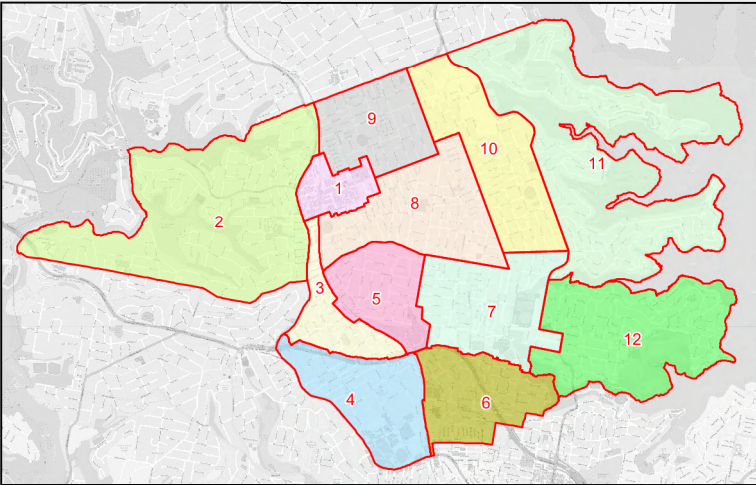
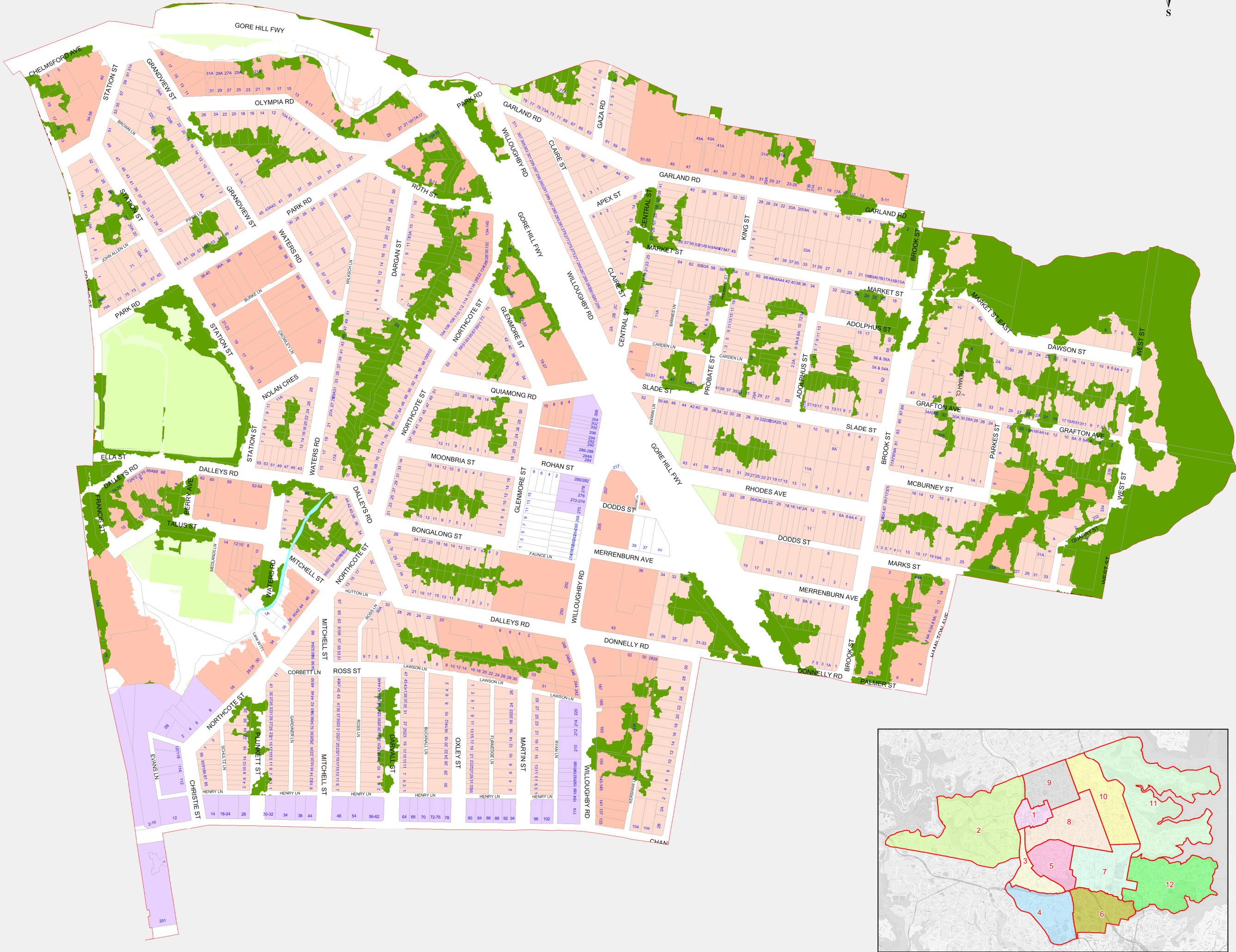


Willoughby City Councils Street Tree Master Plan.

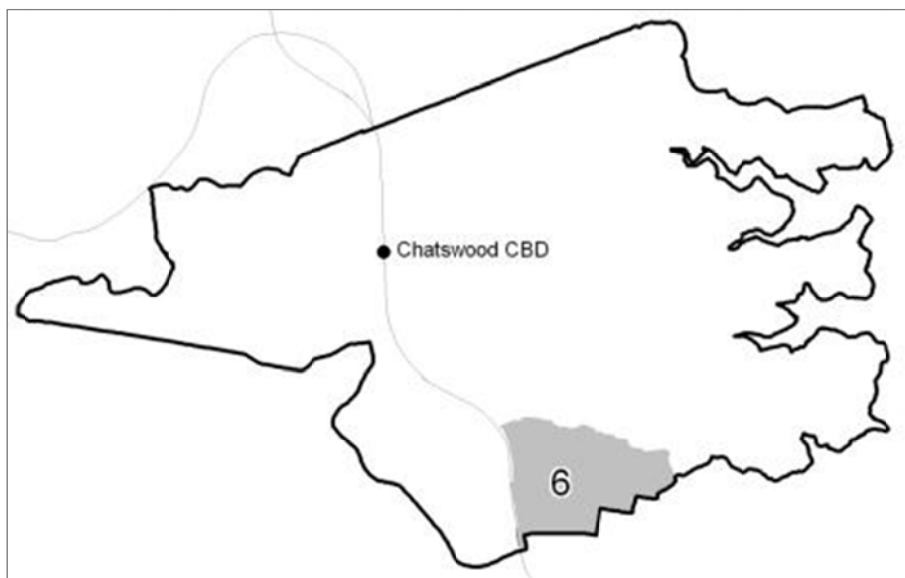
Precinct 6
Southern



- Legend
- Grassed areas
 - Industrial and Commerial areas
 - Low density residential
 - Medium density residential
 - Sports ground
 - Vegetation
 - Water



6. Southern mixed residential and commercial (incl. Conservation Areas)



Key landscape features

Geology and soils:

Wianamatta Group shales (approximately 50% of precinct) – central and western portions of precinct with shallow to moderately deep loams, silty-loams and clay-loam soils of low to moderate fertility;

Hawkesbury sandstone (45% of precinct) – northern, eastern and south-eastern portions of precinct with fine to medium-grained quartz sandstone and inter-bedded shale; soils are typically shallow, apedal, porous sandy to sandy loams;

Disturbed terrain/ ex situ fill (approx. 5% of precinct/ Bicentennial Reserve).

Topography, slope and aspect:

Central and western areas – undulating to rolling low hills with no rock outcrops, grading to localised steep slopes with some sandstone outcropping and benches (northern and eastern areas);

Eastern edge of precinct (adjoining Flat Rock Gully Reserve) – very steep and rugged sandstone slopes and ridges with rock outcrops, benches and broken scarps (up to 10 metres high); aspect varies – mainly north-west to north-east.

Cultural landscape:

Predominantly low to medium density residential (incl. two Conservation Areas) and commercial areas; Gore Hill Freeway splits the precinct into east and west portions; Gore Hill Freeway and Bicentennial Reserve (northern boundary), Flat Rock Gully Reserve (eastern boundary), Palmer Street/ Wheatleigh Street/ Chandos Street (southern boundary) and rail corridor (western boundary).

Presence of remnant native vegetation:

Eastern boundary/ Flat Rock Gully Reserve – conserves remnant Sydney Sandstone Ridgeline Woodland (10ar (i)) and Sydney Sandstone Gully Forest (10ag (i)) however no remnant native vegetation in streetscapes. Prior to clearing this area would have supported a range of ecological communities including Blue Gum High Forest, Sydney-Turpentine Ironbark Forest, Sydney Sandstone Gully Forest and Sydney Sandstone Ridgeline Woodland (source: *Willoughby Natural Heritage Register*).

Streetscape type/character:

Dominant cultural plantations/ mixed exotic and native tree species (evergreen and deciduous); typically mixed range of *Eucalyptus/ Corymbia* spp. within each street. 15-20+ different tree species per street is typical (e.g. Garland Road has 21 tree species (16 native/ 5 exotic tree species out of a total of 76 planted trees and Dalleys Road has 23 tree species (17 native/ 6 exotic trees) out of a total of 92 planted trees).

Heritage Conservation Areas:

1. Naremburn Heritage Conservation Area: C8 (WDCP 2012 Part H: Heritage Item H3.9); and

2. Naremburn Central Township Heritage Conservation Area: C9 (WDCP 2012 Part H: Heritage Item H3.10).

Historic significance:

Naremburn HCA: Broughton Estate subdivided in 1903 following extension of tramline along Willoughby Road to Willoughby; land subdivided into grid pattern of very small allotments with detached Federation working class cottages; boom period until the 1930s and generally intact Federation suburb.

Darvall Street retains a significant formal avenue plantation of Canary Island Date Palms (WDCP, 2012 HCA-C8/ H3-31). This is possibly one of the oldest formal street tree plantations on the North Shore.



PHOTO 5: Darvall Street – Avenue of Canary Island Date Palms (*Phoenix canariensis*) – a significant heritage plantation

Naremburn Central Township HCA: First settled area in Naremburn (oldest commercial development on North Shore); Market Street – from early 1880s development included small businesses and home industries; area conserves wide range of working class Federation cottages, Californian bungalows, semi-detached housing and some late Victorian residences.

HCA-C8 Key period of significance: 1903-1915 (WDCP, 2012, H3-32);

HCA-C9 Key period of significance: 1880-1930 (WDCP, 2012, H3-35).

Significant Inter-war period (single species and mixed) plantations:

Plunkett Street

Darvall Street

Age structure of cultural street tree plantations:

Conservation Areas: Federation & Inter-war plantations (up to 90-100 years+)

Dominant planting: varies; generic native planting (up to 30-40 years+)

PRECINCT 6: SOUTHERN MIXED RESIDENTIAL & COMMERCIAL/ CONSERVATION Existing typical or dominant planted tree species*	
Location	Tree Species (cultivated)
Plunkett Street/ Darvall Street	<i>Lophostemon confertus</i> (Brush Box) <i>Phoenix canariensis</i> (Canary Island Date Palm) <i>Lagerstroemia indica</i> var. (Crepe Myrtle)
Mitchell Street/ Oxley Street	<i>Afrocarpus falcatus</i> (Outeniqua Yellowwood) <i>Callistemon</i> spp. (Bottlebrush) <i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)
Dalleys Road	<i>Lagerstroemia indica</i> var. (Crepe Myrtle) <i>Callistemon</i> spp. (Bottlebrush) <i>Triadica sebifera</i> syn. <i>Sapium sebiferum</i> (Chinese Tallow Tree)
Station Street/ Francis Street	<i>Casuarina cunninghamiana</i> (River Oak) <i>Tristaniopsis laurina</i> (Water Gum) <i>Lophostemon confertus</i> (Brush Box)
Dargan Street/ Northcote Street	<i>Tristaniopsis laurina</i> (Water Gum) <i>Callistemon</i> spp. (Bottlebrush) <i>Cupaniopsis anacardioides</i> (Tuckeroo)
Garland Road/ Market Street/ Central Street	<i>Agonis flexuosa</i> (Willow Myrtle) <i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark) <i>Ulmus parvifolia</i> (Chinese Elm)

* NOTE: Street tree planting is dominated by a wide range of exotic and generic native trees and shrubs, including various cultivars (15-20+ tree species per street is typical).

Key precinct objectives

- Protect the historic character, scale and integrity of late Victorian and Federation streetscapes within the two Heritage Conservation Areas (incl. removal of inappropriate infill and replacement species);
- Protect and maintain the integrity and intactness of historic single species avenues (incl. significant Federation/or early Inter-war period avenue of Canary Island Date Palms in Darvall Street);
- Implement a program to phase-out unsuitable and/ or poorly performing street trees including removal of disparate elements (i.e. varying forms, habit, structure, texture, etc.) and variety of tree species in many streets;
- Promote consistency in tree species selection ensuring continuity, unity and cohesiveness in the palettes for each street and across the precinct;

- Avoid infill planting strategies which add further layers of inconsistent, disjunctive and/ or mixed generic native and exotic tree species of varying scale, form and texture;
- Consolidate thematic planting approach in commercial centres including use of select cultivars of deciduous species to enhance microclimatic conditions and to provide seasonal colour and texture;
- Prioritise Willoughby Road as a key connector road implementing a planting strategy using single or two (mixed) species within the streetscape (i.e. one species under overhead powerlines/ shop awnings and alternative species with no service restrictions).

PRECINCT 6: SOUTHERN MIXED RESIDENTIAL & COMMERCIAL/ CONSERVATION Proposed street tree species						
Tree Species	Common Name	evergreen	deciduous	habit/form ¹	verge width ²	power-lines ³
<i>Acmena smithii</i>	Lilly Pilly	E	-	cr	N	N
<i>Afrocarpus falcatus</i>	Outeniqua Yellowwood	E	-	cs	W	N
<i>Backhousia citriodora</i>	Lemon-scented Myrtle	E	-	cr	M	N
<i>Banksia integrifolia</i>	Coast Banksia	-	D	no cu	M	Y
<i>Corymbia maculata</i>	Spotted Gum	E	-	no	M	N
<i>Cupaniopsis anacardioides</i>	Tuckeroo	E	-	cr	N	Y
<i>Eucalyptus haemastoma</i>	Scribbly Gum	E	-	os	W	N
<i>Flindersia australis</i>	Australian Teak	E	-	cs	M	N
<i>Gordonia axillaris</i>	Gordonia	E	-	cu	M	Y
<i>Jacaranda mimosifolia</i>	Jacaranda	-	D	os	M	N
<i>Lagerstroemia indica</i> x <i>L. fauriei</i> var.	Crepe Myrtle cv.*	-	D	cu	M	Y
<i>Lophostemon confertus</i>	Brush Box	E	-	cr	W	N
<i>Melaleuca</i> spp.	Paperbark / Tea Trea	E	-		M	Y
<i>Phoenix canariensis</i> **	Canary Is. Date Palm	E	-	-	M	N
<i>Pistacia chinensis</i>	Chinese Pistachio	-	D	cr	M	N
<i>Pyrus calleryana</i> 'Cleveland Select'	Ornamental Pear	-	D	cr	M	N

Willoughby Street Tree Master Plan

WILLOUGHBY CITY COUNCIL

October 2014

LandArc Pty Limited

Int. Ref: 82741068

<i>Pyrus calleryana</i> 'Capital'	Ornamental Pear	-	D	cn	N	N
<i>Tristanopsis spp.</i>	Water Gum	E	-	cr	M	Y
<i>Ulmus parvifolia</i>	Chinese Elm	-	D	os	W	N
<i>Waterhousea floribunda</i>	Weeping Lilly Pilly	E	-	cs	M	N
<i>Xanthostemon chrysanthus</i>	Golden Penda	E	-	cr	N	Y

NOTES: Species are shown in alphabetical order and do not denote dominance or ranking.

* *Lagerstroemia indica* x *L. fauriei* select cultivars including "Acoma", "Sioux", "Natchez" and "Tuscarora".

** *Phoenix canariensis* to be used only within existing plantations in Conservation Areas.

¹HABIT/ FORM OF TREE

c = compact/dense foliage; o = open crown/ canopy;

upright = u; r = rounded; s = spreading; n = narrow/columnar or pyramidal.

²MINIMUM VERGE WIDTH (incl. footpath):

N = narrow (<2.5 metres)

M = medium (2.5-4.0 metres)

W = wide (>4.0 metres)

³PLANTING UNDER POWER-LINES (incl. ABC):

Item denotes suitability for planting under overhead power-lines or aerial bundled cabling:

N = NO; Y = YES



Lilly Pilly
Acmena smithii



Smooth-barked Apple
Angophora costata



Outeniqua Yellowwood
Afrocarpus falcatus



Lemon-scented Myrtle
Backhousia citriodora



Tree Waratah
Alloxylon flammeum



Grey Myrtle (immature)
Backhousia myrtifolia



Tuckeroo
Cupaniopsis anacardioides



Red Bloodwood – bark detail
Corymbia gummifera



Eumundi Quandong
Elaeocarpus eumundi



Heart-leaf Stringybark – leaf detail
Eucalyptus camfieldii



Broad-leaved Scribbly Gum
Eucalyptus haemastoma



Sydney Peppermint
Eucalyptus piperita



Narrow-leaved Scribbly Gum
Eucalyptus racemosa



Sydney Blue Gum
Eucalyptus saligna



Australian Teak
Flindersia australis



Bumpy Ash
Flindersia schottiana



Cheese Tree
Glochidion ferdinandi



Gordonia
Gordonia axillaris



Purple-leaf Hibiscus
Hibiscus tiliaceus var. *rubra*



Jacaranda
Jacaranda mimosifolia



Crepe Myrtle cv. Yuma
Lagerstroemia indica x *L. fauriei*



Southern Magnolia cv. Exmouth
Magnolia grandiflora 'Exmouth'



Ornamental Pear – autumn foliage
Pyrus calleryana 'Chanticleer'



Turpentine
Syncarpia glomulifera



Cherry Satinash
Syzygium luehmannii



Weeping Lilly Pilly
Waterhousea floribunda



Water Gum cv. Luscious
Tristaniopsis laurina 'Luscious'



Golden Penda
Xanthostemon chrysanthus