasia stricta*, *Microlaena stipoides* var. *stipoides*, *Panicum simile* and *Imperata cylindrica*. Further investigation is required, including additional sampling, to ascertain relationships between all units currently ascribed to MU38.

Characteristic Features:

- canopy of Forest Redgum, Rough-barked Apple with Grey Ironbark or Northern Ironbark
- scattered mid-storey of Paperbark, Wattles and Cheese Tree
- well developed ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

71 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - River-Flat Eucalypt Forest on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Foreshore Redgum - Ironbark Forest (38c)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Angophora floribunda</i>	-	-	-	3.00	
	<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	-	-	-	3.00	
	<i>Eucalyptus tereticornis</i>	-	-	-	3.00	
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	2.00	
Shrub	<i>Melaleuca nodosa</i>	-	-	-	3.00	
	<i>Pittosporum undulatum</i>	-	-	-	2.00	
	<i>Leucopogon juniperinus</i>	-	-	-	2.00	
	<i>Acacia falcata</i>	-	-	-	2.00	
	<i>Acacia ulicifolia</i>	-	-	-	1.00	
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	1.00	
	<i>Notelaea longifolia</i> f. <i>longifolia</i>	-	-	-	1.00	
	<i>Acacia implexa</i>	-	-	-	1.00	
	<i>Pittosporum revolutum</i>	-	-	-	1.00	
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	-	-	-	1.00	
Grass	<i>Entolasia stricta</i>	-	-	-	3.00	
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	3.00	
	<i>Paspalidium distans</i>	-	-	-	2.00	
	<i>Dichelachne micrantha</i>	-	-	-	2.00	
	<i>Imperata cylindrica</i>	-	-	-	2.00	
	<i>Panicum simile</i>	-	-	-	2.00	
	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	-	-	-	2.00	
	<i>Andropogon virginicus</i>	-	-	-	2.00	
	<i>Cynodon dactylon</i>	-	-	-	2.00	
Graminoid	<i>Lomandra longifolia</i>	-	-	-	4.00	
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00	
	<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	-	-	-	2.00	
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	-	-	-	2.00	
	<i>Dianella revoluta</i> var. <i>revoluta</i>	-	-	-	1.00	
Sedge	<i>Lepidosperma laterale</i>	-	-	-	2.00	
	<i>Gahnia clarkei</i>	-	-	-	1.00	
Herb	<i>Centella asiatica</i>	-	-	-	2.00	
	<i>Pratia purpurascens</i>	-	-	-	2.00	
	<i>Dichondra repens</i>	-	-	-	2.00	
	<i>Oxalis perennans</i>	-	-	-	2.00	
	<i>Gonocarpus tetragynus</i>	-	-	-	2.00	
	<i>Desmodium gunnii</i>	-	-	-	1.00	
	<i>Arthropodium milleflorum</i>	-	-	-	1.00	
Twiner	<i>Glycine clandestina</i>	-	-	-	2.00	
	<i>Glycine tabacina</i>	-	-	-	1.00	



Keith Class: Coastal Floodplain Wetlands

VCA: Not yet assigned

GHV: Swamp Oak/ Sea Rush/ *Baumea juncea* swamp forest on coastal lowlands of the Central Coast and lower North Coast (209)

LHCCREMS: Swamp Oak - Rushland Forest (MU40)

General Description:

Swamp Oak – Rushland Forest occurs adjacent to tidal estuaries on Lake Macquarie and associated inlets. Swamp Oak (*Casuarina glauca*) clearly dominates this community, with an understorey of sedges and rushes such as *Juncus kraussii* subsp. *australiensis* and *Baumea juncea*, and the herb *Apium prostratum*. Areas that have been previously cleared and then left to regenerate are quickly re-colonised by monospecific stands of Swamp Oak (eg: on Crooked Creek at Myuna Bay), however other components of the community do not always return, and are replaced by weed species.

Characteristic Features:

- canopy dominated exclusively by Swamp Oak
- understorey of sedges and estuarine herbs
- occurs in saline areas close to the lake edge

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

256 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Oak Floodplain Forest EEC

Key Diagnostic Species [99% contribution, based on 3 plots]:

Swamp Oak - Rushland Forest (40)

Average similarity: 43.95

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Casuarina glauca</i>	5.33	24.63	19.95	56.05
	<i>Eucalyptus tereticornis</i>	1.00	1.55	0.58	3.53
Grass	<i>Zoysia macrantha</i>	2.33	4.65	0.58	10.58
	<i>Sporobolus virginicus</i>	2.33	1.71	0.58	3.89
Sedge	<i>Juncus kraussii</i> subsp. <i>australiensis</i>	3.33	11.40	5.15	25.95



Keith Class: Coastal Floodplain Wetlands

VCA: Not yet assigned

GHV: Swamp Oak/ Sea Rush/ Baumea juncea swamp forest on coastal lowlands of the Central Coast and lower North Coast (209)

LHCCREMS: Swamp Oak - Rushland Forest (MU40)

General Description:

Lake Macquarie Headland Swamp Oak Forest occurs in localised stands on some exposed headlands on the edge of Lake Macquarie, and also on one coastal headland near Catherine Hill Bay. *Casuarina glauca* dominates the canopy in these areas, over an understorey of *Acacia longifolia*, *Breynia oblongifolia*, *Myrsine variabilis* and *Pteridium esculentum*. At Catherine Hill Bay, the large sedge *Gahnia melanocarpa* is prominent. There is some uncertainty over whether some or all of these stands are the result of previous clearing events, which have subsequently re-established as dense stands of *Casuarina glauca*. Similar effects have been noted to the south in Pittwater LGA.

Characteristic Features:

- canopy of Swamp Oak in headland locations
- sparse mid-storey of Wattles, Muttonwood and Coffee Bush
- ground layer of grasses, herbs and forbs, including Black-fruit Saw-sedge

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Lake Macquarie Headland Swamp Oak Forest (40d)					
Average similarity: 18.80					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Casuarina glauca</i>	5.50	8.55	-	45.45
Shrub	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	1.71	-	9.09
	<i>Breynia oblongifolia</i>	1.50	1.71	-	9.09
	<i>Myrsine variabilis</i>	1.50	1.71	-	9.09
	<i>Westringia fruticosa</i>	1.00	1.71	-	9.09
Ground Fern	<i>Pteridium esculentum</i>	1.50	1.71	-	9.09
Twiner	<i>Eustrephus latifolius</i>	1.00	1.71	-	9.09

Swamp Forests (Scrub-Forests)



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Prickly-leaf Paperbark/ Flax-leaved Paperbark swamp forest on poorly drained soils of the Central Coast (197)

LHCCREMS: Wyong Paperbark Swamp Forest (MU43)

General Description:

Estuarine Paperbark Scrub-Forest occurs in limited extent on compacted clay soils near estuarine swamp systems. It is characterised by dense thickets of paperbarks (*Melaleuca nodosa*, *Melaleuca sieberi*) with stunted emergent eucalypts such as *Eucalyptus resinifera*, *Eucalyptus paniculata* or *Angophora costata*. Understorey vegetation is often limited, although clumps of *Gahnia clarkei* and *Baumea juncea* are typical. Grasses, such as *Microlaena stipoides* var. *stipoides*, are common. As all forms of MU43 have been poorly sampled, further investigation is required to determine relationships between this community and the related units White Stringybark – Paperbark Scrub-Forest (MU43e) and Forest Redgum – Paperbark Scrub-Forest (MU43f), which may simply be variants of the one community.

Characteristic Features:

- low canopy of dense stands of Paperbark
- very sparse understorey vegetation, but grasses obvious

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

91 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 9 plots]:

Estuarine Paperbark Scrub Forest (43a)					
Average similarity: 41.27					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	2.00	2.23	1.53	5.39
	<i>Angophora costata</i>	1.33	0.73	0.56	1.78
	<i>Angophora floribunda</i>	0.44	0.04	0.17	0.11
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	0.44	0.12	0.30	0.29
	<i>Melaleuca linariifolia</i>	0.22	0.04	0.17	0.11
Shrub	<i>Melaleuca nodosa</i>	5.89	10.31	3.42	24.98
	<i>Melaleuca sieberi</i>	1.00	0.80	0.76	1.94
	<i>Pittosporum undulatum</i>	0.78	0.79	0.78	1.92
	<i>Breynia oblongifolia</i>	0.89	0.56	0.56	1.35
	<i>Dodonaea triquetra</i>	0.56	0.52	0.58	1.27
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.67	0.44	0.61	1.07
	<i>Leucopogon juniperinus</i>	0.89	0.38	0.41	0.92
	<i>Melaleuca decora</i>	0.78	0.26	0.30	0.64
	<i>Epacris pulchella</i>	0.22	0.04	0.17	0.11
	<i>Pultenaea euchila</i>	0.33	0.04	0.17	0.11
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	0.67	0.24	0.30	0.59
	<i>Adiantum aethiopicum</i>	0.44	0.14	0.30	0.33
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	0.22	0.04	0.17	0.11
Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	2.78	2.90	1.61	7.03
	<i>Entolasia stricta</i>	2.00	1.85	1.49	4.49
	<i>Imperata cylindrica</i>	1.33	1.15	1.06	2.79
	<i>Panicum simile</i>	0.78	0.45	0.59	1.08
	<i>Oplismenus imbecillis</i>	0.89	0.36	0.41	0.88
	<i>Themeda australis</i>	0.44	0.13	0.30	0.32
	<i>Paspalidium distans</i>	0.44	0.12	0.30	0.29
	<i>Eragrostis brownii</i>	0.33	0.04	0.17	0.11
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.33	1.43	1.59	3.48
	<i>Lomandra longifolia</i>	0.67	0.30	0.41	0.74
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.44	0.09	0.17	0.21
Sedge	<i>Gahnia clarkei</i>	1.00	0.69	0.80	1.68
	<i>Lepidosperma laterale</i>	0.56	0.17	0.28	0.42
Herb	<i>Pratia purpurascens</i>	1.67	2.11	1.60	5.12
	<i>Lagenophora stipitata</i>	1.56	1.85	1.49	4.49
	<i>Dichondra repens</i>	1.33	1.06	0.79	2.58
	<i>Oxalis perennans</i>	0.89	0.91	1.16	2.21
	<i>Opercularia diphylla</i>	1.11	0.90	0.77	2.17
	<i>Hydrocotyle laxiflora</i>	1.11	0.87	0.61	2.11
	<i>Brunoniella australis</i>	1.00	0.68	0.58	1.66
	<i>Gonocarpus tetragynus</i>	0.78	0.38	0.41	0.92
	<i>Drosera auriculata</i>	0.67	0.27	0.30	0.65
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	0.44	0.25	0.44	0.61
	<i>Arthropodium minus</i>	0.56	0.17	0.28	0.41
	<i>Viola hederacea</i>	0.44	0.13	0.30	0.33

Estuarine Paperbark Scrub Forest (43a)

Average similarity: 41.27

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Veronica plebeia</i>	0.33	0.13	0.30	0.32
Ground Orchid	<i>Pterostylis longifolia</i>	0.56	0.19	0.28	0.46
	<i>Pterostylis spp.</i>	0.44	0.09	0.17	0.21
	<i>Acianthus fornicatus</i>	0.44	0.08	0.17	0.20
Twiner	<i>Parsonsia straminea</i>	1.67	1.82	1.56	4.41
	<i>Glycine clandestina</i>	1.00	0.75	0.76	1.83
	<i>Billardiera scandens</i>	0.67	0.29	0.42	0.71
	<i>Cassytha glabella f. glabella</i>	0.56	0.25	0.44	0.60
	<i>Clematis glycinoides var. glycinoides</i>	0.33	0.12	0.30	0.30
	<i>Polymeria calycina</i>	0.44	0.08	0.17	0.19
	<i>Hardenbergia violacea</i>	0.22	0.04	0.17	0.11



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Prickly-leaf Paperbark/ Flax-leaved Paperbark swamp forest on poorly drained soils of the Central Coast (197)

LHCCREMS: Wyong Paperbark Swamp Forest (MU43)

General Description:

White Stringybark – Paperbark Scrub-Forest occupies a similar landscape position to Estuarine Paperbark Scrub-Forest (MU43a), and differs principally in the replacement of *Eucalyptus resinifera* and *Eucalyptus paniculata* with *Eucalyptus globoidea* in the emergent canopy. The mid-storey comprises a dense layer of *Melaleuca nodosa* and *Melaleuca decora* (replacing *Melaleuca sieberi* in MU43a), over a sparse shrub layer but well developed ground layer. As all forms of MU43 have been poorly sampled, further investigation is required to determine relationships between this community and the related units Estuarine Paperbark Scrub-Forest (MU43a) and Forest Redgum – Paperbark Scrub-Forest (MU43f).

Characteristic Features:

- emergent canopy of White Stringybark and Smooth-barked Apple
- dense mid-storey of Paperbarks (*Melaleuca nodosa*, *Melaleuca decora*)
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

11 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

White Stringybark Paperbark Scrub Forest (43e)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus globoidea</i>	-	-	-	3.00
	<i>Angophora costata</i>	-	-	-	3.00
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	-	-	-	2.00
Small Tree	<i>Callistemon salignus</i>	-	-	-	1.00
	<i>Allocasuarina littoralis</i>	-	-	-	1.00
	<i>Duboisia myoporoides</i>	-	-	-	1.00
Shrub	<i>Melaleuca nodosa</i>	-	-	-	5.00
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	2.00
	<i>Melaleuca decora</i>	-	-	-	2.00
	<i>Leucopogon juniperinus</i>	-	-	-	2.00
	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	-	-	-	1.00
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	1.00
	<i>Pultenaea retusa</i>	-	-	-	1.00
	<i>Dodonaea triquetra</i>	-	-	-	1.00
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	-	-	-	1.00
	<i>Epacris pulchella</i>	-	-	-	1.00
	<i>Leptospermum trinervium</i>	-	-	-	1.00
	<i>Ozothamnus diosmifolius</i>	-	-	-	1.00
	<i>Pittosporum undulatum</i>	-	-	-	1.00
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	2.00
	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	-	-	-	2.00
	<i>Adiantum aethiopicum</i>	-	-	-	2.00
	<i>Lindsaea microphylla</i>	-	-	-	1.00
Grass	<i>Entolasia stricta</i>	-	-	-	3.00
	<i>Panicum simile</i>	-	-	-	3.00
	<i>Imperata cylindrica</i>	-	-	-	3.00
	<i>Paspalidium distans</i>	-	-	-	3.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	2.00
	<i>Entolasia marginata</i>	-	-	-	2.00
	<i>Eragrostis brownii</i>	-	-	-	2.00
	<i>Aristida vagans</i>	-	-	-	2.00
	<i>Themeda australis</i>	-	-	-	2.00
	<i>Oplismenus imbecillis</i>	-	-	-	2.00
	<i>Echinopogon ovatus</i>	-	-	-	2.00
Graminoid	<i>Lomandra longifolia</i>	-	-	-	2.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	2.00
Sedge	<i>Lepidosperma laterale</i>	-	-	-	1.00
Herb	<i>Goodenia heterophylla</i> subsp. <i>heterophylla</i>	-	-	-	2.00
	<i>Lagenophora stipitata</i>	-	-	-	2.00
	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Dichondra repens</i>	-	-	-	2.00
	<i>Hydrocotyle laxiflora</i>	-	-	-	2.00
	<i>Gonocarpus tetragynus</i>	-	-	-	2.00
	<i>Brunoniella australis</i>	-	-	-	2.00

White Stringybark Paperbark Scrub Forest (43e)**Less than 2 samples in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
	<i>Tricoryne elatior</i>	-	-	-	2.00
	<i>Vernonia cinerea</i> var. <i>cinerea</i>	-	-	-	1.00
	<i>Oxalis perennans</i>	-	-	-	1.00
	<i>Boronia polygalifolia</i>	-	-	-	1.00
Twiner	<i>Parsonsia straminea</i>	-	-	-	2.00
	<i>Billardiera scandens</i>	-	-	-	2.00
	<i>Glycine clandestina</i>	-	-	-	2.00
	<i>Polymeria calycina</i>	-	-	-	2.00
	<i>Hardenbergia violacea</i>	-	-	-	1.00



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Prickly-leaf Paperbark/ Flax-leaved Paperbark swamp forest on poorly drained soils of the Central Coast (197)

LHCCREMS: Wyong Paperbark Swamp Forest (MU43)

General Description:

Forest Redgum – Paperbark Scrub-Forest also occupies a similar landscape position to Estuarine Paperbark Scrub-Forest (MU43a), but supports *Eucalyptus tereticornis* in the emergent canopy. The mid-storey comprises a dense layer of *Melaleuca nodosa*, over a sparse shrub layer and well developed ground layer. As all forms of MU43 have been poorly sampled, further investigation is required to determine relationships between this community and the related units Estuarine Paperbark Scrub-Forest (MU43a) and White Stringybark – Paperbark Scrub-Forest (MU43f).

Characteristic Features:

- emergent scattered canopy of Forest Redgum
- dense mid-storey of Paperbarks (*Melaleuca nodosa*)
- ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

11 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [species presence, rapid data points]:

Forest Redgum – Paperbark Scrub-Forest (43f)

Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Tree	<i>Eucalyptus tereticornis</i>	-	-	-	✓
	<i>Eucalyptus resinifera</i>	-	-	-	✓
Small Tree	<i>Melaleuca styphelioides</i>	-	-	-	✓
Shrub	<i>Melaleuca nodosa</i>	-	-	-	✓
	<i>Dodonaea triquetra</i>	-	-	-	✓
Grass	<i>Entolasia stricta</i>	-	-	-	✓
Sedge	<i>Juncus kraussii</i> subsp. <i>australiensis</i>	-	-	-	✓
	<i>Baumea juncea</i>	-	-	-	✓

Scrubs & Thickets (Alluvial Soils)



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Flax-leaved Paperbark/ Tall Sedge shrubland of the Sydney Basin (208)

LHCCREMS: Melaleuca Scrub (MU42a)

General Description:

Narrabeen Alluvial Paperbark Thicket occurs as dense stands of *Melaleuca linariifolia* within shallow drainage lines on the coastal plains, where impeded drainage supports a dense ground layer of *Gahnia clarkei*. Other common species include the shrub *Glochidion ferdinandi* and the tree ferns *Cyathea australis* and/or *Cyathea leichhardtiana*. This community represents one of several where *Melaleuca linariifolia* forms an important component, and further investigation is required to elucidate relationships between them.

Characteristic Features:

- scattered canopy of Red Mahogany or Sydney Peppermint
- dense mid-storey of Flax-leaved Paperbark
- dense ground layer of Tall Saw-sedge

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

11 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Narrabeen Alluvial Paperbark Thicket (42a)

Average similarity: 63.64

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	2.50	6.06	-	9.52
Small Tree	<i>Melaleuca linariifolia</i>	4.50	12.12	-	19.05
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	4.00	9.09	-	14.29
Shrub	<i>Clerodendrum tomentosum</i>	1.00	3.03	-	4.76
Ground Fern	<i>Cyathea australis</i>	1.50	3.03	-	4.76
Grass	<i>Oplismenus imbecillis</i>	2.00	6.06	-	9.52
Sedge	<i>Gahnia clarkei</i>	6.00	18.18	-	28.57
Herb	<i>Pseuderanthemum variabile</i>	1.50	3.03	-	4.76
Twiner	<i>Parsonsia straminea</i>	1.50	3.03	-	4.76



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Swamp Paperbark/ *Baumea juncea* swamp shrubland on coastal lowlands of the Central Coast and lower North Coast (212)

LHCCREMS: Closed Heath/ Scrub (Ti-tree) (Payne, 1999) (MUQa13)

General Description:

Swamp Paperbark Thicket occurs principally as a fringe around coastal estuaries or lagoons. This fringe is typically less than 20m in width, and dominated by a low canopy of *Melaleuca ericifolia* over *Baumea juncea*, *Phragmites australis* and *Centella asiatica*. Similar vegetation also occurs in previously cleared floodplain habitats, such as in the Mandalong Valley, where *Melaleuca ericifolia* forms small, dense thickets. This vegetation type occurs in similar situations to the south and north of Lake Macquarie.

Characteristic Features:

- low, dense canopy of Swamp Paperbark
- sparse or absent mid-storey
- dense ground layer of sedge (*Baumea juncea*), Common Reed and aquatic herbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

2 ha

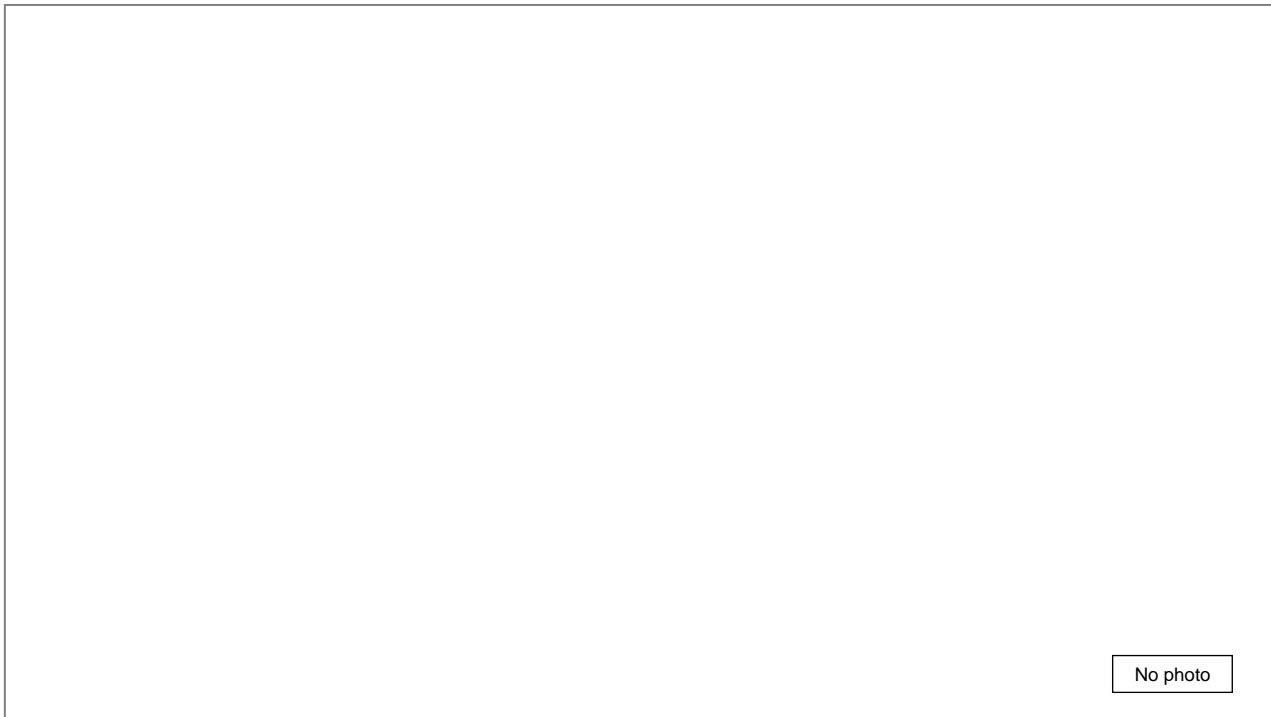
Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Oak Floodplain Forest EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Swamp Paperbark Thicket (100a)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Casuarina glauca</i>	-	-	-	1.00	
Shrub	<i>Melaleuca ericifolia</i>	-	-	-	6.00	
Grass	<i>Phragmites australis</i>	-	-	-	2.00	
Sedge	<i>Baumea juncea</i>	-	-	-	6.00	
Herb	<i>Centella asiatica</i>	-	-	-	2.00	
	<i>Lobelia anceps</i>	-	-	-	1.00	
Twiner	<i>Parsonsia straminea</i>	-	-	-	1.00	



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Prickly-leaved Paperbark/ Flax-leaved Paperbark swamp forest on poorly drained soils of the Central Coast (197)

LHCCREMS: Melaleuca Scrub (MU42a)?

General Description:

Paperbark Depression Forest is a distinct low forest of drainage depressions within a wider moist forest matrix at the foot of the coastal ranges. It supports dense low trees of *Melaleuca styphelioides* over scattered *Glochidion ferdinandi* in the mid-storey, and a ground layer of *Carex longibracthiata*. Only a single occurrence of this type has been mapped to date, and only limited sampling has occurred. Further investigation is required to determine if this may be a disturbance artefact from previous logging activities, such as off the end of Alton Road, Cooranbong, in Olney State Forest.

Characteristic Features:

- dense, low canopy of Prickly-leaved Ti-tree
- scattered mid-storey of Cheese Tree
- dense ground layer of sedges

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - (?) Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [species presence, rapid data points]:

Paperbark Depression Forest (108b)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Small Tree	<i>Melaleuca styphelioides</i>	-	-	-	✓	
Shrub	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	✓	
Sedge	<i>Carex longebrachiata</i>	-	-	-	✓	



Keith Class: Coastal Swamp Forests

VCA: Not yet assigned

GHV: Flax-leaved Paperbark/ Tall Sedge shrubland of the Sydney Basin (208)

LHCCREMS: Melaleuca Scrub (MU42a)

General Description:

Paperbark – Carex Backswamp Forest is currently known from only a single location within Lake Macquarie State Conservation Area, but has not yet been included in the current LGA map. It is dominated by *Melaleuca linariifolia* in the low canopy, over a dense ground layer of *Carex appressa*. Other wetland species present include *Persicaria hydropiper*, *Alternanthera denticulata* and *Pseudoraphis paradoxa*. This occurrence lies adjacent to Lake Macquarie, and occurs in an area of impeded drainage with limited release of accumulated moisture.

Characteristic Features:

- dense low canopy of Flax-leaf Paperbark
- little or no mid-storey
- dense ground layer of sedges and aquatic herbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Sclerophyll Forest on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Mel linarifolia/ Carex Backswamp Lake Macq SRA (113)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Ficus macrophylla subsp. macrophylla</i>	-	-	-	1.00	
Small Tree	<i>Melaleuca linariifolia</i>	-	-	-	6.00	
Low Shrub	<i>Pseudanthus orientalis</i>	-	-	-	1.00	
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	1.00	
	<i>Blechnum indicum</i>	-	-	-	1.00	
Grass	<i>Panicum bisulcatum</i>	-	-	-	2.00	
	<i>Sacciolepis indica</i>	-	-	-	2.00	
Sedge	<i>Carex appressa</i>	-	-	-	6.00	
Herb	<i>Alternanthera denticulata</i>	-	-	-	3.00	
	<i>Commelina cyanea</i>	-	-	-	2.00	
	<i>Persicaria hydropiper</i>	-	-	-	2.00	
	<i>Persicaria lapathifolia</i>	-	-	-	1.00	



Keith Class: North Coast Wet Sclerophyll Forests

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Swamp Mahogany - Paperbark Forest (MU37)

General Description:

Highly restricted, narrow riparian strips of this community occur in low-relief creeks in the Freeman's Waterhole area. Drainage is generally very poor, resulting in dense stands of *Gahnia clarkei* on the ground, often with *Carex longebrachiata*, *Adiantum aethiopicum* and the occasional *Cyathea* spp. *Melaleuca linariifolia* dominates the sub-canopy in this community, often with some *Melaleuca styphelioides* and *Eucalyptus piperita* as an emergent or overhanging species. Other characteristic species present include *Ficus coronata* and *Glochidion ferdinandi*.

Characteristic Features:

- canopy dominated by Prickly-leaved Paperbark, with occasional eucalypt emergents
- mid-storey of occasional tree ferns, Sandpaper Fig, Cheese Tree and smaller paperbarks
- dense ground layer of Tall Saw-Sedge and *Carex*
- occurs in poorly drained creeklines on low relief areas, often with standing water

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 4 plots]:

Mesic Paperbark Thicket (114)
Average similarity: 60.81

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus piperita</i>	2.75	4.90	4.94	8.06
	<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	3.00	4.88	5.63	8.03
	<i>Acmena smithii</i>	1.50	0.94	0.91	1.54
	<i>Angophora costata</i>	1.50	0.87	0.41	1.43
Small Tree	<i>Melaleuca linariifolia</i>	4.50	7.90	10.92	12.99
	<i>Callicoma serratifolia</i>	2.75	4.95	3.97	8.14
	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	2.50	4.26	5.90	7.00
	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	1.50	0.87	0.41	1.43
	<i>Callistemon salignus</i>	0.50	0.34	0.41	0.55
Ground Fern	<i>Calochlaena dubia</i>	3.25	5.25	3.12	8.63
	<i>Adiantum aethiopicum</i>	2.00	3.95	10.92	6.49
	<i>Hypolepis muelleri</i>	1.25	1.43	0.79	2.36
	<i>Cyathea cooperi</i>	1.25	0.75	0.41	1.23
Grass	<i>Oplismenus imbecillis</i>	2.00	3.95	10.92	6.49
	<i>Entolasia marginata</i>	0.75	0.32	0.41	0.52
Sedge	<i>Gahnia clarkei</i>	5.25	9.87	10.92	16.23
	<i>Carex longibrachiata</i>	0.50	0.35	0.41	0.57
Twiner	<i>Dioscorea transversa</i>	1.50	2.26	3.71	3.72
	<i>Smilax australis</i>	0.75	0.94	0.91	1.54
	<i>Eustrephus latifolius</i>	0.50	0.35	0.41	0.57
	<i>Parsonia straminea</i>	0.75	0.34	0.41	0.55
	<i>Glycine clandestina</i>	0.75	0.29	0.41	0.48
	<i>Hibbertia dentata</i>	0.50	0.29	0.41	0.48

Scrubs & Thickets (Colluvial Soils)



Keith Class: Coastal Valley Grassy Woodlands
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Coastal Foothills Spotted Gum -Ironbark Forest (MU15)

General Description:

Small localised patches of vegetation on level or very gently sloping spurs and ridgetops with compacted clay soils support a paperbark scrub clearly dominated by *Melaleuca nodosa*. Emergent canopy trees can include any of *Corymbia maculata*, *Eucalyptus punctata*, *Eucalyptus fergusonii* subsp. *fergusonii* or *Eucalyptus umbra*. Few other shrub species are common in this vegetation type, but *Epacris pulchella*, *Leptospermum polygalifolium* subsp. *cistmontanum* or *Acrotricha divaricata* may occur. Grasses and graminoids dominate the ground layer, including *Themeda australis*, *Panicum simile*, *Ptilothrix deusta* and *Aristida vagans*. This type is currently not represented in associated mapping.

Characteristic Features:

- Sparse canopy of Spotted Gum, Grey Gum, Fergusons Ironbark or Bastard Mahogany
- mid-storey dominated by Ball Honeymyrtle
- ground layer of grasses and grass-like plants, such as Kangaroo Grass, Wiry Panic and Three-awn Grass
- occurs on level ground in poorly drained soaks

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Sugarloaf Uplands Paperbark Thicket (15p)
Average similarity: 36.86

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Melaleuca nodosa</i>	5.33	9.01	6.93	24.45
	<i>Acrotriche divaricata</i>	1.00	1.80	6.93	4.89
	<i>Persoonia linearis</i>	1.00	1.80	6.93	4.89
	<i>Epacris pulchella</i>	1.33	1.00	0.58	2.72
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.67	1.00	0.58	2.72
	<i>Dodonaea triquetra</i>	0.67	0.64	0.58	1.74
	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	1.00	0.50	0.58	1.36
Sub-shrub	<i>Mirbelia rubiifolia</i>	0.67	0.50	0.58	1.36
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	2.00	3.60	6.93	9.78
Grass	<i>Eragrostis brownii</i>	1.33	1.80	6.93	4.89
	<i>Themeda australis</i>	3.00	1.50	0.58	4.08
	<i>Entolasia stricta</i>	2.00	1.32	0.58	3.58
	<i>Panicum simile</i>	1.33	1.00	0.58	2.72
	<i>Aristida vagans</i>	1.00	0.50	0.58	1.36
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	1.00	1.80	6.93	4.89
Sedge	<i>Ptilothrix deusta</i>	2.00	1.00	0.58	2.72
	<i>Schoenus apogon</i>	1.67	1.00	0.58	2.72
	<i>Lepidosperma laterale</i>	0.67	0.50	0.58	1.36
Herb	<i>Gonocarpus tetragynus</i>	2.00	3.60	6.93	9.78
	<i>Lagenophora stipitata</i>	1.00	0.50	0.58	1.36
Twiner	<i>Glycine clandestina</i>	1.33	1.80	6.93	4.89
	<i>Billardiera scandens</i>	0.67	0.64	0.58	1.74



Keith Class: Coastal Floodplain Wetlands
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Wyong Paperbark Swamp Forest (MU43)

General Description:

Paperbark Clay Heath occurs as small, disjunct and restricted patches within the lower Hunter region, generally within a wider matrix of Hinterland Spotted Gum – Ironbark Forest (MU17o). Only a single stand is currently known from Lake Macquarie LGA, and additional patches are present in the adjacent Cessnock LGA west of Mt Sugarloaf. This community is dominated by paperbark shrubs including *Melaleuca nodosa* and *Melaleuca thymifolia*, with other species such as *Isopogon anemonifolius*, *Mirbelia rubiifolia*, *Themeda australis* and *Aristida warburgii* also present. Current-day occurrences may possibly be an artefact of previous disturbances.

Characteristic Features:

- absence of trees or tall shrubs
- low shrub layer of Paperbarks, including Ruby Urn Heath
- sparse ground layer of grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

2 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Lower Hunter Spotted Gum – Ironbark Forest EEC.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Paperbark Clay Heath (43c)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	-	-	-	1.00
	<i>Eucalyptus fibrosa</i>	-	-	-	1.00
Shrub	<i>Melaleuca nodosa</i>	-	-	-	5.00
	<i>Melaleuca thymifolia</i>	-	-	-	2.00
	<i>Pultenaea paleacea</i>	-	-	-	2.00
	<i>Melaleuca sieberi</i>	-	-	-	1.00
	<i>Melaleuca decora</i>	-	-	-	1.00
	<i>Leptospermum trinervium</i>	-	-	-	1.00
Low Shrub	<i>Opercularia varia</i>	-	-	-	1.00
Sub-shrub	<i>Euryomyrtus ramosissima</i> subsp. <i>ramosissima</i>	-	-	-	2.00
	<i>Gompholobium pinnatum</i>	-	-	-	2.00
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	-	-	-	2.00
Grasstree	<i>Xanthorrhoea resinosa</i>	-	-	-	1.00
Grass	<i>Eragrostis brownii</i>	-	-	-	4.00
	<i>Aristida warburgii</i>	-	-	-	3.00
	<i>Themeda australis</i>	-	-	-	2.00
	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	2.00
	<i>Paspalidium distans</i>	-	-	-	2.00
Graminoid	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	-	-	-	2.00
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	-	-	-	1.00
	<i>Lomandra glauca</i>	-	-	-	1.00
	<i>Lomandra obliqua</i>	-	-	-	1.00
Sedge	<i>Ptilothrix deusta</i>	-	-	-	2.00
	<i>Fimbristylis dichotoma</i>	-	-	-	1.00
Herb	<i>Drosera auriculata</i>	-	-	-	2.00
	<i>Gonocarpus tetragynus</i>	-	-	-	1.00
	<i>Oxalis perennans</i>	-	-	-	1.00
	<i>Boronia polygalifolia</i>	-	-	-	1.00
	<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	-	-	-	1.00
	<i>Laxmannia gracilis</i>	-	-	-	1.00
	<i>Senecio madagascariensis</i>	-	-	-	1.00
	<i>Wahlenbergia gracilis</i>	-	-	-	1.00
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	1.00



Keith Class: Hunter-Macleay Dry Sclerophyll Forests
VCA: Red Ironbark/ Paperbark Shrubby Open Forest
GHV: Red Ironbark/ Spotted Gum/ Prickly-leaved Paperbark shrubby open forest of the lower Hunter (075)
LHCCREMS: Lower Hunter Spotted Gum- Ironbark Forest (MU17)

General Description:

Within the wider landscape of Red Ironbark – Paperbark Forest (MU110a), occasional moist depressions support a range of wetter grasses and sedges, and less *Eucalyptus fibrosa* with a more prominent *Melaleuca decora* subcanopy. This type often occurs adjacent to roads or easements and hence may be an artefact of changes in drainage that are associated with these. Only a single location has currently been mapped, and it is likely that additional stands are present within areas mapped as MU110a. However, this community may be reduced to a local variation of MU110a with further investigation.

Characteristic Features:

- presence in moist depressions in the landscape
- scattered canopy of Red Ironbark
- mid-storey of Paperbarks, particularly *Melaleuca decora*
- well-developed ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

0.3 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Lower Hunter Spotted Gum – Ironbark Forest EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Depression Paperbark Thicket (110b)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus fibrosa</i>	-	-	-	3.00
Small Tree	<i>Acacia irrorata</i> subsp. <i>irrorata</i>	-	-	-	1.00
Shrub	<i>Melaleuca nodosa</i>	-	-	-	6.00
	<i>Melaleuca decora</i>	-	-	-	4.00
	<i>Leucopogon juniperinus</i>	-	-	-	2.00
	<i>Bursaria spinosa</i>	-	-	-	2.00
	<i>Pultenaea villosa</i>	-	-	-	1.00
Ground Fern	<i>Cheilanthes sieberi</i> subsp. <i>sieberi</i>	-	-	-	2.00
Grass	<i>Microlaena stipoides</i> var. <i>stipoides</i>	-	-	-	4.00
	<i>Entolasia stricta</i>	-	-	-	2.00
	<i>Imperata cylindrica</i>	-	-	-	2.00
	<i>Entolasia marginata</i>	-	-	-	2.00
	<i>Eragrostis leptostachya</i>	-	-	-	2.00
	<i>Themeda australis</i>	-	-	-	1.00
	<i>Echinopogon ovatus</i>	-	-	-	1.00
	<i>Dichelachne micrantha</i>	-	-	-	1.00
	<i>Panicum simile</i>	-	-	-	1.00
	<i>Oplismenus imbecillis</i>	-	-	-	1.00
Graminoid	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	-	-	-	1.00
	<i>Lomandra longifolia</i>	-	-	-	1.00
	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	1.00
	<i>Dianella revoluta</i> var. <i>revoluta</i>	-	-	-	1.00
	<i>Dianella longifolia</i> var. <i>longifolia</i>	-	-	-	1.00
Sedge	<i>Fimbristylis dichotoma</i>	-	-	-	2.00
	<i>Carex inversa</i>	-	-	-	2.00
	<i>Juncus continuus</i>	-	-	-	2.00
	<i>Juncus homalocaulis</i>	-	-	-	2.00
Herb	<i>Gonocarpus tetragynus</i>	-	-	-	2.00
	<i>Pratia purpurascens</i>	-	-	-	2.00
	<i>Dichondra repens</i>	-	-	-	2.00
	<i>Centella asiatica</i>	-	-	-	2.00
	<i>Hydrocotyle laxiflora</i>	-	-	-	2.00
	<i>Arthropodium minus</i>	-	-	-	2.00
	<i>Euchiton involucratus</i>	-	-	-	2.00
	<i>Opercularia diphylla</i>	-	-	-	2.00
	<i>Veronica plebeia</i>	-	-	-	2.00
	<i>Oxalis perennans</i>	-	-	-	1.00
	<i>Hydrocotyle sibthorpioides</i>	-	-	-	1.00
	<i>Lagenophora stipitata</i>	-	-	-	1.00
	<i>Plantago debilis</i>	-	-	-	1.00
	<i>Senecio tenuiflorus</i>	-	-	-	1.00
Ground Orchid	<i>Caladenia catenata</i>	-	-	-	2.00
	<i>Acianthus fornicatus</i>	-	-	-	1.00

Depression Paperbark Thicket (110b)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Twiner	<i>Glycine clandestina</i>	-	-	-	2.00	
	<i>Cassytha glabella f. glabella</i>	-	-	-	1.00	
Epiphytic Orchid	<i>Cymbidium suave</i>	-	-	-	1.00	

Scrubs & Thickets (Coastal Sands)



Keith Class: Wallum Sand Heaths
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Tomago Sand Swamp Woodland (MU36)

General Description:

Tomago Clay Wallum Scrub occurs only at Pelican Flats within Lake Macquarie, but is present on the Tomago Sandbeds north of Newcastle. It is characterised by the co-dominance of *Banksia aemula* with *Melaleuca nodosa*, together with shrub species more typical of sandy habitats. The only known stand in Lake Macquarie has been bisected by the Pacific Highway, and is becoming weed infested.

Characteristic Features:

- low scrub with Wallum Banksia co-dominating with Paperbark
- scattered mid-storey of Tree-broom Heath, *Aotus* and Pink Beard-heath
- ground layer of Paroo Lily and Bracken Fern

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

3 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Tomago Clay Wallum Scrub (36c)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Small Tree	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	-	-	-	1.00
Shrub	<i>Banksia aemula</i>	-	-	-	5.00
	<i>Melaleuca nodosa</i>	-	-	-	4.00
	<i>Aotus ericoides</i>	-	-	-	2.00
	<i>Acacia suaveolens</i>	-	-	-	2.00
	<i>Monotoca elliptica</i>	-	-	-	2.00
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	-	-	-	2.00
	<i>Pittosporum undulatum</i>	-	-	-	2.00
	<i>Acacia ulicifolia</i>	-	-	-	2.00
	<i>Correa reflexa</i> var. <i>reflexa</i>	-	-	-	2.00
	<i>Ricinocarpus pinifolius</i>	-	-	-	2.00
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	-	-	-	1.00
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	1.00
	<i>Polyscias sambucifolia</i> subsp. <i>sambucifolia</i>	-	-	-	1.00
	<i>Acacia terminalis</i>	-	-	-	1.00
	<i>Hibbertia linearis</i>	-	-	-	1.00
<i>Leptomeria acida</i>	-	-	-	1.00	
<i>Leucopogon ericoides</i>	-	-	-	1.00	
Low Shrub	<i>Pomax umbellata</i>	-	-	-	1.00
Ground Fern	<i>Pteridium esculentum</i>	-	-	-	3.00
Grass	<i>Paspalidium distans</i>	-	-	-	2.00
Graminoid	<i>Dianella caerulea</i> var. <i>assera</i>	-	-	-	3.00
	<i>Lomandra longifolia</i>	-	-	-	2.00
Herb	<i>Gonocarpus teucroides</i>	-	-	-	2.00
	<i>Actinotus helianthi</i>	-	-	-	1.00
Twiner	<i>Billardiera scandens</i>	-	-	-	2.00
	<i>Parsonsia straminea</i>	-	-	-	2.00
	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	1.00



Keith Class: Coastal Headland Heaths

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Coastal Sand Scrub (MU50)

General Description:

Coastal Sand Foredune Scrub occurs immediately behind the low grassland of Beach Spinifex (MU53) along the foredunes of the coastal zone. Although many areas, particularly north of Swansea, have been impacted upon by Bitou Bush invasion, some relatively good quality examples of this community remain towards the south. In general, *Acacia sophorae* dominates this shrubland, and stunted individuals of *Leptospermum laevigatum* may also be present in this wind-sheared vegetation. Few other species are evident, although *Carpobrotus glaucescens* and *Spinifex sericeus* invariably occur. Current mapping of this community under-estimates the total present within the LGA, given mapping procedures used to cut original interpretation and linework against Councils veg-noveg layer.

Characteristic Features:

- absence of tall shrubs and trees
- mid-storey of Coast Wattle
- occurs on immediate beach foredune

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

18 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Sand Foredune Scrub (50a)					
Average similarity: 64.52					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Small Tree	<i>Banksia integrifolia subsp. integrifolia</i>	1.50	6.45	-	10.00
Shrub	<i>Acacia longifolia subsp. sophorae</i>	6.00	38.71	-	60.00
	<i>Leptospermum laevigatum</i>	2.00	6.45	-	10.00
Prostrate Shrub	<i>Carpobrotus glaucescens</i>	2.00	12.90	-	20.00



Keith Class: Coastal Headland Heaths

VCA: Not yet assigned

GHV: Coast Tea Tree/ Coast Banksia/ *Ficinia nodosa* dune low open shrubland on coastal foredunes (135)

LHCCREMS: Coastal Sand Scrub (MU50)

General Description:

Occuring on the land-ward side of Coastal Sand Foredune Scrub (MU50a), Coastal Sand Banksia Scrub is structurally more complex than that community, yet remains floristically simple. In this community, *Leptospermum laevigatum*, *Banksia integrifolia* subsp. *integrifolia* and *Monotoca elliptica* dominate the tallest layer, with occasional shrubs such as *Leucopogon parviflorus* and *Correa alba* also present. In some areas, *Cupaniopsis anacardioides* occurs as scattered individual shrubs, and *Acacia sophorae* is often present. *Chrysanthemoides monilifera* is also a component of this community.

Characteristic Features:

- low canopy of Coast Ti-tree, Coast Banksia and Tree Broom-heath
- scattered mid-storey of Heath and Coast Wattle
- sparse or non-existent ground layer of Pigface

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

85 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Sand Banksia Scrub (50b)					
Average similarity: 62.22					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Small Tree	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	3.50	13.33	-	21.43
Shrub	<i>Leptospermum laevigatum</i>	5.00	22.22	-	35.71
	<i>Leucopogon parviflorus</i>	2.00	8.89	-	14.29
	<i>Monotoca elliptica</i>	2.00	8.89	-	14.29
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	4.44	-	7.14
	<i>Breynia oblongifolia</i>	1.00	4.44	-	7.14

Scrubs & Thickets (Estuarine)



Keith Class: Mangrove Swamps
VCA: Not yet assigned
GHV: Grey Mangrove low closed forest (229)
LHCCREMS: Mangrove - Estuarine Complex (MU47)

General Description:

Mangrove – Estuarine Complex occurs immediately within and adjacent to tidal estuaries. This community occurs in close association with Saltmarsh (MU47a) and Swamp Oak – Rushland Forest (MU40), but differs structurally and floristically by the sole dominance of *Avicennia marina* subsp. *australasica* in the canopy. Ground layer vegetation is variable and depends on the extent of tidal inundation: areas at slightly higher elevation will support species more typical of Saltmarsh, such as *Sarcocornia quinqueflora* and *Sporobolus virginicus*, while locations regularly inundated support little if any ground vegetation.

Characteristic Features:

- dominance of Mangroves in the low canopy and shrub layers
- ground layer dominated by Saltmarsh or grasses, or completely devoid of plant material (other than mangrove roots)
- occurs in tidal areas adjacent to estuarine water bodies

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

155 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Mangrove - Estuarine Complex (47)					
Average similarity: 79.86					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Small Tree	<i>Avicennia marina subsp. australasica</i>	5.33	27.82	20.21	34.84
Grass	<i>Sporobolus virginicus</i>	5.00	27.82	20.21	34.84
Herb	<i>Sarcocornia quinqueflora subsp. quinqueflora</i>	3.33	15.05	2.05	18.85
	<i>Suaeda australis</i>	1.33	5.56	20.21	6.97
	<i>Samolus repens</i>	1.33	3.60	0.58	4.51

Scrubs & Thickets (Coastal Headland)



Keith Class: Coastal Headland Heaths

VCA: Melaleuca nodosa/ Fern-leaved Banksia headland heath of the Central Coast

GHV: Dwarf Casuarina/ Melaleuca nodosa Coastal Heath (182)

LHCCREMS: Coastal Headland Complex (MU51)

General Description:

Coastal Headland Shrubland is a floristically simple community occurring on wind-swept coastal headlands. *Allocasuarina distyla* clearly dominates and characterises the community, with other common species including *Lasiopetalum parvifolium*, *Westringia fruticosa* and *Callistemon linearis*. On the ground, *Ptilothrix deusta* and *Entolasia stricta* commonly occur, although *Lasiopetalum parvifolium* often forms expansive carpets, particularly after fire damage. This community forms a mosaic with both Coastal Headland Grassland (MU51a) and Coastal Headland Paperbark Scrub (MU51d), and boundaries between the three are dynamic in response to fire events.

Characteristic Features:

- tall shrub layer of Scrub She-oak
- low diversity mid-storey, but including Coastal Rosemary and Bottlebrush
- ground layer of grasses and dry sedges, or *Lasiopetalum* after recent fire

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

87 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Themeda grasslands on seacliffs and headlands EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Headland Shrubland (51b)						
Average similarity: 57.14						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	
Shrub	<i>Allocasuarina distyla</i>	4.50	12.70	-	22.22	
	<i>Lasiopetalum parviflorum</i>	4.50	12.70	-	22.22	
	<i>Westringia fruticosa</i>	4.00	9.52	-	16.67	
	<i>Callistemon linearis</i>	3.00	6.35	-	11.11	
Grass	<i>Entolasia stricta</i>	2.00	6.35	-	11.11	
Sedge	<i>Ptilothrix deusta</i>	2.00	6.35	-	11.11	
	<i>Lepidosperma laterale</i>	1.00	3.17	-	5.56	



Keith Class: Coastal Headland Heaths

VCA: Melaleuca nodosa/ Fern-leaved Banksia headland heath of the Central Coast

GHV: Prickly-leaved Paperbark/ Fern-leaved Banksia heath on coastal headlands of the Central Coast (183)

LHCCREMS: Coastal Headland Complex (MU51)

General Description:

Coastal Headland Paperbark Scrub forms a low or tall dense heath on exposed coastal headlands on clay soils. *Melaleuca nodosa* dominates these areas, often forming impenetrable thickets interspersed with more open grassy patches. Other emergent shrubs include *Callistemon linearis*, *Acrotriche divaricata* and *Lissanthe strigosa*. Within openings in the shrub layer, *Themeda australis* is the dominant ground cover, together with *Aristida warburgii*, *Lasiopetalum parviflorum* and *Ptilothrix deusta*.

Characteristic Features:

- absence of a tree layer, although very stunted eucalypts may be occasionally present
- dense mid-storey of Paperbarks, interspersed with more open patches where Kangaroo Grass dominates

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

33 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Themeda grasslands on seacliffs and headlands EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Headland Paperbark Scrub (51d)
Average similarity: 63.08

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Melaleuca nodosa</i>	6.00	9.23	-	14.63
	<i>Callistemon linearis</i>	3.00	4.62	-	7.32
	<i>Acrotriche divaricata</i>	2.00	3.08	-	4.88
	<i>Lasiopetalum parviflorum</i>	2.00	3.08	-	4.88
	<i>Lissanthe strigosa</i> subsp. <i>subulata</i>	2.00	3.08	-	4.88
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	2.00	3.08	-	4.88
	<i>Pultenaea villosa</i>	2.00	3.08	-	4.88
	<i>Allocasuarina distyla</i>	1.00	1.54	-	2.44
	<i>Grevillea sericea</i> subsp. <i>sericea</i>	1.50	1.54	-	2.44
	<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1.50	1.54	-	2.44
Low Shrub	<i>Comesperma sphaerocarpum</i>	2.00	3.08	-	4.88
Grass	<i>Themeda australis</i>	3.50	4.62	-	7.32
	<i>Aristida warburgii</i>	2.50	3.08	-	4.88
Graminoid	<i>Patersonia sericea</i>	2.00	3.08	-	4.88
	<i>Dianella revoluta</i> var. <i>revoluta</i>	1.50	1.54	-	2.44
	<i>Lomandra obliqua</i>	1.50	1.54	-	2.44
Sedge	<i>Lepidosperma laterale</i>	2.00	3.08	-	4.88
	<i>Ptilothrix deusta</i>	2.00	3.08	-	4.88
Herb	<i>Tricoryne elatior</i>	1.50	1.54	-	2.44
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	2.00	3.08	-	4.88
	<i>Billardiera scandens</i>	1.00	1.54	-	2.44

Dry Heathland (Colluvial Soils)



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Scribbly Gum/ Red Bloodwood/ Angophora inopina heathy woodland of Central Coast lowlands, northern Sydney Basin

GHV: Scribbly Gum/ Red Bloodwood/ Angophora inopina heathy woodland on lowlands of the Central Coast (118)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)

General Description:

Coastal Plains Dry Heath is a dry heath or shrubland occurring on the Narrabeen coastal plains of southern Lake Macquarie LGA. It forms a mosaic within the wider matrix of Coastal Plains Scribbly Gum Woodland (MU31). Mapable on aerial photographs, the distribution of this community is dynamic and responds to disturbance events such as fire or partial clearing. Very often good habitat for terrestrial orchids. Common species include *Banksia oblongifolia*, *Angophora inopina* (shrub form), *Hakea laevipes* and *Ptilothrix deusta*.

Characteristic Features:

- near-absence of trees and larger shrubs
- mid-storey of *Banksia* and *Hakea*
- dense ground layer of dry sedges and grasses, with Grasstree also prominent

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

5 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Plains Dry Heath (31h)					
Average similarity: 43.10					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Banksia oblongifolia</i>	3.00	5.17	-	12.00
	<i>Epacris pulchella</i>	2.00	3.45	-	8.00
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	2.00	3.45	-	8.00
	<i>Pultenaea tuberculata</i>	2.00	3.45	-	8.00
	<i>Bossiaea stephensonii</i>	1.50	1.72	-	4.00
	<i>Grevillea sericea</i> subsp. <i>sericea</i>	1.50	1.72	-	4.00
	<i>Hakea laevipes</i> subsp. <i>laevipes</i>	1.00	1.72	-	4.00
	<i>Leptospermum trinervium</i>	1.50	1.72	-	4.00
	<i>Petrophile pulchella</i>	1.00	1.72	-	4.00
	Prostrate Shrub	<i>Hibbertia vestita</i>	2.00	3.45	-
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	2.00	3.45	-	8.00
Grass	<i>Aristida warburgii</i>	4.00	5.17	-	12.00
	<i>Entolasia stricta</i>	1.50	1.72	-	4.00
Graminoid	<i>Patersonia sericea</i>	1.50	1.72	-	4.00
Sedge	<i>Lepidosperma concavum</i>	1.50	1.72	-	4.00
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	1.00	1.72	-	4.00



Keith Class: Sydney Coastal Dry Sclerophyll Forests

VCA: Not yet assigned

GHV: Camfield's Stringybark/ Narrow-leaved Stringybark heathy woodland on lowlands of the Central Coast (134)

LHCCREMS: Coastal Plains Scribbly Gum Woodland (MU31)

General Description:

Filling a similar niche to Coastal Plains Dry Heath (MU31h), Coastal Sandstone Laterite Heath occurs as small patches on the Permian sandstones of north-eastern Lake Macquarie. *Banksia oblongifolia* is also prominent in this community, with other important species including *Lambertia formosa*, *Epacris pulchella*, *Isopogon anemonifolia*, *Ptilothrix deusta*, *Lomandra obliqua*, *Patersonia sericea* and *Themeda australis*. Some additional sampling and analysis is required to clarify the relationship between these two heaths.

Characteristic Features:

- absence of trees and large shrubs
- mid-storey of *Banksia*, Mountain Devil, Drumsticks and other Heath species
- ground layer of dry sedges, graminoids and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

5 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 8 plots]:

Coastal Sandstone Laterite Heath (31i)					
Average similarity: 47.11					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia gummifera</i>	0.38	0.14	0.34	0.29
	<i>Angophora costata</i>	0.38	0.13	0.34	0.28
Small Tree	<i>Allocasuarina littoralis</i>	0.63	0.26	0.51	0.56
Shrub	<i>Banksia oblongifolia</i>	3.75	4.23	5.40	8.98
	<i>Lambertia formosa</i>	2.13	2.08	1.61	4.42
	<i>Epacris pulchella</i>	1.88	1.98	1.68	4.19
	<i>Isopogon anemonifolius</i>	1.75	1.74	3.15	3.69
	<i>Pultenaea paleacea</i>	2.00	1.44	1.04	3.05
	<i>Hakea laevipes</i> subsp. <i>laevipes</i>	1.50	1.40	1.05	2.97
	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	1.75	1.07	0.79	2.27
	<i>Hakea bakeriana</i>	1.38	0.98	0.92	2.08
	<i>Leptospermum trinervium</i>	1.13	0.83	0.92	1.76
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1.13	0.82	0.95	1.74
	<i>Acacia myrtifolia</i>	1.00	0.58	0.67	1.23
	<i>Pultenaea tuberculata</i>	1.00	0.54	0.51	1.14
	<i>Banksia spinulosa</i> var. <i>collina</i>	1.00	0.50	0.68	1.07
	<i>Leucopogon microphyllus</i> var. <i>microphyllus</i>	1.38	0.49	0.34	1.05
	<i>Dodonaea triquetra</i>	0.75	0.46	0.73	0.98
	<i>Acacia brownii</i>	0.88	0.45	0.48	0.97
	<i>Hibbertia riparia</i>	0.75	0.33	0.47	0.70
	<i>Persoonia lanceolata</i>	0.63	0.28	0.51	0.60
	<i>Monotoca scoparia</i>	0.63	0.28	0.51	0.58
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.63	0.27	0.51	0.57
	<i>Grevillea sericea</i> subsp. <i>sericea</i>	0.63	0.27	0.51	0.57
	<i>Hakea teretifolia</i> subsp. <i>teretifolia</i>	1.00	0.22	0.29	0.46
	<i>Allocasuarina distyla</i>	0.63	0.17	0.32	0.36
	<i>Acacia suaveolens</i>	0.38	0.14	0.34	0.30
	<i>Melaleuca nodosa</i>	0.38	0.13	0.34	0.27
	<i>Philotheca salsolifolia</i> subsp. <i>salsolifolia</i>	0.50	0.13	0.34	0.27
<i>Acacia terminalis</i>	0.25	0.05	0.19	0.10	
<i>Bossiaea ensata</i>	0.25	0.05	0.19	0.10	
<i>Platylobium formosum</i> subsp. <i>parviflorum</i>	0.38	0.05	0.19	0.10	
Low Shrub	<i>Dampiera stricta</i>	1.63	1.65	1.50	3.51
	<i>Melichrus procumbens</i>	0.75	0.47	0.73	0.99
	<i>Platysace ericoides</i>	0.63	0.19	0.32	0.41
Sub-shrub	<i>Mirbelia rubiifolia</i>	1.38	0.92	0.73	1.94
Ground Fern	<i>Lindsaea linearis</i>	1.50	1.37	1.05	2.92
	<i>Schizaea bifida</i>	0.50	0.10	0.19	0.21
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	2.25	1.62	0.89	3.44
Grass	<i>Themeda australis</i>	2.00	1.45	0.89	3.08
	<i>Entolasia stricta</i>	1.63	1.38	1.05	2.93
	<i>Anisopogon avenaceus</i>	1.38	1.14	0.97	2.43
	<i>Aristida warburgii</i>	1.38	0.63	0.63	1.34
	<i>Austrostipa pubescens</i>	0.63	0.20	0.31	0.41

Coastal Sandstone Laterite Heath (31i)					
Average similarity: 47.11					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
	<i>Aristida vagans</i>	0.50	0.10	0.19	0.22
Graminoid	<i>Lomandra obliqua</i>	2.25	2.65	7.73	5.63
	<i>Patersonia sericea</i>	1.63	1.73	1.48	3.68
	<i>Patersonia glabrata</i>	1.00	0.57	0.68	1.21
	<i>Haemodorum planifolium</i>	0.50	0.10	0.19	0.21
Sedge	<i>Ptilothrix deusta</i>	4.13	4.63	4.29	9.84
	<i>Cyathochaeta diandra</i>	1.38	0.56	0.50	1.19
Herb	<i>Gonocarpus teucrioides</i>	1.50	1.36	1.05	2.88
	<i>Tricoryne elatior</i>	0.75	0.35	0.48	0.73
	<i>Xanthosia tridentata</i>	0.63	0.18	0.32	0.37
	<i>Stylidium graminifolium</i>	0.50	0.09	0.19	0.19
	<i>Burchardia umbellata</i>	0.50	0.08	0.19	0.17
	<i>Thysanotus tuberosus subsp. tuberosus</i>	0.38	0.05	0.19	0.11
	<i>Goodenia bellidifolia subsp. bellidifolia</i>	0.38	0.05	0.19	0.10
Ground Orchid	<i>Cryptostylis subulata</i>	0.25	0.05	0.19	0.10
Twiner	<i>Cassytha glabella f. glabella</i>	0.88	0.53	0.69	1.13

Dry Heathland (Coastal Sands)



Keith Class: Wallum Sand Heaths

VCA: Dwarf Casuarina/ Wallum Banksia coastal heath of coastal headlands of Central Coast

GHV: Wallum Banksia / *Monotoca scoparia* heath on coastal sands of the Central Coast and lower North Coast (185)

LHCCREMS: Heath (MU34a)

General Description:

Coastal Sand Wallum Heath occurs only on the elevated coastal sand masses in the vicinity of Awabakal Nature Reserve and Munmorah State Conservation Area. It is characterised by an often dense mid-layer of *Banksia aemula*, with stunted *Corymbia gummifera* and *Angophora costata* also present. Other prominent shrubs include *Ricinocarpus pinifolius*, *Aotus ericoides*, *Dillwynia retorta*, *Monotoca scoparia*, and *Leucopogon ericoides*. Further clarification is required between this community and the related Coastal Sandplain Dry Heath (MU34c), which appears to occur on shallower sands.

Characteristic Features:

- few trees present, but if they are these are stunted Red Bloodwood or Smooth-barked Apple
- mid-storey of Wallum Banksia and other Heath species
- ground layer of few species, but small sub-shrubs and dry sedges typical

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

127 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Coastal Sand Wallum Heath (34a)					
Average similarity: 53.28					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Corymbia gummifera</i>	2.33	1.28	0.58	2.41
Small Tree	<i>Allocasuarina littoralis</i>	0.67	0.44	0.58	0.83
Shrub	<i>Banksia aemula</i>	4.67	5.68	6.95	10.67
	<i>Ricinocarpos pinifolius</i>	3.00	3.06	3.87	5.75
	<i>Aotus ericoides</i>	2.67	3.05	4.41	5.72
	<i>Dillwynia retorta</i>	3.00	3.05	4.41	5.72
	<i>Leucopogon ericoides</i>	2.33	2.62	53.46	4.92
	<i>Monotoca scoparia</i>	2.33	2.62	53.46	4.92
	<i>Leptospermum trinervium</i>	3.33	2.14	0.58	4.01
	<i>Bossiaea ensata</i>	1.67	1.75	2.25	3.29
	<i>Bossiaea heterophylla</i>	1.67	1.75	2.25	3.29
	<i>Isopogon anemonifolius</i>	1.67	1.75	2.25	3.29
	<i>Eriostemon australasius</i>	1.67	1.74	2.43	3.26
	<i>Lambertia formosa</i>	2.00	1.32	0.58	2.49
	<i>Acacia suaveolens</i>	1.33	1.31	53.46	2.46
	<i>Persoonia lanceolata</i>	1.33	1.31	53.46	2.46
	<i>Styphelia viridis subsp. viridis</i>	1.33	1.31	53.46	2.46
	<i>Acacia terminalis</i>	1.33	0.88	0.58	1.66
	<i>Correa reflexa var. reflexa</i>	1.67	0.88	0.58	1.66
	<i>Leptospermum polygalifolium subsp. cismontanum</i>	1.67	0.88	0.58	1.66
	<i>Acacia longifolia subsp. longifolia</i>	0.67	0.44	0.58	0.83
	<i>Acacia ulicifolia</i>	1.00	0.44	0.58	0.83
	<i>Brachyloma daphnoides subsp. daphnoides</i>	1.00	0.44	0.58	0.83
	<i>Leucopogon virgatus</i>	0.67	0.44	0.58	0.83
	<i>Monotoca elliptica</i>	0.67	0.44	0.58	0.83
	<i>Phyllota phyllicoides</i>	1.00	0.44	0.58	0.83
<i>Tetradlea juncea</i>	0.67	0.44	0.58	0.83	
<i>Epacris pulchella</i>	0.67	0.43	0.58	0.80	
Low Shrub	<i>Amperea xiphioclada var. xiphioclada</i>	0.67	0.44	0.58	0.83
Grasstree	<i>Xanthorrhoea latifolia subsp. latifolia</i>	2.33	2.62	53.46	4.92
Graminoid	<i>Lomandra longifolia</i>	0.67	0.44	0.58	0.83
Sedge	<i>Schoenus ericetorum</i>	1.33	1.31	53.46	2.46
	<i>Caustis recurvata var. recurvata</i>	1.00	0.44	0.58	0.83
	<i>Leptocarpus tenax</i>	0.67	0.44	0.58	0.83
Herb	<i>Gonocarpus teucrioides</i>	1.67	1.74	2.43	3.26
	<i>Pseuderanthemum variabile</i>	1.00	0.44	0.58	0.83
	<i>Xanthosia pilosa</i>	1.33	0.44	0.58	0.83
Twiner	<i>Cassytha glabella f. glabella</i>	1.33	1.31	53.46	2.46
	<i>Hibbertia scandens</i>	1.00	0.44	0.58	0.83
	<i>Billardiera scandens</i>	0.67	0.43	0.58	0.80



CTHH2

Keith Class:	Wallum Sand Heaths
VCA:	Not yet assigned
GHV:	Dwarf Casuarina/ Melaleuca nodosa Coastal Heath (182)
LHCCREMS:	Coastal Sand Wallum Woodland-Heath (MU34)

General Description:

In areas close to the coast around Catherine Hill Bay and Caves Beach, exposed slopes support Coastal Sand Mantled Clay Heath. This community occurs principally on clay soils, but a light veneer of wind-blown sand allows other 'sand-based' species to also predominate. Typical species in this community include *Melaleuca nodosa*, *Banksia spinulosa*, *Banksia oblongifolia*, *Isopogon anemnonifolius*, *Epacris pulchella* and *Hakea laevipes*. On the ground, *Xanthorrhoea latifolia* is characteristic, together with *Ptilothrix deusta* and various grasses.

Characteristic Features:

- absence of trees and tall shrubs
- low and tightly packed mid-storey of Paperbarks, Banksia, Drumsticks and Broad-leaf Hakea
- ground layer of Grasstree, small sub-shrubs and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

36 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Sand Mantled Clay Heath (34b)					
Average similarity: 43.40					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Melaleuca nodosa</i>	5.50	9.43	-	21.74
	<i>Banksia spinulosa</i> var. <i>collina</i>	2.50	3.77	-	8.70
	<i>Epacris pulchella</i>	2.00	3.77	-	8.70
	<i>Hakea laevipes</i> subsp. <i>laevipes</i>	2.50	3.77	-	8.70
	<i>Lambertia formosa</i>	2.00	3.77	-	8.70
	<i>Acacia myrtifolia</i>	1.00	1.89	-	4.35
	<i>Allocasuarina distyla</i>	2.00	1.89	-	4.35
	<i>Isopogon anemonifolius</i>	1.50	1.89	-	4.35
	<i>Persoonia lanceolata</i>	1.50	1.89	-	4.35
Sub-shrub	<i>Mirbelia rubiifolia</i>	2.50	3.77	-	8.70
Ground Fern	<i>Lindsaea linearis</i>	1.50	1.89	-	4.35
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	1.50	1.89	-	4.35
Grass	<i>Anisopogon avenaceus</i>	1.50	1.89	-	4.35
	<i>Themeda australis</i>	1.50	1.89	-	4.35



Keith Class: Wallum Sand Heaths

VCA: Dwarf Casuarina/ Wallum Banksia coastal heath of coastal headlands of Central Coast

GHV: Dwarf Casuarina/ Wallum Banksia coastal heath of coastal headlands of Central Coast (184)

LHCCREMS: Coastal Sand Wallum Woodland-Heath (MU34)

General Description:

Coastal Sandplain Dry Heath occurs on shallower sands of the coastal sand masses in and around Awabakal Nature Reserve and Munmorah State Conservation Area. Characteristic species present include *Banksia aemula*, *Allocasuarina distyla*, *Bossieae ensata*, *Isopogon anemonifolius*, *Lambertia formosa* and *Monotoca scoparia*. This community is closely related to Coastal Sand Wallum Heath (MU34a), and requires further investigation.

Characteristic Features:

- Wallum Banksia prominent in the tallest layer
- mid-storey of She-oak with Peas, Drumsticks and Mountain Devil
- sparse ground layer of dry sedges and small sub-shrubs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

58 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Coastal Sandplain Dry Heath (34c)					
Average similarity: 47.79					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Banksia aemula</i>	3.33	3.10	3.95	6.49
	<i>Allocasuarina distyla</i>	3.33	2.66	21.57	5.56
	<i>Bossiaea ensata</i>	2.00	2.66	21.57	5.56
	<i>Isopogon anemonifolius</i>	2.00	2.66	21.57	5.56
	<i>Lambertia formosa</i>	2.33	2.66	21.57	5.56
	<i>Monotoca scoparia</i>	2.33	2.66	21.57	5.56
	<i>Leucopogon ericoides</i>	2.33	2.22	1.44	4.64
	<i>Brachyloma daphnoides</i> subsp. <i>daphnoides</i>	2.00	1.75	2.59	3.66
	<i>Leptospermum laevigatum</i>	2.33	1.75	2.59	3.66
	<i>Phyllota phyllicoides</i>	2.00	1.39	0.58	2.91
	<i>Acacia suaveolens</i>	1.00	1.33	21.57	2.78
	<i>Leptospermum trinervium</i>	1.33	1.33	21.57	2.78
	<i>Styphelia viridis</i> subsp. <i>viridis</i>	1.33	1.33	21.57	2.78
	<i>Hakea laevipes</i> subsp. <i>laevipes</i>	2.00	1.27	0.58	2.65
	<i>Epacris pulchella</i>	1.33	0.93	0.58	1.94
	<i>Ricinocarpos pinifolius</i>	1.33	0.89	0.58	1.86
	<i>Correa reflexa</i> var. <i>reflexa</i>	1.33	0.84	0.58	1.77
	<i>Gompholobium minus</i>	1.33	0.84	0.58	1.77
	<i>Persoonia lanceolata</i>	1.67	0.84	0.58	1.77
	<i>Platylobium formosum</i> subsp. <i>parviflorum</i>	1.33	0.84	0.58	1.77
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.00	0.46	0.58	0.97
	<i>Monotoca elliptica</i>	0.67	0.46	0.58	0.97
	<i>Aotus ericoides</i>	1.67	0.44	0.58	0.93
	<i>Eriostemon australasius</i>	1.00	0.44	0.58	0.93
	<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	1.33	0.42	0.58	0.88
	<i>Dillwynia glaberrima</i>	1.33	0.42	0.58	0.88
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	0.67	0.42	0.58	0.88
	<i>Leucopogon virgatus</i>	1.00	0.42	0.58	0.88
	<i>Petrophile pulchella</i>	1.00	0.42	0.58	0.88
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1.00	0.42	0.58	0.88
Low Shrub	<i>Astroloma pinifolium</i>	1.33	0.84	0.58	1.77
	<i>Melichrus procumbens</i>	1.00	0.42	0.58	0.88
Grasstree	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	1.67	0.84	0.58	1.77
Grass	<i>Anisopogon avenaceus</i>	0.67	0.44	0.58	0.93
Graminoid	<i>Lomandra glauca</i>	1.33	1.33	21.57	2.78
	<i>Patersonia glabrata</i>	1.33	0.84	0.58	1.77
	<i>Haemodorum planifolium</i>	0.67	0.42	0.58	0.88
Sedge	<i>Schoenus ericetorum</i>	1.33	1.33	21.57	2.78
	<i>Lepidosperma elatius</i>	1.00	0.42	0.58	0.88
Herb	<i>Gonocarpus teucroides</i>	1.00	1.33	21.57	2.78
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	1.00	0.42	0.58	0.88
	<i>Hibbertia scandens</i>	0.67	0.42	0.58	0.88

Wet Heathlands (Colluvial Soils)



Keith Class: Coastal Heath Swamps
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Coastal Wet Sand Cyperoid Heath (MU44)

General Description:

Munmorah Grasstree Wet Heath occurs in broad, impeded basins and drainage lines in the southern parts of the LGA, generally within a Narrabeen sandstone landscape. *Xanthorrhoea fulva* characterises this community and is the dominant species present. Stands are typically relatively small, and may form a mosaic with other wet heaths on the coastal plain. Larger occurrences are present to the south in Wyong LGA.

Characteristic Features:

- absence of trees and shrubs
- dominance of Swamp Grasstree on the ground
- very uneven ground surface due to prominence of grass tree subterranean trunks.

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

19 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Munmorah Grasstree Wet Heath (44a)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Tree	<i>Eucalyptus robusta</i>	-	-	-	1.00
Shrub	<i>Banksia oblongifolia</i>	-	-	-	2.00
	<i>Hakea teretifolia</i> subsp. <i>teretifolia</i>	-	-	-	3.00
	<i>Melaleuca sieberi</i>	-	-	-	3.00
	<i>Melaleuca thymifolia</i>	-	-	-	2.00
	<i>Persoonia levis</i>	-	-	-	1.00
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	-	-	-	2.00
	<i>Pultenaea paleacea</i>	-	-	-	2.00
	<i>Viminaria juncea</i>	-	-	-	1.00
Grasstree	<i>Xanthorrhoea fulva</i>	-	-	-	6.00
Grass	<i>Entolasia stricta</i>	-	-	-	4.00
	<i>Ischaemum australe</i> var. <i>australe</i>	-	-	-	2.00
	<i>Panicum simile</i>	-	-	-	1.00
	<i>Themeda australis</i>	-	-	-	1.00
Graminoid	<i>Haemodorum planifolium</i>	-	-	-	1.00
Sedge	<i>Lepyrodia scariosa</i>	-	-	-	3.00
	<i>Ptilothrix deusta</i>	-	-	-	1.00
Herb	<i>Drosera auriculata</i>	-	-	-	1.00
	<i>Sowerbaea juncea</i>	-	-	-	1.00
	<i>Stylidium debile</i>	-	-	-	2.00
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	1.00



Keith Class: Coastal Heath Swamps

VCA: Not yet assigned

GHV: Fern-leaf Banksia/ Needlebush/ *Leptocarpus tenax*/ *Lepyrodia scariosa* wet heath on sandstone ranges of the Central Coast (189)

LHCCREMS: Coastal Wet Sand Cyperoid Heath (MU44)

General Description:

Coastal Plains Wet Heath typically occurs in broad shallow drainage lines on the coastal plains in the south of the LGA, most commonly within a landscape supporting Coastal Plains Scribbly Gum Woodland (MU31). Common species here include *Banksia oblongifolia*, *Hakea tereifolia*, *Baeckea diosmifolia* and *Melaleuca thymifolia*. Scattered taller shrubs of *Melaleuca sieberi* or *Angophora inopina* may also be present. In places, this community merges with Munmorah Grasstree Wet Heath (MU44a).

Characteristic Features:

- few or no trees or tall shrubs
- low mid-storey of Banksia, Dagger Hakea, Paperbarks and other Heath species
- ground layer of sedges and Swamp Grasstree

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

64 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Plains Wet Heath (44m)

Average similarity: 49.02

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Banksia oblongifolia</i>	4.00	7.84	-	16.00
	<i>Hakea teretifolia</i> subsp. <i>teretifolia</i>	4.00	7.84	-	16.00
	<i>Baeckea diosmifolia</i>	2.50	3.92	-	8.00
	<i>Epacris microphylla</i>	3.00	3.92	-	8.00
	<i>Melaleuca sieberi</i>	2.50	3.92	-	8.00
	<i>Melaleuca thymifolia</i>	2.00	3.92	-	8.00
	<i>Pultenaea paleacea</i>	2.00	3.92	-	8.00
Grass	<i>Eragrostis brownii</i>	2.50	3.92	-	8.00
Sedge	<i>Lepyrodia scariosa</i>	2.50	3.92	-	8.00
Herb	<i>Gonocarpus micranthus</i> subsp. <i>ramosissimus</i>	2.00	3.92	-	8.00
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	1.50	1.96	-	4.00

Wet Heathlands (Coastal Sands)



Keith Class: Coastal Heath Swamps

VCA: Not yet assigned

GHV: ?Olive Tea-tree/ Crimson Bottlebrush/ Xanthorrhoea fulva wet heath on coastal sands of lower North Coast (188)

LHCCREMS: Coastal Wet Sand Cyperoid Heath (MU44)

General Description:

Coastal Sand Bottlebrush Wet Heath occurs on the coastal sand sheets in the Belmont-Jewells area. Typical species present include *Acacia elongata*, *Callistemon citrinus* and *Leptospermum juniperinum*, over sedges such as *Leptocarpus tenax* and *Schoenus brevifolius*. This community is similar floristically to other wet heaths in Lake Macquarie, and further work is required to clarify relationships.

Characteristic Features:

- absence of emergent trees
- mid-storey of Bottlebrush, Ti-tree and Wattle
- dense ground layer of sedges

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

8 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 2 plots]:

Coastal Sand Bottlebrush Wet Heath (44g)					
Average similarity: 39.66					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Melaleuca quinquenervia</i>	1.50	1.72	-	4.35
Small Tree	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	1.50	1.72	-	4.35
Shrub	<i>Acacia elongata</i>	2.50	3.45	-	8.70
	<i>Callistemon citrinus</i>	3.50	3.45	-	8.70
	<i>Leptospermum juniperinum</i>	3.00	3.45	-	8.70
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	1.50	1.72	-	4.35
	<i>Viminaria juncea</i>	1.50	1.72	-	4.35
Grass	<i>Hemarthria uncinata</i> var. <i>uncinata</i>	2.50	3.45	-	8.70
Sedge	<i>Leptocarpus tenax</i>	3.50	3.45	-	8.70
	<i>Schoenus brevifolius</i>	2.50	3.45	-	8.70
Herb	<i>Stackhousia nuda</i>	2.00	3.45	-	8.70
	<i>Gonocarpus teucroides</i>	2.00	1.72	-	4.35
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	2.00	3.45	-	8.70
Clubmoss	<i>Selaginella uliginosa</i>	2.00	3.45	-	8.70



Keith Class: Coastal Heath Swamps

VCA: Not yet assigned

GHV: ?Olive Tea-tree/ Crimson Bottlebrush/ Xanthorrhoea fulva wet heath on coastal sands of lower North Coast (188)

LHCCREMS: Coastal Wet Sand Cyperoid Heath (MU44)

General Description:

Parts of the heath complex within the Jewells Swamp area supports vegetation that is floristically similar to that present on the Tomago Sandbeds north of Newcastle. In this type, prominent species include the shrubs *Leptospermum polygalifolium*, *Banksia oblongifolia*, *Melaleuca nodosa*, *Persoonia lanceolata* and *Epacris microphylla*, and the sedges *Leptocarpus tenax* and *Lepyrodia scariosa*. This unit has not yet been mapped, but is included in 44m at present.

Characteristic Features:

- absence of tree species
- dense mid-storey of Paperbarks, Banksia and other shrubs
- ground layer of sedges and grasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Tomago Strand Plain Intermediate Heath (44j)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Eucalyptus robusta</i>	-	-	-	1.00	
Shrub	<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i>	-	-	-	4.00	
	<i>Banksia oblongifolia</i>	-	-	-	4.00	
	<i>Melaleuca nodosa</i>	-	-	-	3.00	
	<i>Epacris microphylla</i>	-	-	-	3.00	
	<i>Persoonia lanceolata</i>	-	-	-	3.00	
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	-	-	-	2.00	
	<i>Melaleuca sieberi</i>	-	-	-	2.00	
	<i>Melaleuca thymifolia</i>	-	-	-	2.00	
	<i>Aotus ericoides</i>	-	-	-	2.00	
	<i>Baeckea diosmifolia</i>	-	-	-	2.00	
	<i>Tetradlea juncea</i>	-	-	-	2.00	
	<i>Leptospermum juniperinum</i>	-	-	-	1.00	
	<i>Epacris pulchella</i>	-	-	-	1.00	
	<i>Hakea teretifolia</i> subsp. <i>teretifolia</i>	-	-	-	1.00	
	<i>Acacia suaveolens</i>	-	-	-	1.00	
	<i>Dillwynia retorta</i>	-	-	-	1.00	
	<i>Lambertia formosa</i>	-	-	-	1.00	
<i>Monotoca elliptica</i>	-	-	-	1.00		
Low Shrub	<i>Dampiera stricta</i>	-	-	-	1.00	
	<i>Opercularia varia</i>	-	-	-	1.00	
Sub-shrub	<i>Mirbelia rubiifolia</i>	-	-	-	2.00	
Graminoid	<i>Xyris complanata</i>	-	-	-	2.00	
	<i>Lomandra longifolia</i>	-	-	-	1.00	
Sedge	<i>Lepyrodia scariosa</i>	-	-	-	2.00	
	<i>Ptilothrix deusta</i>	-	-	-	2.00	
	<i>Leptocarpus tenax</i>	-	-	-	2.00	
	<i>Cyathochaeta diandra</i>	-	-	-	1.00	
Herb	<i>Gonocarpus teucroides</i>	-	-	-	1.00	
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	2.00	



Keith Class: Coastal Heath Swamps

VCA: Not yet assigned

GHV: ?Olive Tea-tree/ Crimson Bottlebrush/ Xanthorrhoea fulva wet heath on coastal sands of lower North Coast (188)

LHCCREMS: Coastal Wet Sand Cyperoid Heath (MU44)

General Description:

Munmorah Impeded Sand Sedgeland is a wet heath occurring on coastal sands where drainage is particularly poor, and a range of sedge species dominate the ground layer. Closely related to other wet heaths, further analysis of sample data is required to clarify relationships. Apart from sedges, other prominent species present include *Leptospermum juniperinum*, *Sprengelia sprengelioides*, *Epacris obtusifolia*, *Banksia oblongifolia* and *Xanthorrhoea fulva*.

Characteristic Features:

- absence of tree species
- open shrub layer of Ti-tree, Banksia, Coast Coral Heath and other heath species
- ground layer of sedges and Grasstree
- waterlogged soils, often with standing water

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

0.1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Munmorah Impeded Sand Sedgeland (44I)					
Less than 2 samples in group					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Shrub	<i>Leptospermum juniperinum</i>	-	-	-	3.00
	<i>Epacris obtusifolia</i>	-	-	-	3.00
	<i>Callistemon citrinus</i>	-	-	-	3.00
	<i>Banksia oblongifolia</i>	-	-	-	2.00
	<i>Aotus ericoides</i>	-	-	-	2.00
	<i>Melaleuca thymifolia</i>	-	-	-	2.00
	<i>Hakea teretifolia</i> subsp. <i>teretifolia</i>	-	-	-	2.00
	<i>Almaleea paludosa</i>	-	-	-	2.00
	<i>Sprengelia incarnata</i>	-	-	-	2.00
	<i>Sprengelia sprengelioides</i>	-	-	-	2.00
	<i>Persoonia lanceolata</i>	-	-	-	1.00
	<i>Baeckea diosmifolia</i>	-	-	-	1.00
	<i>Viminaria juncea</i>	-	-	-	1.00
	<i>Acacia elongata</i>	-	-	-	1.00
<i>Callistemon linearis</i>	-	-	-	1.00	
Grasstree	<i>Xanthorrhoea fulva</i>	-	-	-	4.00
Graminoid	<i>Xyris complanata</i>	-	-	-	2.00
Sedge	<i>Leptocarpus tenax</i>	-	-	-	4.00
	<i>Empodisma minus</i>	-	-	-	2.00
	<i>Eurychorda complanata</i>	-	-	-	2.00
	<i>Schoenus brevifolius</i>	-	-	-	2.00
Herb	<i>Boronia parviflora</i>	-	-	-	2.00
	<i>Burchardia umbellata</i>	-	-	-	1.00
	<i>Gonocarpus salsoloides</i>	-	-	-	1.00
Ground Orchid	<i>Thelymitra media</i> var. <i>media</i>	-	-	-	1.00
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	-	-	-	2.00
Clubmoss	<i>Selaginella uliginosa</i>	-	-	-	2.00

Wet Heathlands (Upland Swamps)



Keith Class: Coastal Heath Swamps

VCA: Not yet assigned

GHV: Fern-leaf Banksia/ Needlebush/ *Leptocarpus tenax*/ *Lepyrodia scariosa* wet heath (189)

LHCCREMS: Sandstone Hanging Swamps (MU54)

General Description:

Hawkesbury Hanging Swamp occurs in a single area of impeded drainage on Hawkesbury Sandstone geology within Olney State Forest. This swamp is the only one known from Lake Macquarie LGA, although the community becomes more common to the south into Wyong and Gosford LGAs, and into western Sydney and beyond. Floristic diversity is dependant on fire history, and the Olney stand supports a more fern-based form as well as a shrubby form. Prominent species present include *Gleichenia microphylla*, *Gahnia sieberiana*, *Baeckea linifolia* and *Empodisma minus*.

Characteristic Features:

- lack of trees, although scattered tall shrubs may be present
- dense ground layer of Scrambling Coral Fern, Red-fruit Saw-sedge and Spreading Rope-rush
- moist peaty soil

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

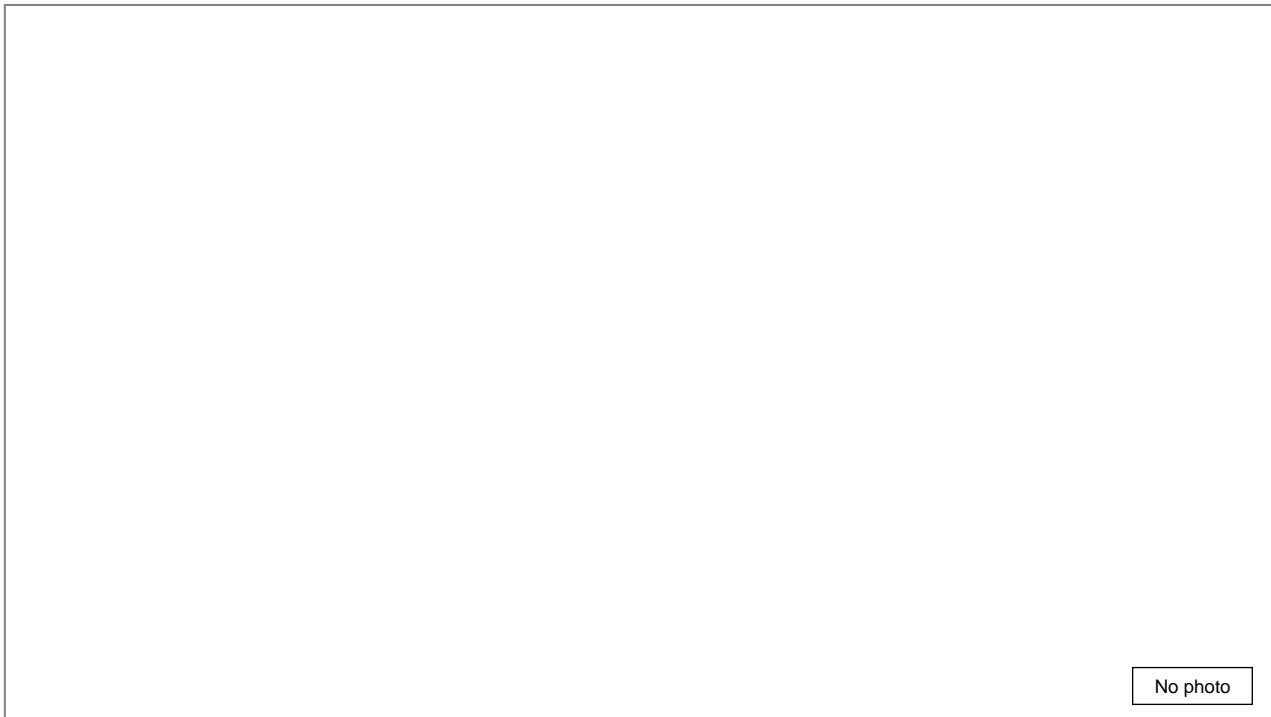
TSC Act (1995) Status - Coastal Upland Swamp EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Sandstone Hanging Swamps (54)

Less than 2 samples in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Shrub	<i>Baeckea linifolia</i>	-	-	-	4.00
	<i>Acacia elongata</i>	-	-	-	2.00
	<i>Banksia spinulosa</i> var. <i>collina</i>	-	-	-	2.00
	<i>Bauera rubioides</i>	-	-	-	2.00
	<i>Epacris obtusifolia</i>	-	-	-	2.00
	<i>Leptospermum polygalifolium</i> subsp. <i>polygalifolium</i>	-	-	-	2.00
	<i>Persoonia levis</i>	-	-	-	1.00
Ground Fern	<i>Gleichenia microphylla</i>	-	-	-	5.00
	<i>Pteridium esculentum</i>	-	-	-	1.00
Sedge	<i>Gahnia sieberiana</i>	-	-	-	3.00
Herb	<i>Empodisma minus</i>	-	-	-	2.00
	<i>Drosera binata</i>	-	-	-	2.00



Keith Class: Coastal Heath Swamps
VCA: Not yet assigned
GHV: ?*Baumea articulata* Sedgeland (224)
LHCCREMS: Sandstone Hanging Swamps (MU54)

General Description:

Only a single location of Munmorah Sedge Swamp is currently known, where it occurs on sloping ground on a small cliff adjacent to the ocean. It is typified by the sedges *Baumea juncea* and *Baumea articulata*, and the fern *Gleichenia dicarpa*. Detailed survey and analysis is yet to be undertaken in this area, but at present this type is considered a form of hanging swamp, with similarities to Hawkesbury Hanging Swamps (MU54).

Characteristic Features:

- lack of trees and shrubs
- dense ground layer of sedges and Scrambling Coral Fern
- moist peaty soil

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

0.05 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, local knowledge]:

Munmorah Sedge Swamp (54e)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Ground Fern	<i>Gleichenia dicarpa</i>	-	-	-	v	
Sedge	<i>Baumea articulata</i>	-	-	-	v	
	<i>Baumea juncea</i>	-	-	-	v	

Sedgeland & Meadow (Estuarine)



Keith Class: Coastal Floodplain Wetlands

VCA: Not yet assigned

GHV: ?Swamp Oak/ Sea Rush/ Baumea juncea swamp forest on coastal lowlands of the Central Coast and lower North Coast (209)

LHCCREMS: Swamp Oak - Rushland Forest (MU40)

General Description:

Estuarine Juncus Rushland occurs on near-level tidal flats associated with Mangrove-Estuarine Complex (MU47) and Swamp Oak – Rushland Forest (MU40). It is dominated almost exclusively with *Juncus kraussii* subsp. *australiensis*, and the water-logged soils prevent the growth of *Casuarina glauca*.

Characteristic Features:

- dominance by Sea Rush, with few other species
- water-logged muddy soils

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

3 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Oak Floodplain Forest EEC

Key Diagnostic Species [99% contribution, based on 2 plots]:

Estuarine Juncus Rushland (40c)						
Average similarity: 84.21						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	
Grass	<i>Sporobolus virginicus</i>	2.50	21.05	-	25.00	
Sedge	<i>Juncus kraussii</i> subsp. <i>australiensis</i>	6.00	63.16	-	75.00	



Keith Class: Saltmarshes
VCA: Not yet assigned
GHV: Saltmarsh/ Estuarine Complex (228)
LHCCREMS: Saltmarsh (MU47a)

General Description:

Saltmarsh occurs immediately within and adjacent to tidal estuaries. This community occurs in close association with Swamp Oak – Rushland Forest (MU40), but differs structurally and floristically by the clear dominance of species such as *Sarcocornia quinqueflora* subsp. *quinqueflora*, *Samolus repens* and *Suaeda australis* in saltmarsh; and *Sporobolus virginicus* in grasslands. *Casuarina glauca* is also generally absent.

Characteristic Features:

- absence of trees and shrubs
- ground layer dominated by Saltmarsh or grasses
- occurs in tidal areas adjacent to estuarine water bodies

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

78 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.
TSC Act (1995) Status - Coastal Saltmarsh EEC

Key Diagnostic Species [99% contribution, based on 3 plots]:

Saltmarsh (47a)**Average similarity: 70.26**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Grass	<i>Sporobolus virginicus</i>	3.33	17.26	3.36	24.57
	<i>Zoysia macrantha</i>	3.00	8.89	0.58	12.65
Herb	<i>Sarcocornia quinqueflora</i> subsp. <i>quinqueflora</i>	6.00	44.10	12.41	62.77

Sedgeland & Meadow (Freshwater)



Keith Class: Coastal Floodplain Wetlands

VCA: Not yet assigned

GHV: ?Swamp Oak/ Sea Rush/ Baumea juncea swamp forest on coastal lowlands of the Central Coast and lower North Coast (209)

LHCCREMS: Phragmities Rushland (MU40a)

General Description:

Phragmites Rushland is a secondary vegetation community occupying previously cleared areas of Swamp Oak – Rushland Forest (MU40) and associated wetlands near coastal estuaries. It is colonised almost exclusively by Common Reed (*Phragmites australis*).

Characteristic Features:

- no canopy of trees or shrubs
- monospecific ground layer of Common Reed
- occurs in shallow dams or impoundments near coastal estuaries

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

33 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Swamp Oak Floodplain Forest EEC

Key Diagnostic Species [species presence, local knowledge]:

Phragmites Rushland (40a)
Less than 1 sample in group

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Grass	<i>Phragmites australis</i>	-	-	-	v



Keith Class: Coastal Freshwater Lagoons

VCA: Not yet assigned

GHV: *Lepironia articulata* sedgeland (223)

LHCCREMS: Lepironia Swamp (MU45)

General Description:

Lepironia Swamp is currently known only from Redhead Lagoon within the Awabakal Nature Reserve, where it forms a band of tall sedgeland around the rim of the deeper water body. *Lepironia articulata* dominates, with the ground layer supporting species such as the grass *Pseudoraphis paradoxa* and the herb *Villarsia exaltata*. Regionally, this vegetation type is rare, and occurs only in coastal sand swamp systems.

Characteristic Features:

- tall reedland of Grey Rush
- few other species present, although Swamp Mud-Grass may be common

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

2 ha

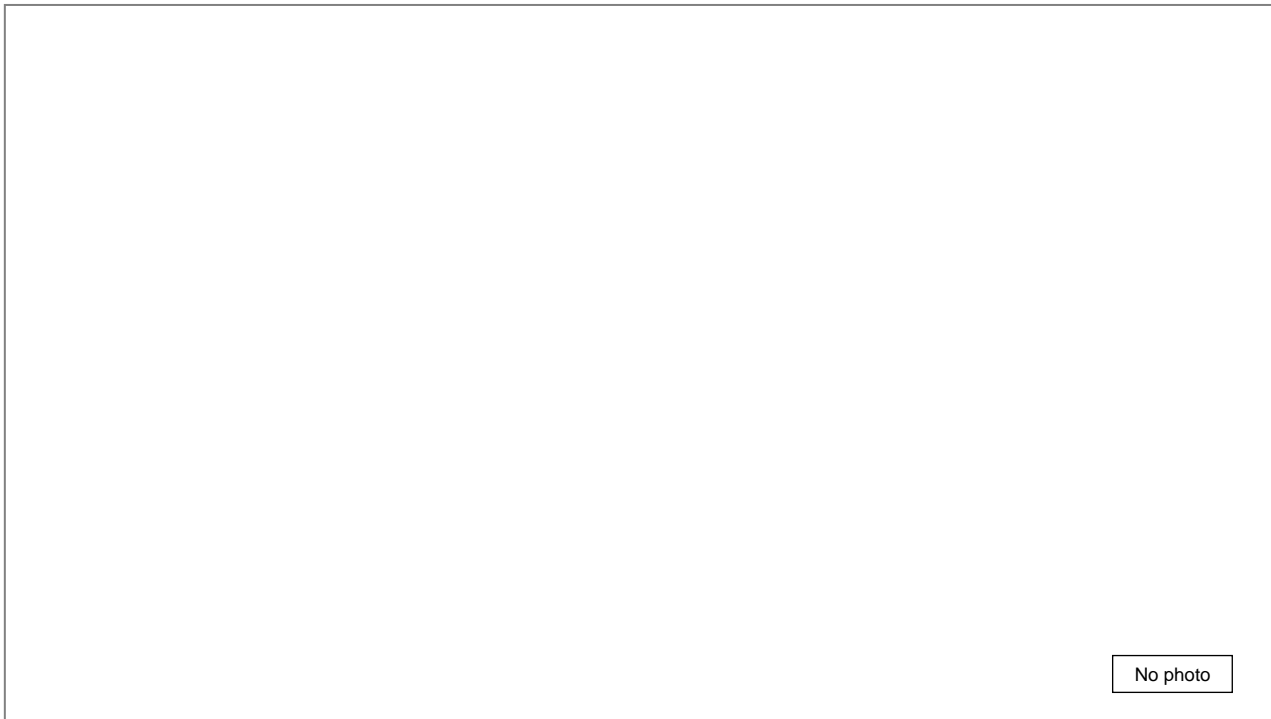
Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Sydney Freshwater Wetlands EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Lepironia Swamp (45)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Tree	<i>Melaleuca quinquenervia</i>	-	-	-	1.00	
Low Shrub	<i>Pseudanthus orientalis</i>	-	-	-	4.00	
Sedge	<i>Lepidosperma concavum</i>	-	-	-	6.00	
Aquatic Herb	<i>Villarsia exaltata</i>	-	-	-	1.00	



Keith Class: Coastal Freshwater Lagoons

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Freshwater Wetland vegetation is commonly represented only in dis-used man-made dams or previously cleared swamp forests across much of Lake Macquarie LGA. Variation in dominant sedge species can occur, depending on the colonisation history of the particular water body, and depth of water. Some attempt has been made to differentiate different wetland communities (see other Unit 46s), but further variations will likely be documented with additional sampling.

Characteristic Features:

- vegetated water bodies or meadows, with or without deep water

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

61 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Freshwater Wetlands on Coastal Floodplains EEC

Key Diagnostic Species [no available data]:



Keith Class: Coastal Freshwater Lagoons
VCA: Not yet assigned
GHV: No equivalent (-)
LHCCREMS: Freshwater Wetland Complex (MU46)?

General Description:

Freshwater Carex Rainforest Sedgeland occurs generally within rainforest patches in poorly drained depressions. Very few stands have been recorded for Lake Macquarie, but it is also present in Wyong LGA. Common species present include *Carex fascicularis*, *Carex appressa* and *Cyperus exaltatus*.

Characteristic Features:

- poorly drained depressions within a mosaic of rainforest and moist forest types
- dominated by Tall Sedge, Tassel Sedge and Cyperus
- standing water often present

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

0.04 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [cover abundances, based on 1 plot]:

Freshwater Carex Rainforest Sedgeland (46c)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Palm	<i>Archontophoenix cunninghamiana</i>	-	-	-	1.00	
Sedge	<i>Carex appressa</i>	-	-	-	4.00	
	<i>Carex fascicularis</i>	-	-	-	4.00	
	<i>Cyperus exaltatus</i>	-	-	-	3.00	
	<i>Cyperus polystachyos</i>	-	-	-	2.00	
	<i>Schoenoplectus mucronatus</i>	-	-	-	1.00	
Herb	<i>Persicaria praetermissa</i>	-	-	-	3.00	
	<i>Hydrocotyle tripartita</i>	-	-	-	2.00	
	<i>Ranunculus inundatus</i>	-	-	-	2.00	



Keith Class: Coastal Freshwater Lagoons
VCA: Not yet assigned
GHV: Cladium procerum coastal freshwater wetland (217)
LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Freshwater Cladium Sedgeland form large monospecific stands in the coastal sands of Jewells and Belmont, merging into surrounding sedgelands of *Phragmites* and/ or *Typha*. It may also include stunted but widely scattered small trees of *Melaleuca quinquenervia*.

Characteristic Features:

- tall dense stands of *Cladium*
- standing water

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

12 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Freshwater Wetlands on Coastal Floodplains EEC

Key Diagnostic Species [cover abundances, based on 1 plot]:

Freshwater Cladium Sedgeland (46h)						
Less than 2 samples in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A	
Shrub	<i>Melaleuca ericifolia</i>	-	-	-	1.00	
Ground Fern	<i>Hypolepis muelleri</i>	-	-	-	2.00	
Grass	<i>Phragmites australis</i>	-	-	-	2.00	
Sedge	<i>Cladium procerum</i>	-	-	-	6.00	



Keith Class: Coastal Freshwater Lagoons

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Freshwater Gahnia Sedgeland is dominated by *Gahnia sieberiana*, and forms large dense stands in enclosed sand-based freshwater wetland systems. Other species present include *Banksia robur*, *Leptospermum juniperinum*, *Callistemon citrinus* and *Gleichenia dicarpa*; however *Gahnia* is always the dominant species. Also present may be the occasional stunted *Eucalyptus robusta* or *Melaleuca quinquenervia*.

Characteristic Features:

- sedgeland dominated by Red-fruit Saw-sedge
- Banksia, Ti-tree and Bottlebrush prominent but never dominant
- often water-logged or with standing water

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

25 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Freshwater Wetlands on Coastal Floodplains EEC

Key Diagnostic Species [99% contribution, based on 3 plots]:

Freshwater Gahnia Sedgeland (46i)					
Average similarity: 57.12					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Tree	<i>Eucalyptus robusta</i>	1.33	0.85	0.58	1.50
Shrub	<i>Banksia robur</i>	2.67	6.17	6.12	10.81
	<i>Callistemon citrinus</i>	2.33	6.17	6.12	10.81
	<i>Leptospermum juniperinum</i>	2.33	6.17	6.12	10.81
	<i>Viminaria juncea</i>	2.00	3.94	3.75	6.90
	<i>Acacia elongata</i>	1.33	3.09	6.12	5.40
	<i>Epacris obtusifolia</i>	0.67	1.04	0.58	1.82
Ground Fern	<i>Gleichenia dicarpa</i>	3.67	8.26	2.17	14.46
	<i>Blechnum indicum</i>	1.00	0.85	0.58	1.50
Sedge	<i>Gahnia sieberiana</i>	4.67	10.97	6.32	19.21
	<i>Baumea articulata</i>	2.00	6.17	6.12	10.81
	<i>Empodisma minus</i>	1.33	1.71	0.58	2.99
Herb	<i>Gonocarpus micranthus subsp. micranthus</i>	1.33	1.71	0.58	2.99

Grasslands



Keith Class: Maritime Grasslands
VCA: Not yet assigned
GHV: Kangaroo Grass/ *Westringia fruticosa* grassland on coastal headlands (179)
LHCCREMS: Coastal Headland Complex (MU51)

General Description:

Coastal Headland Grassland occurs in highly exposed locations along the coast. It is characterised by high abundance of *Themeda australis* on the ground, and few or no shrubs or trees. Many other species also occur, including *Ptilothrix deusta*, *Pimelea linifolia*, *Acacia myrtifolia*, and *Lasiopetalum parvifolium*. Fire history and other disturbances have a role in the current distribution of this community, and it often forms a mosaic with Coastal Headland Shrubland (MU51b). Current mapping likely excludes some areas of this community, as the process of cutting original linework to Councils veg-noveg layer has eliminated some patches.

Characteristic Features:

- little or no shrubs or trees
- ground layer dominated by Kangaroo Grass
- occurs in locations exposed to on-shore winds

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

6 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Themeda grasslands on seacliffs and headlands EEC

Key Diagnostic Species [99% contribution, based on 3 plots]:

Coastal Headland Grassland (51a)					
Average similarity: 29.83					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Small Tree	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	0.67	0.88	0.58	2.94
Shrub	<i>Acrotriche divaricata</i>	0.67	1.09	0.58	3.66
	<i>Melaleuca nodosa</i>	1.00	1.09	0.58	3.66
	<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1.00	0.88	0.58	2.94
Grass	<i>Themeda australis</i>	6.00	15.94	4.36	53.46
	<i>Eragrostis brownii</i>	1.33	1.37	0.58	4.61
Graminoid	<i>Lomandra longifolia</i>	0.67	1.09	0.58	3.66
	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	0.67	0.88	0.58	2.94
Herb	<i>Centella asiatica</i>	1.00	1.09	0.58	3.66
	<i>Gonocarpus teucroides</i>	1.00	0.88	0.58	2.94
Twiner	<i>Polymeria calycina</i>	1.67	3.75	1.53	12.57
	<i>Glycine tabacina</i>	0.67	0.88	0.58	2.94



Keith Class: Maritime Grasslands

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Beach Spinifex (MU53)

General Description:

Beach lines south of Swansea support good stands of Beach Spinifex, where *Spinifex sericeus* dominates. Much of the beach sands north of Swansea have been invaded by Bitou Bush following sand mining, and indiscriminant 4WD use has assisted in the demise of this community. The weed *Hydrocotyle bonariensis* is present in all stands, along with native species such as *Carpobrotus glaucescens* and *Scaevola calendulaceae*.

Characteristic Features:

- no shrubs or trees
- ground layer dominated by Spinifex

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

9 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Beach Spinifex (53)					
Average similarity: 61.66					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Prostrate Shrub	<i>Carpobrotus glaucescens</i>	1.67	10.76	11.88	17.46
Grass	<i>Spinifex sericeus</i>	5.33	50.90	2.98	82.54



Keith Class: Maritime Grasslands

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Not applicable

General Description:

Seagrass occurs in the shallower reaches of Lake Macquarie, but has not been targeted or sampled during this study. Common genera there include *Zostera*, *Posidonia*, and *Halophila*.

Characteristic Features:

- dominated by aquatic seagrasses

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, local knowledge]:

Seagrass (121)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Grass	<i>Halophilas spp</i>	-	-	-		✓
	<i>Posidonia spp</i>	-	-	-		✓
	<i>Zostera spp</i>	-	-	-		✓



Keith Class: Coastal Floodplain Wetlands

VCA: Not yet assigned

GHV: No equivalent (-)

LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Water Couch Meadow occurs as small patches or strips along the side of freshwater lagoons or creeks, where sufficient shallow water is present. *Paspalum distichum* dominates these areas in mostly monospecific meadows. No targeted sampling of these areas has yet been undertaken, and known occurrences are too small to map.

Characteristic Features:

- dominance by Water Couch in damp or slightly inundated areas

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

currently not mapped

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, local knowledge]:

Water Couch Meadow (125)**Less than 1 sample in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Grass	<i>Paspalum distichum</i>	-	-	-	v

Anthropogenic Vegetation



Keith Class: Coastal Freshwater Lagoons

VCA: Not yet assigned

GHV: Typha rushland (219)

LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Freshwater Typha Wetland is a floristically simple community occupying man-made dams or other disturbed areas that results in water impoundment or poor drainage. *Typha orientalis* dominates these areas almost exclusively.

Characteristic Features:

- monospecific stands of Bullrush

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

29 ha

Community Conservation Status:

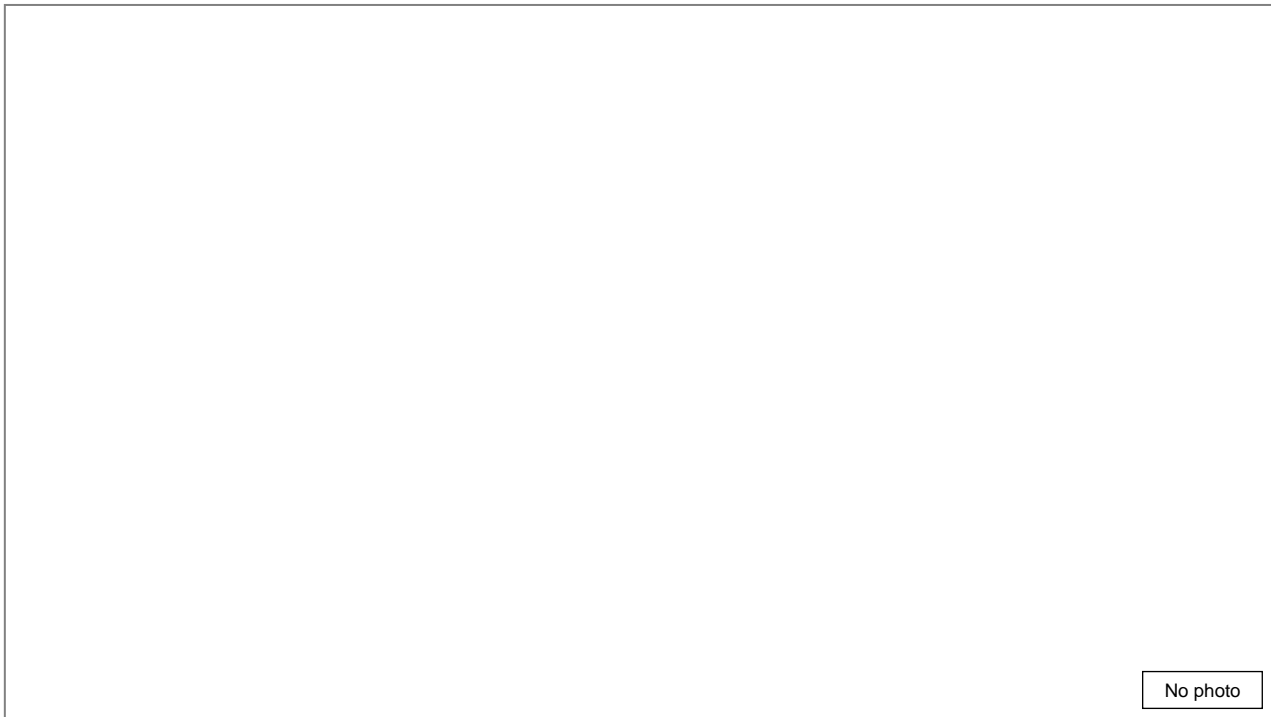
EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Freshwater Wetlands on Coastal Floodplains EEC (?)

Key Diagnostic Species [species presence, local knowledge]:

Freshwater Typha Wetland (46a)**Less than 1 sample in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Sedge	<i>Typha orientalis</i>	-	-	-	√
Grass	<i>Phragmites australis</i>	-	-	-	√



Keith Class: Coastal Freshwater Lagoons

VCA: Not yet assigned

GHV: Baumea articulata Sedgeland (224)

LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Freshwater Baumea Sedgeland is currently mapped only from the Catherine Hill Bay area, where it occurs at the site of an old, disused dam near Colliery Road. This location is likely to have been used for early coal mining activities. The existing water body is surrounded by moist vegetation characterised by *Eucalyptus piperita*, with *Eucalyptus robusta* further downstream. *Baumea articulata* dominates the sedgeland in the shallow portions of the dam, with open water in the deeper sections. This anthropogenic community is likely to also occur elsewhere in Lake Macquarie in disused dams and water storage areas.

Characteristic Features:

- lack of trees and shrubs
- dense ground layer of Jointed Twig-rush
- standing water

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

1 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Freshwater Wetlands on Coastal Wetlands EEC

Key Diagnostic Species [species presence, local knowledge]:

Freshwater Baumea Sedgeland (46b)**Less than 1 sample in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	C/A
Sedge	<i>Baumea articulata</i>	-	-	-	v



Keith Class: Coastal Freshwater Lagoons
VCA: Not yet assigned
GHV: Woolly Waterlily/ Sand Couch coastal freshwater wetland (221)
LHCCREMS: Freshwater Wetland Complex (MU46)

General Description:

Disused farm dams or open depressions with reasonable levels of water retention support a sedgeland of *Philydrum lanuginosum*. In shallower areas, species such as *Eleocharis* and *Baumea* may also be present. Only known areas have been mapped to data, and it is likely that additional stands are present throughout the LGA.

Characteristic Features:

- standing water in depressions or old dams
- dominance by Frogflip

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

0.02 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - Freshwater Wetlands on Coastal Floodplains EEC (?)

Key Diagnostic Species [species presence, local knowledge]:

Freshwater Philydrum Sedgeland (46f)						
Less than 1 sample in group						
Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A	
Sedge	<i>Philydrum lanuginosum</i>	-	-	-		√
	<i>Eleocharis sphaecolata</i>	-	-	-		√
	<i>Baumea rubiginosa</i>	-	-	-		√



Keith Class: Not applicable

VCA: Not applicable

GHV: Not applicable

LHCCREMS: Not applicable

General Description:

Much of the lands in the Belmont South – Jewells area have a history of sand mining from the 1970s, and extensive rehabilitation has occurred there. Some of these areas support a relatively diversity shrubland community of species typical of coastal sandy heaths, while other areas are monospecific stands of *Leptospermum laevigatum*. All have been mapped collectively as Mining Rehabilitation.

Characteristic Features:

- scattered tall shrubs of Ti-Tree, over low shrubs such as Slender Rice-Flower, Drumsticks, Coral Heath and Conospermum OR;
- monospecific tall stands of Coast Ti-Tree
- sparse to absent ground layer of grasses, herbs and forbs

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

9 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [99% contribution, based on 3 plots]:

Mining Rehab					
Average similarity: 47.81					
Habit	Species	Av.Abund	Av.Sim	Sim/SD	Contrib%
Shrub	<i>Leptospermum laevigatum</i>	3.67	5.61	1.05	11.74
	<i>Leucopogon ericoides</i>	2.00	5.34	5.68	11.17
	<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	2.00	5.34	5.68	11.17
	<i>Bossiaea ensata</i>	1.67	3.38	4.45	7.07
	<i>Brachyloma daphnoides</i> subsp. <i>daphnoides</i>	1.67	3.38	4.45	7.07
	<i>Hibbertia linearis</i>	1.00	2.67	5.68	5.58
	<i>Monotoca elliptica</i>	1.33	2.67	5.68	5.58
	<i>Leptospermum trinervium</i>	2.33	2.13	0.58	4.45
	<i>Conospermum taxifolium</i>	1.33	1.42	0.58	2.97
	<i>Dillwynia retorta</i>	1.33	1.42	0.58	2.97
	<i>Monotoca scoparia</i>	1.33	1.42	0.58	2.97
	<i>Persoonia lanceolata</i>	1.67	1.42	0.58	2.97
	<i>Acacia longifolia</i> subsp. <i>longifolia</i>	0.67	0.71	0.58	1.48
	<i>Acacia suaveolens</i>	0.67	0.71	0.58	1.48
	<i>Aotus ericoides</i>	1.33	0.71	0.58	1.48
	<i>Bossiaea heterophylla</i>	1.00	0.71	0.58	1.48
	<i>Eriostemon australasius</i>	0.67	0.71	0.58	1.48
	<i>Gompholobium virgatum</i>	0.67	0.71	0.58	1.48
<i>Leucopogon virgatus</i>	1.00	0.71	0.58	1.48	
Low Shrub	<i>Astroloma humifusum</i>	1.33	1.42	0.58	2.97
	<i>Platysace ericoides</i>	1.33	1.42	0.58	2.97
Graminoid	<i>Lomandra longifolia</i>	0.67	0.98	0.58	2.05
Sedge	<i>Lepidosperma concavum</i>	1.33	1.42	0.58	2.97
	<i>Schoenus ericetorum</i>	0.67	0.71	0.58	1.48
Twiner	<i>Cassytha glabella</i> f. <i>glabella</i>	1.00	0.71	0.58	1.48



Keith Class: Not applicable

VCA: Not applicable

GHV: Not applicable

LHCCREMS: Not applicable

General Description:

Extensive areas of coastline and the associated coastal headlands support dense shrublands of Bitou Bush (*Chrysanthemoides monilifera*). This species is particularly dominant on the beach foredunes, and has replaced much of the Coastal Dune Foredune Scrub (MU50a) north from Swansea. Mapping does not show the full extent of this community, as the process of cutting original linework to Councils veg-no veg layer has eliminated most beach environments.

Characteristic Features:

- dense shrubland of Bitou Bush, with few other species present

Classification Confidence:

Low	Moderate	High
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Distribution:

Within Lake Macquarie LGA [from LGA Map v2014 Stages 1-6]

28 ha

Community Conservation Status:

EPBC Act (1999) Status - not currently listed.

TSC Act (1995) Status - not currently listed.

Key Diagnostic Species [species presence, local knowledge]:

Bitou Bush Scrub (50c)**Less than 1 sample in group**

Habit	Species	Av.Abund	Av.Sim	Sim/SD	P/A
Shrub	<i>Chrysanthemoides monilifera subsp. rotundata</i>	-	-	-	v

Appendix 1 – Sampling Effort

Unit	Community Name	No. Sample Plots
1	Coastal Wet Gully Forest (1)	3
1a	Coastal Warm Temperate - Subtropical Rainforest (1a)	2
1g	Permian Gully Rainforest (1g)	5
3e	Lake Macquarie Dry Rainforest (3e)	5
4	Littoral Rainforest (4)	4
5	Alluvial Tall Moist Forest (5)	10
5a	Alluvial Bluegum - Paperbark Forest (5a)	0
5b	Alluvial Bluegum - Apple Moist Forest (5b)	4
5e	Alluvial Bluegum - Spotted Gum Moist Forest (5e)	1
5h	Alluvial Riparian Blackbutt Forest (5h)	1
6a	Coastal Narrabeen Bluegum Ridge Forest (6a)	1
9a	Coastal Ranges Mesic Blackbutt Forest (9a)	2
9b	Coastal Ranges Dry Blackbutt Forest (9b)	4
9d	Coastal Ranges Dry Spotted Gum - Blackbutt Forest (9d)	2
9e	Coastal Ranges Mesic Peppermint Forest (9e)	1
9f	Coastal Ranges Dry Peppermint - Blackbutt Forest (9f)	0
9h	Coastal Ranges Dry Tallowwood - Blackbutt Forest (9h)	1
9i	Coastal Ranges Mesic Stringybark - Mahogany Forest (9i)	2
9l	Coastal Ranges Mesic Blackbutt - Tallowwood Forest (9l)	0
11	Coastal Sheltered Apple - Peppermint Forest (11)	18
11a	Riparian Paperbark - Peppermint Forest (11a)	5
11c	Awaba Peppermint-Black Wattle Riparian Forest (11c)	1
12	Hunter Valley Moist Forest (12)	9
12a	Hunter Valley Moist Spotted Gum - Blackbutt Forest (12a)	2
12b	Hunter Valley Moist Spotted Gum - Turpentine Forest (12b)	0
12c	Hunter Valley Moist Spotted Gum - Ironbark Forest (12c)	0
12d	Hunter Valley Moist Spotted Gum - Fergusons Forest (12d)	4
15	Coastal Foothill Spotted Gum - Ironbark Forest (Jilliby) (15)	4
15d	Coastal Foothill Spotted Gum - Ironbark Forest (Kurri Kurri) (15d)	0
15h	Lake Macquarie Spotted Gum Forest (15h)	20
15i	Lake Macquarie Ironbark Forest (15i)	1
15k	Coastal Foothills Moist Grey Gum - Mahogany Forest (15k)	0
15l	Sugarloaf Uplands Dry Spotted Gum - Ironbark Forest (15l)	3
15m	Jilliby Spotted Gum - Northern Ironbark - Mahogany Forest (15m)	0
15n	Jilliby Spotted Gum-Ferguson's Ironbark-Mahogany Forest (15n)	4
15o	Sugarloaf Uplands Moist Spotted Gum - Ironbark Forest (15o)	5
15p	Sugarloaf Uplands Paperbark Thicket (15p)	3
17o	Hinterland Spotted Gum - Red Ironbark Forest (17o)	32
21a	Hunter Range Dry Escarpment Apple Forest (21a)	2
21d	Hunter Range Dry Ironbark - Grey Gum Forest (21d)	0
21e	Hunter Range Dry Mahogany - Grey Gum Forest (21e)	0
21f	Hunter Range Dry Mahogany - Apple Forest (21f)	1

Unit	Community Name	No. Sample Plots
21g	Hunter Range Dry Stringybark - Blackbutt Forest (21g)	1
22	Coastal Narrabeen Shrub Forest (22)	4
22e	Coastal Narrabeen Dry Bloodwood - Apple - Mahogany Forest (22e)	0
25a	Narrabeen Peppermint - Apple Forest (25a)	1
26h	Watagans Remnant Hawkesbury Forest (26h)	3
30	Coastal Plains Smooth-barked Apple Woodland (30)	5
30a	Buttonderry Foothills Forest (30a)	2
30b	Sugarloaf Uplands Bloodwood - Apple Forest (30b)	11
30e	Coastal Plains Stringybark - Apple Forest (30e)	11
30f	Freemans Peppermint - Apple - Bloodwood Forest (30f)	9
30h	Sugarloaf Lowlands Bloodwood - Apple Forest (30h)	11
30i	West Wallsend Stringybark Forest (30i)	2
30j	Sugarloaf Lowlands Bloodwood - Apple - Scribbly Gum Forest (30j)	19
31	Coastal Plains Scribbly Gum Woodland (31)	45
31h	Coastal Plains Dry Heath (31h)	2
31i	Coastal Sandstone Laterite Heath (31i)	8
31j	Snappy Gum Ridgetop Heathy Forest (31j)	5
31k	Narrabeen Dune Forest (31k)	3
33	Coastal Sand Apple - Blackbutt Forest (33)	3
33c	Pelican Bangalay Forest (33c)	6
33d	Awabakal Sand Mantled Blackbutt Forest (33d)	1
33m	Sand Mantled Banksia Forest (33m)	4
34a	Coastal Sand Wallum Heath (34a)	3
34b	Coastal Sand Mantled Clay Heath (34b)	2
34c	Coastal Sandplain Dry Heath (34c)	3
36c	Tomago Clay Wallum Scrub (36c)	1
37	Swamp Mahogany - Paperbark Forest (37)	7
37a	Alluvial Paperbark Sedge Forest (37a)	0
37b	Alluvial Floodplain Woollybutt Forest (37b)	1
37d	Alluvial Floodplain Cabbage Gum Forest (37d)	2
37e	Coastal Sand Swamp Forest (37e)	3
37f	Swamp Mahogany - Livistonia Swamp Forest (37f)	3
37g	Swamp Mahogany - Tallowwood Swamp Forest (37g)	1
37j	Dune Swale Swamp Forest (37j)	1
38	Foreshore Redgum - Rough-barked Apple Forest (38)	5
38a	Floodplain Redgum - Rough-barked Apple Forest (38a)	5
38c	Foreshore Redgum - Ironbark Forest (38c)	1
38d	Foreshore Redgum - Grey Gum Forest (38d)	1
39	Apple Palm Gully Forest (39)	2
40	Swamp Oak - Rushland Forest (40)	3
40a	Phragmites Rushland (40a)	0
40c	Estuarine Juncus Rushland (40c)	2
40d	Lake Macquarie Headland Swamp Oak Forest (40d)	2
42	Red Mahogany - Apple Paperbark Forest (42)	11

Unit	Community Name	No. Sample Plots
42a	Narrabeen Alluvial Paperbark Thicket (42a)	2
42c	Wye Turpentine - Red Mahogany - Apple Riparian Forest (42c)	0
43a	Estuarine Paperbark Scrub Forest (43a)	9
43c	Paperbark Clay Heath (43c)	1
43e	White Stringybark Paperbark Scrub Forest (43e)	1
43f	Forest Red Gum Paperbark Scrub-Forest (43f)	0
44a	Munmorah Grasstree Wet Heath (44a)	1
44g	Coastal Sand Bottlebrush Wet Heath (44g)	2
44j	Tomago Strand Plain Intermediate Heath (44j)	1
44l	Munmorah Impeded Sand Sedgeland (44l)	1
44m	Coastal Plains Wet Heath (44m)	2
45	Lepironia Swamp (45)	1
46	Freshwater Wetland Complex (46)	0
46a	Freshwater Typha Wetland (46a)	0
46b	Freshwater Baumea Sedgeland (46b)	0
46c	Freshwater Carex Rainforest Sedgeland (46c)	1
46f	Freshwater Philydrum Sedgeland (46f)	0
46h	Freshwater Cladium Sedgeland (46h)	1
46i	Freshwater Gahnia Sedgeland (46i)	3
47	Mangrove - Estuarine Complex (47)	3
47a	Saltmarsh (47a)	3
50a	Coastal Sand Foredune Scrub (50a)	2
50b	Coastal Sand Banksia Scrub (50b)	2
50c	Bitou Bush Scrub	0
51a	Coastal Headland Grassland (51a)	3
51b	Coastal Headland Shrubland (51b)	2
51c	Coastal Headland Low Forest (51c)	4
51d	Coastal Headland Paperbark Scrub (51d)	2
53	Beach Spinifex (53)	3
54	Sandstone Hanging Swamps (54)	1
54e	Munmorah Sedge Swamp (54e)	0
100a	Swamp Paperbark Thicket (Floodplain Alluvials) (100a)	1
108b	Paperbark Depression Forest (108b)	0
110a	Red Ironbark - Paperbark Forest (110a)	9
110b	Depression Paperbark Thicket (110b)	1
111a	Lake Macquarie Snappy Gum Forest (111a)	21
111c	Killingworth Snappy Gum Forest (111c)	2
113	Paperbark - Carex Backswamp Forest (113)	1
114	Mesic Paperbark Thicket (114)	4
119	Kahibah Snappy Gum Forest (119)	3
121	Seagrass (121) [not targeted]	0
122	Cockle Creek Dune Forest (122)	6
123	Cooranbong Blackbutt Tall Forest (123)	2
125	Water Couch Meadow	0

Unit	Community Name	No. Sample Plots
R	Mining Rehab	3
TOTAL PLOTS		480

Community Index (by Name)

Alluvial Bluegum – Apple Moist Forest.....	24
Alluvial Bluegum - Paperbark Forest.....	22
Alluvial Bluegum – Spotted Gum Moist Forest.....	26
Alluvial Floodplain Cabbage Gum Forest.....	189
Alluvial Floodplain Woollybutt Forest.....	187
Alluvial Paperbark Sedge Forest.....	185
Alluvial Riparian Blackbutt Forest.....	29
Alluvial Tall Moist Forest.....	19
Apple - Palm Gully Forest.....	195
Awaba Peppermint – Black Wattle Riparian Forest.....	35
Awabakal Sand Mantled Blackbutt Forest.....	97
Beach Spinifex.....	311
Bitou Bush Scrub.....	326
Buttonderry Footslopes Forest.....	139
Coastal Foothills Moist Grey Gum - Mahogany Forest.....	114
Coastal Foothills Spotted Gum – Ironbark Forest.....	103
Coastal Foothills Spotted Gum – Ironbark Forest (Kurri).....	106
Coastal Headland Grassland.....	309
Coastal Headland Low Forest.....	158
Coastal Headland Paperbark Scrub.....	259
Coastal Headland Shrubland.....	257
Coastal Narrabeen Bluegum Ridge Forest.....	40
Coastal Narrabeen Dry Bloodwood – Apple - Mahogany Forest.....	134
Coastal Narrabeen Shrub Forest.....	132
Coastal Plains Dry Heath.....	262
Coastal Plains Scribbly Gum Woodland.....	161
Coastal Plains Smooth-barked Apple Woodland.....	136
Coastal Plains Stringybark – Apple Forest.....	144
Coastal Plains Wet Heath.....	277
Coastal Ranges Dry Blackbutt Forest.....	70
Coastal Ranges Dry Peppermint - Blackbutt Forest.....	74
Coastal Ranges Dry Spotted Gum - Blackbutt Forest.....	72
Coastal Ranges Dry Tallowwood - Blackbutt Forest.....	76
Coastal Ranges Mesic Blackbutt Forest.....	43
Coastal Ranges Mesic Blackbutt-Tallowwood Forest.....	49
Coastal Ranges Mesic Peppermint Forest.....	45
Coastal Ranges Mesic Stringybark – Mahogany Forest.....	47
Coastal Sand Apple - Blackbutt Forest.....	93
Coastal Sand Banksia Scrub.....	251
Coastal Sand Bottlebrush Wet Heath.....	280
Coastal Sand Foredune Scrub.....	249
Coastal Sand Mantled Clay Heath.....	270
Coastal Sand Swamp Forest.....	203
Coastal Sand Wallum Heath.....	268
Coastal Sandplain Dry Heath.....	272
Coastal Sandstone Laterite Heath.....	264
Coastal Sheltered Apple - Peppermint Forest.....	51
Coastal Warm Temperate – Subtropical Rainforest.....	9
Coastal Wet Gully Forest.....	7
Cockle Creek Dune Forest.....	179
Cooranbong Blackbutt Tall Forest.....	37
Depression Paperbark Thicket.....	243
Dune Swale Swamp Forest.....	207
Estuarine Juncus Rushland.....	292
Estuarine Paperbark Scrub-Forest.....	219
Floodplain Redgum – Rough-barked Apple Forest.....	193
Foreshore Redgum – Ironbark Forest.....	212

Foreshore Redgum – Rough-barked Apple Forest.....	210
Forest Redgum – Paperbark Scrub-Forest.....	225
Freemans Peppermint – Apple - Bloodwood Forest.....	147
Freshwater Baumea Sedgeland.....	320
Freshwater Carex Rainforest Sedgeland.....	302
Freshwater Cladium Sedgeland.....	304
Freshwater Gahnia Sedgeland.....	306
Freshwater Philydrum Sedgeland.....	322
Freshwater Typha Wetland.....	318
Freshwater Wetland Complex.....	301
Hawkesbury Hanging Swamps.....	287
Hinterland Spotted Gum – Red Ironbark Forest.....	125
Hunter Range Dry Escarpment Apple Forest.....	79
Hunter Range Dry Ironbark – Grey Gum Forest.....	81
Hunter Range Dry Mahogany – Apple Forest.....	85
Hunter Range Dry Mahogany – Grey Gum Forest.....	83
Hunter Range Dry Stringybark - Blackbutt Forest.....	87
Hunter Valley Moist Forest.....	54
Hunter Valley Moist Spotted Gum - Blackbutt Forest.....	57
Hunter Valley Moist Spotted Gum - Fergusons Forest.....	63
Hunter Valley Moist Spotted Gum - Ironbark Forest.....	61
Hunter Valley Moist Spotted Gum – Turpentine Forest.....	59
Jilliby Spotted Gum – Fergusons Ironbark - Mahogany Forest.....	120
Jilliby Spotted Gum – Northern Ironbark – Mahogany Forest.....	118
Kahibah Snappy Gum Forest.....	174
Killingworth Snappy Gum Forest.....	172
Lake Macquarie Dry Rainforest.....	14
Lake Macquarie Headland Swamp Oak Forest.....	216
Lake Macquarie Ironbark Forest.....	111
Lake Macquarie Snappy Gum Forest.....	168
Lake Macquarie Spotted Gum Forest.....	108
Lepironia Swamp.....	299
Littoral Rainforest.....	16
Mangrove – Estuarine Complex.....	254
Mesic Paperbark Thicket.....	236
Mining Rehabilitation.....	324
Munmorah Grasstree Wet Heath.....	275
Munmorah Impeded Sand Sedgeland.....	284
Munmorah Sedge Swamp.....	289
Narrabeen Alluvial Paperbark Thicket.....	228
Narrabeen Dune Forest.....	177
Narrabeen Peppermint - Apple Forest.....	66
Paperbark – Carex Backswamp Forest.....	234
Paperbark Clay Heath.....	241
Paperbark Depression Forest.....	232
Pelican Bangalay Forest.....	95
Permian Gully Rainforest.....	11
Phragmites Rushland.....	297
Red Ironbark – Paperbark Forest.....	128
Red Mahogany – Apple – Paperbark Forest.....	197
Riparian Paperbark - Peppermint Forest.....	32
Saltmarsh.....	294
Sand Mantled Banksia Forest.....	100
Seagrass.....	313
Snappy Gum Ridgetop Heathy Forest.....	165
Sugarloaf Lowlands Bloodwood – Apple – Scribbly Gum Forest.....	155
Sugarloaf Lowlands Bloodwood - Apple Forest.....	150
Sugarloaf Uplands Bloodwood - Apple Forest.....	141
Sugarloaf Uplands Dry Spotted Gum – Ironbark Forest.....	116
Sugarloaf Uplands Moist Spotted Gum – Ironbark Forest.....	122

Sugarloaf Uplands Paperbark Thicket	239
Swamp Mahogany – Livistona Swamp Forest	205
Swamp Mahogany - Paperbark Forest	182
Swamp Mahogany – Tallowwood Swamp Forest	191
Swamp Oak – Rushland Forest	214
Swamp Paperbark Thicket	230
Tomago Clay Wallum Scrub.....	247
Tomago Strand Plain Intermediate Heath.....	282
Watagans Remnant Hawkesbury Forest	90
Water Couch Meadow.....	315
West Wallsend Stringybark Forest.....	153
White Stringybark – Paperbark Scrub-Forest	222
Wyee Turpentine – Red Mahogany – Apple Riparian Forest	200

Community Index (by Unit)

1	Coastal Wet Gully Forest.....	7
1a	Coastal Warm Temperate – Subtropical Rainforest.....	9
1g	Permian Gully Rainforest.....	11
3e	Lake Macquarie Dry Rainforest.....	14
4	Littoral Rainforest	16
5	Alluvial Tall Moist Forest.....	19
5a	Alluvial Bluegum - Paperbark Forest.....	22
5b	Alluvial Bluegum – Apple Moist Forest.....	24
5e	Alluvial Bluegum – Spotted Gum Moist Forest.....	26
5h	Alluvial Riparian Blackbutt Forest.....	29
6a	Coastal Narrabeen Bluegum Ridge Forest	40
9a	Coastal Ranges Mesic Blackbutt Forest	43
9b	Coastal Ranges Dry Blackbutt Forest	70
9d	Coastal Ranges Dry Spotted Gum - Blackbutt Forest.....	72
9e	Coastal Ranges Mesic Peppermint Forest.....	45
9f	Coastal Ranges Dry Peppermint - Blackbutt Forest	74
9h	Coastal Ranges Dry Tallowwood - Blackbutt Forest.....	76
9i	Coastal Ranges Mesic Stringybark – Mahogany Forest.....	47
9l	Coastal Ranges Mesic Blackbutt-Tallowwood Forest.....	49
11	Coastal Sheltered Apple - Peppermint Forest.....	51
11a	Riparian Paperbark - Peppermint Forest.....	32
11c	Awaba Peppermint – Black Wattle Riparian Forest	35
12	Hunter Valley Moist Forest.....	54
12a	Hunter Valley Moist Spotted Gum - Blackbutt Forest.....	57
12b	Hunter Valley Moist Spotted Gum – Turpentine Forest	59
12c	Hunter Valley Moist Spotted Gum - Ironbark Forest	61
12d	Hunter Valley Moist Spotted Gum - Fergusons Forest	63
15	Coastal Foothills Spotted Gum – Ironbark Forest	103
15d	Coastal Foothills Spotted Gum – Ironbark Forest (Kurri).....	106
15h	Lake Macquarie Spotted Gum Forest	108
15i	Lake Macquarie Ironbark Forest	111
15k	Coastal Foothills Moist Grey Gum - Mahogany Forest	114
15l	Sugarloaf Uplands Dry Spotted Gum – Ironbark Forest	116
15m	Jilliby Spotted Gum – Northern Ironbark – Mahogany Forest.....	118
15n	Jilliby Spotted Gum – Fergusons Ironbark - Mahogany Forest.....	120
15o	Sugarloaf Uplands Moist Spotted Gum – Ironbark Forest	122
15p	Sugarloaf Uplands Paperbark Thicket.....	239
17o	Hinterland Spotted Gum – Red Ironbark Forest.....	125
21a	Hunter Range Dry Escarpment Apple Forest.....	79
21d	Hunter Range Dry Ironbark – Grey Gum Forest	81
21e	Hunter Range Dry Mahogany – Grey Gum Forest.....	83
21f	Hunter Range Dry Mahogany – Apple Forest	85
21g	Hunter Range Dry Stringybark - Blackbutt Forest.....	87
22	Coastal Narrabeen Shrub Forest	132
22e	Coastal Narrabeen Dry Bloodwood – Apple - Mahogany Forest	134
25a	Narrabeen Peppermint - Apple Forest	66
26h	Watagans Remnant Hawkesbury Forest.....	90
30	Coastal Plains Smooth-barked Apple Woodland	136
30a	Buttonderry Foothills Forest	139
30b	Sugarloaf Uplands Bloodwood - Apple Forest	141
30e	Coastal Plains Stringybark – Apple Forest.....	144
30f	Freemans Peppermint – Apple - Bloodwood Forest	147
30h	Sugarloaf Lowlands Bloodwood - Apple Forest	150
30i	West Wallsend Stringybark Forest	153
30j	Sugarloaf Lowlands Bloodwood – Apple – Scribbly Gum Forest.....	155
31	Coastal Plains Scribbly Gum Woodland.....	161
31h	Coastal Plains Dry Heath	262

31i	Coastal Sandstone Laterite Heath	264
31j	Snappy Gum Ridgetop Heathy Forest	165
31k	Narrabeen Dune Forest.....	177
33	Coastal Sand Apple - Blackbutt Forest	93
33c	Pelican Bangalay Forest.....	95
33d	Awabakal Sand Mantled Blackbutt Forest.....	97
33m	Sand Mantled Banksia Forest	100
34a	Coastal Sand Wallum Heath	268
34b	Coastal Sand Mantled Clay Heath	270
34c	Coastal Sandplain Dry Heath	272
36c	Tomago Clay Wallum Scrub.....	247
37	Swamp Mahogany - Paperbark Forest.....	182
37a	Alluvial Paperbark Sedge Forest.....	185
37b	Alluvial Floodplain Woollybutt Forest	187
37d	Alluvial Floodplain Cabbage Gum Forest.....	189
37e	Coastal Sand Swamp Forest.....	203
37f	Swamp Mahogany – Livistona Swamp Forest	205
37g	Swamp Mahogany – Tallowwood Swamp Forest	191
37j	Dune Swale Swamp Forest.....	207
38	Foreshore Redgum – Rough-barked Apple Forest	210
38a	Floodplain Redgum – Rough-barked Apple Forest.....	193
38c	Foreshore Redgum – Ironbark Forest.....	212
39	Apple - Palm Gully Forest.....	195
40	Swamp Oak – Rushland Forest	214
40a	Phragmites Rushland	297
40c	Estuarine Juncus Rushland.....	292
40d	Lake Macquarie Headland Swamp Oak Forest.....	216
42	Red Mahogany – Apple – Paperbark Forest	197
42a	Narrabeen Alluvial Paperbark Thicket.....	228
42c	Wye Turpentine – Red Mahogany – Apple Riparian Forest.....	200
43a	Estuarine Paperbark Scrub-Forest.....	219
43c	Paperbark Clay Heath	241
43e	White Stringybark – Paperbark Scrub-Forest.....	222
43f	Forest Redgum – Paperbark Scrub-Forest	225
44a	Munmorah Grasstree Wet Heath	275
44g	Coastal Sand Bottlebrush Wet Heath.....	280
44j	Tomago Strand Plain Intermediate Heath	282
44l	Munmorah Impeded Sand Sedgeland.....	284
44m	Coastal Plains Wet Heath.....	277
45	Lepironia Swamp.....	299
46	Freshwater Wetland Complex	301
46a	Freshwater Typha Wetland	318
46b	Freshwater Baumea Wetland.....	320
46c	Freshwater Carex Rainforest Sedgeland	302
46f	Freshwater Philydrum Sedgeland	322
46h	Freshwater Cladium Sedgeland	304
46i	Freshwater Gahnia Sedgeland.....	306
47	Mangrove – Estuarine Complex	254
47a	Saltmarsh.....	294
50a	Coastal Sand Foredune Scrub	249
50b	Coastal Sand Banksia Scrub.....	251
50c	Bitou Bush Scrub.....	326
51a	Coastal Headland Grassland	309
51b	Coastal Headland Shrubland	257
51c	Coastal Headland Low Forest.....	158
51d	Coastal Headland Paperbark Scrub.....	259
53	Beach Spinifex.....	311
54	Hawkesbury Hanging Swamps	287
54e	Munmorah Sedge Swamp.....	289
100a	Swamp Paperbark Thicket	230

108b	Paperbark Depression Forest	232
110a	Red Ironbark – Paperbark Forest.....	128
110b	Depression Paperbark Thicket	243
111a	Lake Macquarie Snappy Gum Forest.....	168
111c	Killingworth Snappy Gum Forest.....	172
113	Paperbark – Carex Backswamp Forest.....	234
114	Mesic Paperbark Thicket	236
119	Kahibah Snappy Gum Forest	174
121	Seagrass.....	313
122	Cockle Creek Dune Forest	179
123	Cooranbong Blackbutt Tall Forest.....	37
125	Water Couch Meadow	315
R	Mining Rehabilitation	324