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Native Vegetation Communities of Hornsby Shire

2008 Update

Report prepared for Hornsby Shire Council

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Summary

In 1990-1993 we identified and mapped the native vegetation communities in the bushland of Hornsby Shire. The present study, carried out between 2006 and 2008, updates the classification and mapping of the communities. The updated mapping has been provided in two digital versions for inclusion in Council's geographic information system: one showing the extent of bushland in January 2005; the other showing the extent in March 2007. The present report provides details of our methodology and community classification, together with descriptions and photos of the individual communities, and a discussion of their conservation significance.

The survey area included all of the Hornsby Local Government Area, from Eastwood to Brooklyn and Wisemans Ferry, except for Marramarra National Park, Muogamarra Nature Reserve, Long Island Nature Reserve, and Ku-ring-gai Chase National Park east of the Sydney-Newcastle Freeway. Department of Environment and Climate Change lands that have been included in the mapping include Berowra Valley Regional Park, Lane Cove River National Park, Maroota Historic Site, Mount Kuring-gai Aboriginal Area, and the fragments of Ku-ring-gai Chase National Park west of the Sydney-Newcastle Freeway.

A total of 34 native vegetation communities have been distinguished in the survey area. Three of these have not been mapped here, but have been mapped in other studies. Angophora-Red Mahogany Forest and Shale Gravel Transition Forest appear to be represented now only by stands of remnant trees without a native understorey, which have been mapped by Smith and Smith (2008). Seagrass Meadow is submerged aquatic vegetation dominated by seagrasses, and has been mapped by West *et al*. (1985).

Twenty-eight of the communities are significant at national, State, regional or local level, including:

- two critically endangered ecological communities listed under Commonwealth legislation, Turpentine-Ironbark Forest and Blue Gum Shale Forest (listed as 'Blue Gum High Forest'),
- one endangered ecological community listed under Commonwealth legislation, Shale/Sandstone Transition Forest,
- one critically endangered ecological community listed under NSW legislation, Blue Gum Diatreme Forest (forms part of 'Blue Gum High Forest' as listed under NSW legislation, but not 'Blue Gum High Forest' as listed under Commonwealth legislation),
- nine endangered ecological communities listed under NSW legislation, Duffys Forest, Rough-barked Apple River-flat Forest, Forest Red Gum River-flat Forest, Shale Gravel Transition Forest, Swamp Oak Floodplain Forest, Coastal Saltmarsh, Swamp Mahogany Forest, Floodplain Paperbark Scrub and Floodplain Reedland (the last three are forms of the listed community, 'Swamp Sclerophyll Forest on Coastal Floodplains', while Rough-barked Apple River-flat Forest and Forest Red Gum River-flat Forest are forms of the listed community, 'River-flat Eucalypt Forest on Coastal Floodplains'),
- eleven regionally significant communities (Sydney region), Coachwood Rainforest, Grey Myrtle Rainforest, Blue-leaved Stringybark Diatreme Forest, Angophora-Red Mahogany Forest, Rough-barked Apple-Forest Oak Forest, Blackbutt-Rough-barked Apple Forest, Narrow-leaved Apple Slopes Forest, Narrow-leaved Apple Gully Forest, Rock Platform Heath, Sandstone Swamp and Seagrass Meadow,
- four locally significant communities (Hornsby Shire), Blackbutt Gully Forest, Silvertop Ash-Scribbly Gum Woodland, Angophora Woodland and Mangrove Swamp.

The other six communities of lesser conservation significance are Peppermint-Angophora Forest, Bloodwood-Scribbly Gum Woodland, Narrow-leaved Scribbly Gum Woodland, Grey

Gum-Scribbly Gum Woodland, Yellow Bloodwood Woodland and Scribbly Gum Open-woodland/Heath. Together, these six communities make up 83% of the native vegetation of the survey area (12,858 of 15,505 ha). The significant communities make up only 17% (2647 ha).

The three communities of greatest conservation significance, the critically endangered Turpentine-Ironbark Forest, Blue Gum Shale Forest and Blue Gum Diatreme Forest, all occur on easy topography on relatively fertile soils, and have been severely depleted and fragmented by clearing for urban and rural development. Over 95% of their original extent on the Cumberland Plain has been cleared (Tozer 2003). Hornsby Shire has about a quarter of the remaining area of both Turpentine-Ironbark Forest (295 of 1183 ha) and Blue Gum Shale Forest (37 of 168 ha), and possibly all of the remaining area of Blue Gum Diatreme Forest (14 ha). Very little of these communities is conserved in the local Department of Environment and Climate Change reserves. Hornsby Shire Council has a major role to play in the conservation of the three communities.

Among the regionally and locally significant communities, two face particular threats. Coachwood Rainforest, which occurs along creeks, is highly prone to weed invasion from water-borne and bird-spread propagules, especially Small-leaved Privet (*Ligustrum sinense*), which has become a major component of many stands of this community around Sydney. Silvertop Ash-Scribbly Gum Woodland, which occurs on ridges and plateaus in the eastern part of Hornsby Shire, mainly outside Berowra Valley Regional Park, is threatened by the continual spread and intensification of urban development within its distribution. A number of stands of this community have been cleared or reduced since our 1990 survey.

A total area of 15.4 ha of bushland has been cleared in Hornsby Shire over the 26 months between January 2005 and March 2007. Sixteen native vegetation communities in Hornsby Shire have been reduced in extent over this period. Critically endangered communities have been reduced by 1.8 ha, endangered communities by 3.5 ha, regionally significant communities by 1.0 ha, locally significant communities by 0.8 ha, and common communities by 8.1 ha.

The Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006) needs to be updated to take account of the results of the present study and the parallel remnant trees study (Smith and Smith 2008). We recommend the following changes:

- addition of Shale Gravel Transition Forest to the list of endangered ecological communities in Hornsby Shire,
- addition of Angophora-Red Mahogany Forest and Seagrass Meadow to the list of regionally significant communities,
- revision of Table 1 to take account of the changes to community symbols in Table 1 of the present report, and the splitting of River-flat Eucalypt Forest into two separate communities,
- recognition in Appendix 2 of the revised status of Blue Gum High Forest as a critically endangered community, and
- revision of Appendix 3 to make it consistent with Table 1.

Contents

1. Introduction

In 1990-93, in a series of studies for Hornsby Shire Council, we identified and mapped the native vegetation communities of the entire Hornsby Shire except for the National Parks and Wildlife Service lands (Smith and Smith 1990a, 1990b, 1993). The survey area included Berowra Valley Bushland Park and Pennant Hills Park, which at that time were administered by Council, but are now mostly National Parks and Wildlife Service lands. The mapping was based on air photo interpretation and extensive field checking. Vegetation maps were prepared at a scale of 1:25 000. These were subsequently digitised by others and incorporated in Council's geographic information system.

In 2006 we were engaged by Hornsby Shire Council to update the original vegetation classification and mapping. A report and maps were prepared in 2006 (Smith and Smith 2007), followed by a minor update in 2007 (Smith and Smith 2007). The present report is a further update to correct some mapping errors and to provide additional information. The report also documents the extent of vegetation clearing between January 2005 and March 2007.

The 2006-08 updating of the 1990-93 mapping has involved:

- correction of errors in the original mapping,
- correction of errors in the digitisation of the original maps,
- updating of vegetation boundaries to incorporate changes that have occurred since the previous mapping (mainly clearing, but also some regrowth of vegetation),
- revision of the original community classification, particularly for inclusion of endangered ecological communities recognised in legislation, and
- revision of the original mapping to reflect the revised community classification.

The updated vegetation mapping has been provided in a digital version for inclusion in Council's geographic information system. Two separate layers have been provided: one showing the extent of native vegetation in January 2005; the other showing the extent in March 2007. The present report provides details of our methodology and community classification, together with descriptions and photos of the individual communities, and a discussion of their conservation significance.

2. Methods

2.1 Definition of Bushland

In deciding which patches of vegetation to include in the mapping, we were guided by the definition of 'bushland' in *State Environmental Planning Policy No. 19 - Bushland in Urban Areas* (NSW Department of Environment and Planning 1986):

> 'Land on which there is vegetation which is either a remainder of the natural vegetation or, if altered, is still representative of the structure and floristics of the natural vegetation'.

NSW Department of Environment and Planning (1986) note that for a stand of vegetation to be regarded as bushland for the purposes of the policy it should exhibit all of the following characteristics:

- The canopy (i.e. the topmost vegetation layer, whether trees or other plant forms)

consists of indigenous native species.
- The understorey and ground cover consist of indigenous native species or, if disturbed, contain a component of indigenous native species sufficient to re-establish those vegetation layers should the disturbance be arrested or reversed by management.
- The structure of the vegetation is recognisably a remnant of a natural bushland type or is a regrowth which has achieved a near natural structure or a seral stage towards that structure.

Thus, we have not mapped stands of native trees where there are no native species, or very few, in the understorey and ground cover layers. Nevertheless, such stands can be important for conservation of biodiversity, and warrant recognition for planning and management purposes. Accordingly, Hornsby Shire Council has engaged us to map these stands of remnant trees in a separate study of the Southern Rural District of Hornsby Shire (Smith and Smith 2008).

2.2 Survey Area

The survey area includes all of the Hornsby Local Government Area, from Eastwood to Brooklyn and Wisemans Ferry, except for Marramarra National Park, Muogamarra Nature Reserve, Long Island Nature Reserve, and Ku-ring-gai Chase National Park east of the Sydney-Newcastle Freeway. Department of Environment and Climate Change lands that have been included in the mapping include Berowra Valley Regional Park, Lane Cove River National Park, Maroota Historic Site, Mount Kuring-gai Aboriginal Area, and the fragments of Ku-ring-gai Chase National Park west of the Sydney-Newcastle Freeway.

2.3 Other Studies Consulted

Previous vegetation studies and mapping that have been consulted for this study include:

- our 1990-1993 vegetation maps and reports (Smith and Smith 1990a-b, 1993),
- other vegetation studies that we have carried out in Hornsby Shire (Smith 1997a-b, 2002, 2003a-b, 2005, 2006, 2007, Smith and Smith 1994, 1995, 1996a-b, 1997a-c, 2000, 2003),
- Hornsby Shire threatened community surveys (ESP Ecological Surveys and Planning 1999, Lembit 2005),
- NSW National Parks and Wildlife Service western Sydney vegetation studies (NSW National Parks and Wildlife Service 2002, Tozer 2003), and
- other relevant vegetation studies (West *et a*l. 1985, Thomas and Benson 1985a-b, Benson 1986, 1992, Benson and Howell 1994, Ryan et al. 1996, Keith 2004, Smith and Smith 2005).

2.4 Vegetation Community Classification

In our original studies (Smith and Smith 1990a, 1990b, 1993), we classified the native vegetation of Hornsby into plant communities on the basis of the floristic composition of the tallest vegetation layer (usually the tree species composition). The assessment was subjective, but was based on tree species data (the tree species present and their relative abundance) from a total of 494 sites sampled between November 1989 and March 1993. In addition, full species lists (all vegetation layers) were compiled from 0.04 ha sample plots at 53 of these sites.

When updating the vegetation classification in 2006, we collected tree species data from 209 sample sites between February and July 2006 (mostly new sites, but some resampling of sites from the 1990-93 studies). At 13 of these sites, full species lists were compiled from 0.04 ha sample plots in order to test whether the vegetation represented Turpentine-Ironbark Forest, Shale/Sandstone Transition Forest or Duffys Forest, using the methods of Tozer (2003) and Smith and Smith (2000). At 15 other sites we recorded the main understorey species as well as the tree species. Tree species data were obtained from a further 47 sites in July to September 2008, plus a full species list from one 0.04 ha sample plot at one of the sites.

Altogether, tree species data have been obtained from 742 different sites, full species lists have been obtained from 67 plots, and lists of the main understorey species have been obtained from 15 sites. These data are presented in Appendix 1 and Table 4. They have also been used, together with information from other vegetation studies that we have carried out in Hornsby Shire (listed above), to compile the community descriptions in section 3 of this report.

The original vegetation classification from 1990-93 has been revised to include eight endangered ecological communities listed under either the NSW *Threatened Species Conservation Act 1995* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (Table 2). Five of these have been included in the classification as single communities, using the same names under which they are listed in the legislation. The other three have been subdivided into two or three communities each.

Blue Gum High Forest has been divided into Blue Gum Shale Forest and Blue Gum Diatreme Forest, because of their different geologies, and because Blue Gum Diatreme Forest is only recognised as Blue Gum High Forest in the NSW legislation, not the Commonwealth legislation. The two communities have been given the symbols BG1 and BG2 to indicate that they are forms of one endangered ecological community (at least under NSW legislation).

River-flat Eucalypt Forest on Coastal Floodplains has been divided into Rough-barked Apple River-flat Forest (RF1) and Forest Red Gum River-flat Forest (RF2), reflecting distinct differences in species composition between the two. In our 2006 and 2007 reports, we stated that the Forest Red Gum form of the community appeared to be represented now in Hornsby Shire only by remnant trees. However, an extant stand of the community has since been discovered (by Diane Campbell and Jamie Wright), which we have inspected to compile the community description in section 3.

The other endangered ecological community, Swamp Sclerophyll Forest on Coastal Floodplains, is broadly defined and includes a variety of vegetation forms (forest, scrub, fernland, reedland and sedgeland; NSW Scientific Committee 2004). Because they are so different in vegetation structure and floristic composition, the three forms that occur in Hornsby Shire are recognised here as three separate communities: Swamp Mahogany Forest (SF1), Floodplain Paperbark Scrub (SF2) and Floodplain Reedland (SF3).

We have also made some other changes to the original vegetation community classification. We initially recognised only a single rainforest community, Community O. This has now been divided into two separate communities, Coachwood Rainforest (O1) and Grey Myrtle Rainforest (O2), which occur on different geologies and have different dominant tree species. We have also recognised the distinctive vegetation of Dangar Island as a separate community, Blackbutt-Rough-barked Apple Forest, and given it the symbol Q2 because it occupies a similar habitat to the original Community Q, which has been renamed Rough-barked Apple-Forest Oak Forest, and given the symbol Q1.

Two new communities have also been added as a result of our current study of remnant trees in the Southern Rural District of Hornsby Shire (Smith and Smith 2008). Both appear to be represented now in Hornsby Shire only by remnant trees, but still warrant recognition in this report. Angophora-Red Mahogany Forest has been given the symbol L2 because of its similarity to Blackbutt Gully Forest (formerly Community L, now Community L1). Shale Gravel Transition Forest is an endangered ecological community listed under the NSW legislation, and has been given the symbol SG.

A total of 34 native vegetation communities have been distinguished in the survey area. One of these, Seagrass Meadow, is submerged aquatic vegetation dominated by seagrasses, and has been mapped by West *et al*. (1985). The other 33 communities are the subject of this report. Their relationship to Keith's (2004) classification of New South Wales vegetation, and to the Sydney Royal Botanic Gardens classification of Sydney region vegetation (Benson 1986, 1992, Benson and Howell 1994, Ryan *et al*. 1996), is shown in Table 1. Their relationship to the vegetation classification of our 1990-93 surveys is shown in Table 3. The tree species composition of the eucalypt communities is detailed in Table 4. Terms used to describe vegetation structure are defined in Table 5.

2.5 Vegetation Mapping

The distribution of the vegetation communities in the survey area was mapped by correcting the digitised vegetation layer in Hornsby Shire Council's geographic information system (GIS), using a MapInfo Professional 8.0 GIS program. The corrections were based on the GIS air photo layers. For the most part, these were high definition colour photos taken in January 2005. We also examined hard copies of the photos at a scale of 1:11 000 (urban areas) or 1:18 000 (rural areas), using a 4X stereoscope for a three-dimensional image that greatly assisted in the delineation of vegetation boundaries. Recent air photo coverage was not available for some of the more sparsely settled areas (between Singletons Mill and Brooklyn, between Brooklyn and Cowan, and between Cowan and Berowra), and the mapping in these areas was based on lower definition 1998 GIS colour air photos, without hard copies of the photos for stereoscopic examination.

We concentrated particularly on remapping the vegetation in the vicinity of cleared urban and rural areas, but also did extensive remapping of the vegetation away from these areas. Field checking of the mapping was carried out over 13 days of fieldwork between February and July 2006, and eight days of fieldwork between July and September 2008. The main task during the fieldwork was to check the identity of the mapped communities, rather than to check boundaries. Tree species data were collected from various sites and were added to the GIS layer. Tree species data collected during the 1990-93 studies were also added to the GIS layer.

The corrected GIS vegetation layer shows the distribution of native bushland in Hornsby Shire in January 2005. To examine the extent of clearing since that time, we have used more recent satellite imagery that was available on Hornsby Shire Council's GIS. The images were taken in March 2007, except for a small area around Wisemans Ferry, which was taken in December 2006. Definition was poorer than in the 2005 air photos, but could be used to locate and map sites where clearing had occurred since January 2005. A second GIS vegetation layer was prepared, based on the 2005 layer, to show the distribution of native bushland in Hornsby Shire in March 2007. Comparisons were then made between the extent of each vegetation community in 2005 and 2007.

Table 1. Native vegetation communities of Hornsby Shire and their relationship to other vegetation classifications

Status: A* = critically endangered community in Australia, A = endangered community in Australia, N* = critically endangered community in NSW, N = endangered community in NSW, R = regionally significant community (Sydney region), L = locally significant community (Hornsby Shire)

NSW vegetation class (Keith 2004)	Sydney vegetation map unit (Benson 1986, 1992, Benson and Howell 1994, Ryan *et al*. 1996)	Endangered ecological community (EPBC and TSC Acts)	Hornsby vegetation community	2007 area (ha)	Map symbol	Page	Status
Northern Warm Temperate Rainforests	10ag. Sydney Sandstone Gully Forest (part)		Coachwood Rainforest	108	O1	15	R
Dry Rainforests	9h. Narrabeen Slopes Forest (part)		Grey Myrtle Rainforest	11	O2	16	R
North Coast Wet Sclerophyll Forests	6b. Blue Gum High Forest	Blue Gum High Forest (both Acts)	Blue Gum Shale Forest	37	BG1	17	A*,N*
	6c. Glen Forest (part)	Blue Gum High Forest (TSC Act only)	Blue Gum Diatreme Forest	14	BG2	18	N*
	9f. River-flat Forest	River-flat Eucalypt Forest on Coastal Floodplains	Rough-barked Apple River-flat Forest	6	RF1	19	N
			Forest Red Gum River-flat Forest	2	RF2	20	N
Northern Hinterland Wet Sclerophyll Forests	6c. Glen Forest (part)		Blue-leaved Stringybark Diatreme Forest	8	N	21	R
	9o. Turpentine-Ironbark Forest	Sydney Turpentine-Ironbark Forest	Turpentine-Ironbark Forest	295	TI	22	A*,N
	9sf. Duffys Forest	Duffys Forest Ecological Community	Duffys Forest	15	DF	23	N
	10ag. Sydney Sandstone Gully Forest (part)		Blackbutt Gully Forest	837	L1	24	L
			Angophora-Red Mahogany Forest	(14)*	L2	25	R
	9h. Narrabeen Slopes Forest (part)		Rough-barked Apple-Forest Oak Forest	271	Q1	26	R
			Blackbutt-Rough-barked Apple Forest	7	Q2	27	R
Coastal Valley Grassy Woodlands	9h. Narrabeen Slopes Forest (part)		Narrow-leaved Apple Slopes Forest	281	R	28	R
	9d. Shale/gravel Transition Forest	Shale Gravel Transition Forest	Shale Gravel Transition Forest	(1)*	SG	29	N
	Not distinguished	Shale/Sandstone Transition Forest	Shale/Sandstone Transition Forest	5	SS	30	A,N
Sydney Coastal Dry Sclerophyll Forests	10ag. Sydney Sandstone Gully Forest (part)		Peppermint-Angophora Forest	5579	A	31	
	10ar. Sydney Sandstone Ridgetop Woodland (part)		Bloodwood-Scribbly Gum Woodland	638	C	32	
			Silvertop Ash-Scribbly Gum Woodland	47	E	33	L
			Narrow-leaved Scribbly Gum Woodland	1290	F	34	
			Angophora Woodland	62	S	35	L
Sydney Hinterland Dry Sclerophyll Forests	10ag. Sydney Sandstone Gully Forest (part)		Narrow-leaved Apple Gully Forest	93	B	36	R
	10ar. Sydney Sandstone Ridgetop Woodland (part)		Grey Gum-Scribbly Gum Woodland	4409	D	37	
			Yellow Bloodwood Woodland	284	T	38	

NSW vegetation class (Keith 2004)	Sydney vegetation map unit (Benson 1986, 1992, Benson and Howell 1994, Ryan *et al*. 1996)	Endangered ecological community (EPBC and TSC Acts)	Hornsby vegetation community	2007 area (ha)	Map symbol	Page	Status
Sydney Coastal Heaths	10ar. Sydney Sandstone Ridgetop Woodland (part), and 21g. Coastal Sandstone Heath (part)		Scribbly Gum Open-woodland/Heath	658	G	39	
			Rock Platform Heath	19	H	40	R
Coastal Heath Swamps	21g. Coastal Sandstone Heath (part)		Sandstone Swamp	10	I	41	R
Coastal Swamp Forests	27a. Coastal Swamp Forest Complex (part)	Swamp Sclerophyll Forest on Coastal Floodplains (part)	Swamp Mahogany Forest	5	SF1	42	N
Coastal Floodplain Wetlands	27a. Coastal Swamp Forest Complex (part)	Swamp Sclerophyll Forest on Coastal Floodplains (part)	Floodplain Paperbark Scrub	12	SF2	43	N
			Floodplain Reedland	18	SF3	44	N
	4a. Estuarine Complex (part)	Swamp Oak Floodplain Forest	Swamp Oak Floodplain Forest	110	SO	45	N
Mangrove Swamps	4a. Estuarine Complex (part)		Mangrove Swamp	321	W	46	L
Saltmarshes	4a. Estuarine Complex (part)	Coastal Saltmarsh	Coastal Saltmarsh	53	CS	47	N

* No bushland examples known. Areas given are for stands of remnant trees without a native understorey (Smith and Smith 2008).

Table 2. Characteristics of the native vegetation communities of Hornsby Shire

Vegetation community	Typical structure	Main species	Geology
Coachwood Rainforest (O1)	Low closed-forest or closed-forest	*Ceratopetalum apetalum*, **Ligustrum sinense*, *Callicoma serratifolia*, *Pittosporum undulatum*, *Tristaniopsis laurina*	Hawkesbury Sandstone
Grey Myrtle Rainforest (O2)	Low closed-forest or closed-forest	*Backhousia myrtifolia*	Narrabeen Group
Blue Gum Shale Forest (BG1)	Tall open-forest	*Eucalyptus saligna*, *E. pilularis*, *E. paniculata*, *Angophora costata*, *Syncarpia glomulifera*	Wianamatta Group
Blue Gum Diatreme Forest (BG2)	Tall open-forest	*Eucalyptus saligna*	Jurassic volcanic
Rough-barked Apple River-flat Forest (RF1)	Tall open-forest	*Angophora floribunda*, *Eucalyptus saligna*, *E. pilularis*, *Allocasuarina torulosa*, *Syncarpia glomulifera*	Quaternary alluvium
Forest Red Gum River-flat Forest (RF2)	Tall open-forest	*Eucalyptus tereticornis*	Quaternary alluvium
Blue-leaved Stringybark Diatreme Forest (N)	Open-forest	*Angophora costata*, *Eucalyptus agglomerata*, *Allocasuarina torulosa*	Jurassic volcanic
Turpentine-Ironbark Forest (TI)	Open-forest	Variable - *Syncarpia glomulifera*, *Angophora costata*, *Corymbia gummifera*, *Eucalyptus resinifera*, *E. pilularis*, *E. paniculata*, *E. punctata*, *E. globoidea*, *E. acmenoides*	Wianamatta Group, Mittagong Formation and shale lenses in Hawkesbury Sandstone
Duffys Forest (DF)	Open-forest	Variable - *Corymbia gummifera*, *Angophora costata*, *Syncarpia glomulifera*, *Eucalyptus piperita*, *E. pilularis*, *E. sparsifolia*, *E. punctata*, *E. agglomerata*, *E. globoidea*, *E. haemastoma*	Hawkesbury Sandstone with shale lenses or near Wianamatta Group
Blackbutt Gully Forest (L1)	Tall open-forest	*Eucalyptus pilularis*, *Angophora costata*, *Syncarpia glomulifera*	Hawkesbury Sandstone with shale lenses or near Wianamatta Group
Angophora-Red Mahogany Forest (L2)	Tall open-forest	*Angophora costata*, *Eucalyptus resinifera*, *Syncarpia glomulifera*, *Corymbia gummifera*	Hawkesbury Sandstone and Wianamatta Group transition zone
Rough-barked Apple-Forest Oak Forest (Q1)	Open-forest	*Allocasuarina torulosa*, *Angophora floribunda*, *Eucalyptus punctata*, *E. piperita*	Narrabeen Group and Hawkesbury Sandstone
Blackbutt-Rough-barked Apple Forest (Q2)	Open-forest	*Eucalyptus pilularis*, *Allocasuarina torulosa*, *Angophora floribunda*, *A. costata*, *Corymbia gummifera*	Narrabeen Group and Hawkesbury Sandstone
Narrow-leaved Apple Slopes Forest (R)	Open-forest	*Angophora bakeri*, *Allocasuarina torulosa*, *Eucalyptus tereticornis*, *E. punctata*, *E. eugenioides*, *Corymbia eximia*	Narrabeen Group
Shale Gravel Transition Forest (SG)	Open-forest	*Eucalyptus tereticornis*	Hawkesbury Sandstone

Vegetation community	Typical structure	Main species	Geology
			and Wianamatta Group transition zone
Shale/Sandstone Transition Forest (SS)	Open-forest	*Eucalyptus punctata*, *E. eugenioides*, *Corymbia gummifera*, *Angophora costata*	Hawkesbury Sandstone with shale influence
Peppermint-Angophora Forest (A)	Open-forest	*Eucalyptus piperita*, *Angophora costata*	Hawkesbury Sandstone
Bloodwood-Scribbly Gum Woodland (C)	Woodland or open-forest	*Corymbia gummifera*, *Eucalyptus haemastoma*	Hawkesbury Sandstone
Silvertop Ash-Scribbly Gum Woodland (E)	Woodland or open-forest	*Eucalyptus sieberi*, *E. haemastoma*, *Corymbia gummifera*, *Angophora costata*	Hawkesbury Sandstone
Narrow-leaved Scribbly Gum Woodland (F)	Woodland or open-forest	*Eucalyptus racemosa*, *Corymbia gummifera*	Hawkesbury Sandstone
Angophora Woodland (S)	Woodland or open-forest	*Angophora costata* (usually dominant), *Corymbia gummifera*, *Eucalyptus umbra*	Hawkesbury Sandstone and Narrabeen Group
Narrow-leaved Apple Gully Forest (B)	Open-forest	*Eucalyptus piperita*, *Angophora bakeri*	Hawkesbury Sandstone
Grey Gum-Scribbly Gum Woodland (D)	Woodland or open-forest	*Corymbia gummifera*, *Eucalyptus punctata*, *E. haemastoma*, *Angophora costata*	Hawkesbury Sandstone
Yellow Bloodwood Woodland (T)	Woodland or low woodland	*Corymbia eximia*	Hawkesbury Sandstone
Scribbly Gum Open-woodland/Heath (G)	Open-woodland, low open-woodland, closed-heath or closed-scrub	*Eucalyptus haemastoma* (or *E. racemosa*), *Corymbia gummifera*, *Angophora hispida*, *Banksia ericifolia*, *Leptospermum trinervium*	Hawkesbury Sandstone
Rock Platform Heath (H)	Open-heath or closed-heath	Variable - *Acacia suaveolens*, *Angophora hispida*, *Baeckea brevifolia*, *B. diosmifolia*, *Banksia ericifolia*, *Dillwynia floribunda*, *Epacris microphylla*, *Kunzea ambigua*, *Leptospermum squarrosum*, *L. trinervium* etc	Hawkesbury Sandstone
Sandstone Swamp (I)	Closed-sedgeland or closed-heath	Variable - *Baeckea imbricata*, *Banksia ericifolia*, *B. oblongifolia*, *Callistemon citrinus*, *Hakea teretifolia*, *Lepidosperma filiforme*, *Leptospermum squarrosum*, *Schoenus brevifolius*, *Viminaria juncea*, *Xanthorrhoea resinifera* etc	Hawkesbury Sandstone
Swamp Mahogany Forest (SF1)	Open-forest	*Eucalyptus robusta*, *Melaleuca quinquenervia*	Quaternary alluvium
Floodplain Paperbark Scrub (SF2)	Closed-scrub	*Melaleuca ericifolia*	Quaternary alluvium
Floodplain Reedland (SF3)	Closed-grassland	*Phragmites australis*	Quaternary alluvium
Swamp Oak Floodplain Forest (SO)	Closed-forest or open-forest	*Casuarina glauca*	Quaternary alluvium
Mangrove Swamp (W)	Low closed-forest or closed-scrub	*Avicennia marina*, *Aegiceras corniculatum*	Quaternary alluvium
Coastal Saltmarsh (CS)	Closed-rushland	*Juncus kraussii*	Quaternary alluvium

Table 3. Relationship between the 2006-08 and 1990-93 Hornsby vegetation classifications

2006-08 Hornsby vegetation communities (this report)	1990-93 Hornsby vegetation communities (Smith and Smith 1990a, 1990b, 1993, 1995)
Coachwood Rainforest (O1)	O. Warm Temperate Rainforest (in part - Hawkesbury Sandstone)
Grey Myrtle Rainforest (O2)	O. Warm Temperate Rainforest (in part - Narrabeen Group)
Blue Gum Shale Forest (BG1)	J. *Eucalyptus saligna* Tall Open-forest (in part - shale soils)
	K. *Eucalyptus pilularis-E. saligna-E. paniculata* Tall Open-forest
Blue Gum Diatreme Forest (BG2)	J. *Eucalyptus saligna* Tall Open-forest (in part - volcanic soils)
Rough-barked Apple River-flat Forest (RF1)	J. *Eucalyptus saligna* Tall Open-forest (in part - alluvial soils)
	P. *Eucalyptus pilularis-Angophora floribunda* Tall Open-forest (in part - alluvial soils)
Forest Red Gum River-flat Forest (RF2)	Not distinguished
Blue-leaved Stringybark Diatreme Forest (N)	N. *Eucalyptus agglomerata-Angophora costata-Allocasuarina torulosa* Open-forest
Turpentine-Ironbark Forest (TI)	M. *Syncarpia glomulifera-Eucalyptus paniculata-Angophora costata* Open-forest
Duffys Forest (DF)	Not distinguished
Blackbutt Gully Forest (L1)	L. *Eucalyptus pilularis-Angophora costata-Syncarpia glomulifera* Tall Open-forest
Angophora-Red Mahogany Forest (L2)	Not distinguished
Rough-barked Apple-Forest Oak Forest (Q1)	Q. *Angophora floribunda-Allocasuarina torulosa* Open-forest
Blackbutt-Rough-barked Apple Forest (Q2)	P. *Eucalyptus pilularis-Angophora floribunda* Tall Open-forest (in part - Narrabeen Group and Hawkesbury Sandstone)
Narrow-leaved Apple Slopes Forest (R)	R. *Angophora bakeri-Eucalyptus punctata-E. tereticornis* Open-forest
Shale Gravel Transition Forest (SG)	Not distinguished
Shale/Sandstone Transition Forest (SS)	D. *Eucalyptus punctata-E. gummifera-E. haemastoma* Woodland (in part - shale-influenced soils)
Peppermint-Angophora Forest (A)	A. *Eucalyptus piperita-Angophora costata* Open-forest
Bloodwood-Scribbly Gum Woodland (C)	C. *Eucalyptus gummifera-E. haemastoma-E. oblonga* Woodland
Silvertop Ash-Scribbly Gum Woodland (E)	E. *Eucalyptus sieberi-E. gummifera-E. haemastoma* Woodland
Narrow-leaved Scribbly Gum Woodland (F)	F. *Eucalyptus racemosa-E. gummifera-Angophora costata* Woodland
Angophora Woodland (S)	S. *Angophora costata-Eucalyptus gummifera-E. umbra* Woodland
Narrow-leaved Apple Gully Forest (B)	B. *Eucalyptus piperita-Angophora bakeri* Open-forest
Grey Gum-Scribbly Gum Woodland (D)	D. *Eucalyptus punctata-E. gummifera-E. haemastoma* Woodland (in part - sandstone soils)
Yellow Bloodwood Woodland (T)	T. *Eucalyptus eximia* Woodland
Scribbly Gum Open-woodland/Heath (G)	G. *Eucalyptus haemastoma-Angophora hispida-Banksia ericifolia* Low Open-woodland
Rock Platform Heath (H)	H. Rock Platform Heath
Sandstone Swamp (I)	I. Sandstone Swamp
Swamp Mahogany Forest (SF1)	U. *Eucalyptus robusta* Open-forest
Floodplain Paperbark Scrub (SF2)	X. *Melaleuca ericifolia* Closed-scrub
Floodplain Reedland (SF3)	Z. *Phragmites australis* Reed Swamp
Swamp Oak Floodplain Forest (SO)	V. *Casuarina glauca* Closed-forest
Mangrove Swamp (W)	W. Mangroves
Coastal Saltmarsh (CS)	Y. Saltmarsh

Table 4. Tree species composition of the eucalypt communities

Number of sample sites per community shown in parentheses. Some species occurred at more sites than shown, but as shrubs, notably *Allocasuarina littoralis*, *A. torulosa* and *Banksia serrata*. The stringybarks *Eucalyptus oblonga* and *E. sparsifolia* were not distinguished in the earlier surveys. *E. oblonga* was subsequently recorded in communities DF, C, E, F and G; *E. sparsifolia* was recorded in communities TI, DF, L1, L2, A, C, E, F, D and G.

Tree species	% of sample sites																							
	BG1 (41)	BG2 (6)	RF1 (7)	RF2 (1)	N (1)	TI (80)	DF (6)	L1 (94)	L2 (9)	Q1 (17)	Q2 (2)	R (14)	SG (2)	SS (2)	A (130)	C (71)	E (22)	F (30)	S (8)	B (9)	D (69)	T (8)	G (50)	SF1 (3)
Acacia binervia										6														
Acacia elata					100			1							2									
Allocasuarina littoralis		17				15	17	16		12	50			100	18	48	36	27			22	13	36	
Allocasuarina torulosa	7	17	57		100	19		12	11	100	100	57			4	1			38					
Alphitonia excelsa										6														
Angophora bakeri						3		1	11			100			2	1		7		89	16	38	2	33
Angophora costata	54	33	14		100	78	100	97	100	47	100	29		100	98	45	73	67	100	22	70	25	10	
Angophora floribunda	20	83	86			1		1		100	100	21	50		1				25			13		33
Avicennia marina										6														
Banksia integrifolia										29	100								38			13		
Banksia serrata																1							22	
Casuarina glauca			29	100						6														33
Ceratopetalum apetalum			14					1							1									
Corymbia eximia					100	4	33	2		41		43		50	12	20		27			43	100	6	
Corymbia gummifera					100	50	100	48	56	24	100	7		100	68	99	100	91	100	33	96	13	66	
Eucalyptus acmenoides	2					18																		
Eucalyptus agglomerata					100		17					7						2			1			
Eucalyptus botryoides	5					3									1								2	
Eucalyptus botryoidesXsaligna	2					1																13		
Eucalyptus crebra												7							13					
Eucalyptus eugenioides						4						50		100										
Eucalyptus fibrosa						1							50											
Eucalyptus globoidea	2					43	17		11						1			4						
Eucalyptus haemastoma						5	50	3	11					50	17	100	86	27	13	11	86	25	76	
Eucalyptus multicaulis																3		2			1		2	
Eucalyptus oblonga/sparsifolia						5	67	7	33			7		50	21	68	68	31		11	62		28	
Eucalyptus paniculata	37		43			48		2		6		14												
Eucalyptus pilularis	73	50	71			49	67	100			100				7		5	2						
Eucalyptus piperita	5	17	43			13	83	31	33	53		7			100	28	32	31	25	100	42		10	
Eucalyptus piperitaXhaemastoma																							2	
Eucalyptus piperitaXracemosa																		4						
Eucalyptus punctata	5				100	40	33	6	22	88		86	50	100	27	3	23	42	50	44	97	63	16	
Eucalyptus racemosa						1		2							12	3		100		22	10		14	
Eucalyptus resinifera	15					41	33	28	78				50		17	4	5	16			6			
Eucalyptus robusta																						13		100
Eucalyptus saligna	100	100	57			10		11							1									
Eucalyptus sclerophylla						1									1									

Tree species	% of sample sites																							
	BG1 (41)	BG2 (6)	RF1 (7)	RF2 (1)	N (1)	TI (80)	DF (6)	L1 (94)	L2 (9)	Q1 (17)	Q2 (2)	R (14)	SG (2)	SS (2)	A (130)	C (71)	E (22)	F (30)	S (8)	B (9)	D (69)	T (8)	G (50)	SF1 (3)
Eucalyptus sieberi								1							6	8	100	20			4		10	
Eucalyptus squamosa																7	5	4			6		8	
Eucalyptus tereticornis	7			100		1						79	100											33
Eucalyptus umbra												7			3				75		1	25		
Ficus rubiginosa										12	50	14												
Glochidion ferdinandi										6														
Melaleuca decora													50											
Melaleuca linariifolia			14																					33
Melaleuca quinquenervia																								67
Melaleuca styphelioides				100																				
Myoporum acuminatum				100																				
Syncarpia glomulifera	44	33	57			84	100	87	67			14			35	3		18			9			
Tristaniopsis laurina			14																					

Table 5. Structural classification of vegetation (Specht 1970)

Dominant plants	Height (m)	Projective foliage cover of tallest vegetation layer (%)			
		<10 (very sparse)	10-30 (sparse)	30-70 (mid-dense)	70-100 (dense)
Trees	>30	tall open-woodland	tall woodland	tall open-forest	tall closed-forest
	10-30	open-woodland	woodland	open-forest	closed-forest
	5-10	low open-woodland	low woodland	low open-forest	low closed-forest
Shrubs	2-8	tall open-shrubland	tall shrubland	open-scrub	closed-scrub
	0-2	low open-shrubland	low shrubland	open-heath	closed-heath
Grasses	0-2		open-grassland	grassland	closed-grassland
Sedges	0-2		open-sedgeland	sedgeland	closed-sedgeland
Rushes	0-2		open-rushland	rushland	closed-rushland

3. Vegetation Community Descriptions

3.1 Coachwood Rainforest (Community O1)

Description: Low closed-forest or closed-forest characterised by *Ceratopetalum apetalum* (Coachwood) as the dominant tree species or one of the dominants. Other common tree and shrub species include *Callicoma serratifolia* (Black Wattle), *Pittosporum undulatum* (Pittosporum), *Tristaniopsis laurina* (Water Gum), and the introduced *Ligustrum sinense* (Small-leaved Privet). Less common are *Acmena smithii* (Lilly Pilly), *Ceratopetalum gummiferum* (Christmas Bush), *Schizomeria ovata* (Crabapple), and the introduced *Ligustrum lucidum* (Large-leaved Privet). There is often a sparse layer of emergent taller trees above the rainforest canopy, such as *Allocasuarina torulosa*, *Angophora costata*, *Eucalyptus pilularis*, *E. piperita* and *Syncarpia glomulifera*. Ground layer species include *Adiantum aethiopicum*, *Blechnum ambiguum*, *Calochlaena dubia*, *Lomandra longifolia*, *Sticherus flabellatus*, and the introduced *Ageratina riparia*, *Ligustrum sinense* (young plants) and *Tradescantia albiflora*. Climbers include *Morinda jasminoides* and *Smilax glyciphylla*. Epiphytes include the ferns *Hymenophyllum cupressiforme* and *Pyrrosia rupestris*.

Distribution and habitat in survey area: Typically occurs in a narrow band along creeks in sheltered gullies on Hawkesbury Sandstone.

Total extent in survey area (March 2007): 107.9 ha.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). It is an uncommon community in the Sydney region and is particularly prone to weed invasion, especially by *Ligustrum sinense* (Small-leaved Privet). **Regionally Significant Community**

Photo 1. Coachwood Rainforest, Asquith

3.2 Grey Myrtle Rainforest (Community O2)

Description: Low closed-forest or closed-forest characterised by *Backhousia myrtifolia* (Grey Myrtle), which is usually the most common tree species. Other tree and shrub species include *Acmena smithii* (Lilly Pilly), *Ceratopetalum apetalum* (Coachwood), *C. gummiferum* (Christmas Bush), *Ficus rubiginosa* (Port Jackson Fig), *Glochidion ferdinandi* (Cheese Tree), *Pittosporum undulatum* (Pittosporum) and *Tristaniopsis laurina* (Water Gum). There is often a sparse layer of emergent taller trees above the rainforest canopy, such as *Allocasuarina torulosa*, *Angophora floribunda*, *Eucalyptus piperita, E. punctata* and *E. tereticornis*. Ground layer species include *Adiantum aethiopicum*, *Dianella caerulea*, *Microlaena stipoides* and *Pellaea falcata*. Climbers include *Geitonoplesium cymosum* and *Morinda jasminoides*.

Distribution and habitat in survey area: Typically occurs on Narrabeen Group geology in sheltered sites beside the Hawkesbury River and Berowra Creek.

Total extent in survey area (March 2007): 10.9 ha.

Conservation significance: An uncommon community in the Sydney region. Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). It is a form of Narrabeen Slopes Forest (Benson and Howell 1994, map unit 9h), which has been recognised as a regionally significant community by the NSW Department of Environment and Conservation (2006). **Regionally Significant Community**

Photo 2. Grey Myrtle Rainforest, Wisemans Ferry

3.3 Blue Gum Shale Forest (Community BG1)

Description: Tall open-forest in which *Eucalyptus saligna* (Sydney Blue Gum) is the dominant tree species or one of the dominants. Other common tree species include *Angophora costata* (Sydney Red Gum), *Eucalyptus paniculata* (Grey Ironbark), *E. pilularis* (Blackbutt) and *Syncarpia glomulifera* (Turpentine). Less common are *Eucalyptus punctata* (Grey Gum) and *E. resinifera* (Red Mahogany). Low tree and shrub species include *Allocasuarina torulosa*, *Angophora floribunda*, *Leucopogon juniperinus*, *Notelaea longifolia*, *Ozothamnus diosmifolius*, *Pittosporum undulatum* and the introduced *Ligustrum lucidum*, *L. sinense*, *Ochna serrulata* and *Rubus fruticosus* spp.agg. Ground layer species include *Adiantum aethiopicum*, *Lomandra longifolia*, *Oplismenus aemulus*, *Poa affinis*, *Pseuderanthemum variabile* and *Pteridium esculentum*. Climbers include *Clematis aristata*, *Eustrephus latifolius* and *Smilax glyciphylla*.

Distribution and habitat in survey area: Undulating topography on Wianamatta Group shales in the southern parts of the Shire (north to Round Corner).

Total extent in survey area (March 2007): 37.2 ha.

Conservation significance: Listed as a critically endangered ecological community, 'Blue Gum High Forest', under both the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the NSW *Threatened Species Conservation Act 1995*. The community has been severely depleted, with over 95% of its original extent now cleared (Tozer 2003, Threatened Species Scientific Committee 2005a). The remnants are fragmented, surrounded by urban development, and badly degraded by weed invasion. Very little of the community is represented in conservation reserves. **Critically Endangered Community**

Photo 3. Blue Gum Shale Forest, Beecroft

3.4 Blue Gum Diatreme Forest (Community BG2)

Description: Tall open-forest dominated by *Eucalyptus saligna* (Sydney Blue Gum). Other, less common tree species include *Angophora costata* (Sydney Red Gum), *Eucalyptus pilularis* (Blackbutt), *E. piperita* (Sydney Peppermint) and *Syncarpia glomulifera* (Turpentine). Low tree and shrub species include *Acacia parramattensis*, *Angophora floribunda*, *Pittosporum undulatum*, and the introduced *Cinnamomum camphora*, *Ligustrum lucidum* and *L. sinense*. Ground layer species include *Adiantum aethiopicum*, *Blechnum cartilagineum*, *Calochlaena dubia*, *Dichondra repens*, *Lomandra longifolia*, *Microlaena stipoides*, *Oplismenus aemulus*, *Poa affinis*, *Pteridium esculentum*, and the introduced *Lonicera japonica*. Climbers include *Morinda jasminoides*, *Pandorea pandorana*, *Smilax australis* and *Stephania japonica*.

Distribution and habitat in survey area: Restricted to gullies on Jurassic diatremes (volcanic necks) along tributaries of Waitara Creek at Hornsby and Westleigh.

Total extent in survey area (March 2007): 14.0 ha.

Conservation significance: Forms part of the critically endangered ecological community, 'Blue Gum High Forest', as listed under the NSW *Threatened Species Conservation Act 1995* (NSW Scientific Committee 2007), but not as listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, which only covers the Blue Gum Shale Forest (Threatened Species Scientific Committee 2005a). The community has a very restricted distribution in the Sydney region, and may now be confined to the Hornsby Local Government Area (Benson and Howell 1994; map unit 6c, subunit i). It has been depleted by extensive quarrying for blue metal aggregate at Old Mans Valley, which is the largest of the diatremes. **Critically Endangered Community**

Photo 4. Blue Gum Diatreme Forest, Hornsby

3.5 Rough-barked Apple River-flat Forest (Community RF1)

Description: Tall open-forest in which the main tree species, in various combinations, are *Angophora floribunda* (Rough-barked Apple), *Eucalyptus pilularis* (Blackbutt), *E. saligna* (Sydney Blue Gum), *Syncarpia glomulifera* (Turpentine) and *Allocasuarina torulosa* (Forest Oak). Less common are *Eucalyptus paniculata* (Grey Ironbark) and *E. piperita* (Sydney Peppermint). Low tree and shrub species include *Acacia floribunda*, *Glochidion ferdinandi*, *Synoum glandulosum* and the introduced *Lantana camara* and *Ligustrum sinense*. Ground layer species include *Calochlaena dubia*, *Dianella caerulea*, *Entolasia marginata*, *Hypolepis muelleri*, *Imperata cylindrica*, *Lomandra longifolia*, *Oplismenus imbecillis* and *Pteridium esculentum*. Climbers include *Cissus hypoglauca* and *Morinda jasminoides*.

Distribution and habitat in survey area: Quaternary alluvium on floodplains at the junction of Terrys Creek and Lane Cove River; along Berowra Creek around Crosslands; and along Marramarra Creek. The community also formerly occurred on the alluvial flats at Dangar Island, but is now represented there only by remnant trees.

Total extent in survey area (March 2007): 5.9 ha.

Conservation significance: Rough-barked Apple River-flat Forest is a form of the endangered ecological community, 'River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions', as listed under the NSW *Threatened Species Conservation Act 1995*. Rough-barked Apple River-flat Forest is a rare and depleted community in Hornsby Shire, and prone to degradation from weed invasion. **Endangered Community**

Photo 5. Rough-barked Apple River-flat Forest, Crosslands

3.6 Forest Red Gum River-flat Forest (Community RF2)

Description: Open-forest (probably originally tall open-forest) dominated by *Eucalyptus tereticornis* (Forest Red Gum), with a lower tree layer of *Myoporum acuminatum* (Mangrove Boobialla), *Melaleuca styphelioides* (Prickly-leaved Paperbark) and *Casuarina glauca* (Swamp Oak). Shrub and herb species include *Melaleuca ericifolia*, *Goodenia ovata*, *Phragmites australis* and *Tetragonia tetragonoides*.

Distribution and habitat in survey area: Appears to be restricted now to one small stand on Quaternary alluvium on the Hawkesbury River floodplain at One Tree Reach. The trees in the stand are mainly young, suggesting that the stand is regeneration on land that was formerly cleared. The community probably occurred extensively on the alluvial flats along the Hawkesbury River in the northern parts of Hornsby Shire, but most of its original extent has long been cleared for farming.

Total extent in survey area (March 2007): 2.4 ha.

Conservation significance: Forest Red Gum River-flat Forest is a form of the endangered ecological community, 'River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions', as listed under the NSW *Threatened Species Conservation Act 1995*. Forest Red Gum River-flat Forest is a severely depleted community in Hornsby Shire. **Endangered Community**

Photo 6. Forest Red Gum River-flat Forest, One Tree Reach

3.7 Blue-leaved Stringybark Diatreme Forest (Community N)

Description: Open-forest in which the main tree species are *Angophora costata* (Sydney Red Gum), *Eucalyptus agglomerata* (Blue-leaved Stringybark) and *Allocasuarina torulosa* (Forest Oak). Other tree species include *Corymbia gummifera* (Red Bloodwood) and *Eucalyptus punctata* (Grey Gum). Shrub species include *Acacia ulicifolia*, *Astrotricha floccosa*, *Persoonia linearis*, *Platysace linearifolia*, *Pultenaea daphnoides*, *Rapanea variabilis* and *Xanthorrhoea arborea*. Some rainforest species occur in small numbers, including *Acacia elata*, *Ceratopetalum apetalum* and *Doryphora sassafras*. The ground layer is dominated by the ferns *Calochlaena dubia*, *Blechnum cartilagineum* and *Pteridium esculentum*, especially on the gully floor. Other species in the ground layer include *Dianella caerulea*, *Entolasia stricta* and *Lomandra longifolia*. *Cissus hypoglauca* is a common climber.

Distribution and habitat in survey area: Restricted to one gully on a Jurassic diatreme (volcanic neck) on a western tributary of Fiddletown Creek. Another nearby diatreme, on an eastern tributary of Fiddletown Creek, may have supported similar vegetation in the past, but has been cleared.

Total extent in survey area (March 2007): 7.9 ha.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). The community has a very restricted distribution in the Sydney region (Benson and Howell 1994; map unit 6c, subunit ii). Another recorded example is at Campbells Crater in Ku-ring-gai Chase National Park, where the tree species are *Eucalyptus agglomerata*, *Angophora floribunda*, *Allocasuarina torulosa*, *Angophora costata* and *Eucalyptus umbra* (Thomas and Benson 1985a). **Regionally Significant Community**

Photo 7. Blue-leaved Stringybark Diatreme Forest, Fiddletown

3.8 Turpentine-Ironbark Forest (Community TI)

Description: Open-forest of mixed and varying tree species composition. The most frequent trees are *Syncarpia glomulifera* (Turpentine) and *Angophora costata* (Sydney Red Gum). Other tree species include *Corymbia gummifera* (Red Bloodwood), *Eucalyptus acmenoides* (White Mahogany), *E. globoidea* (White Stringybark), *E. paniculata* (Grey Ironbark), *E. pilularis* (Blackbutt), *E. punctata* (Grey Gum) and *E. resinifera* (Red Mahogany). Low tree and shrub species include *Acacia parramattensis*, *A. ulicifolia*, *Allocasuarina littoralis*, *A. torulosa*, *Bossiaea obcordata*, *Bursaria spinosa*, *Dodonaea triquetra*, *Leucopogon juniperinus*, *Notelaea longifolia*, *Ozothamnus diosmifolius*, *Pittosporum revolutum*, *P. undulatum*, *Platysace linearifolia* and *Pultenaea tuberculata*. Ground layer species include *Adiantum aethiopicum*, *Austrostipa pubescens*, *Dianella caerulea*, *Dichondra repens*, *Entolasia stricta*, *Lomandra longifolia*, *Poa affinis*, *Pseuderanthemum variabile* and *Themeda australis*. Climbers include *Eustrephus latifolius*, *Glycine clandestina* and *Pandorea pandorana*.

Distribution and habitat in survey area: Undulating topography on shale soils (Wianamatta Group, Mittagong Formation, and shale lenses in Hawkesbury Sandstone) in the western parts of the Shire, from Epping to Maroota.

Total extent in survey area (March 2007): 295.0 ha.

Conservation significance: Listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*, and as a critically endangered ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The community is severely depleted and inadequately reserved. Over 96% of its original extent on the Cumberland Plain, its main area of occurrence, has been cleared (Tozer 2003, Threatened Species Scientific Committee 2005b). **Critically Endangered Community**

Photo 8. Turpentine-Ironbark Forest, Cherrybrook

3.9 Duffys Forest (Community DF)

Description: Open-forest of mixed and varying tree species composition. Tree species present at most sites are *Angophora costata* (Sydney Red Gum), *Corymbia gummifera* (Red Bloodwood), *Eucalyptus pilularis* (Blackbutt), *E. piperita* (Sydney Peppermint), *E. sparsifolia* (Narrow-leaved Stringybark) and *Syncarpia glomulifera* (Turpentine). Less frequent, but prominent at some sites, are *Eucalyptus agglomerata* (Blue-leaved Stringybark), *E. globoidea* (White Stringybark), *E. haemastoma* (Broad-leaved Scribbly Gum), *E. punctata* (Grey Gum) and *E. resinifera* (Red Mahogany). Shrub species include *Banksia spinulosa*, *Bossiaea obcordata*, *Ceratopetalum gummiferum*, *Hakea sericea*, *Lasiopetalum ferrugineum*, *Leptospermum trinervium*, *Persoonia levis*, *Platylobium formosum* and *Pultenaea tuberculata*. Ground layer species include *Austrostipa pubescens*, *Cyathochaeta diandra*, *Entolasia stricta*, *Epacris pulchella*, *Imperata cylindrica*, *Micrantheum ericoides*, *Patersonia glabrata*, *Pteridium esculentum*, *Themeda australis*, *Xanthorrhoea media* and *Xanthosia tridentata*. Compared with Turpentine-Ironbark Forest, Duffys Forest has a more pronounced sandstone influence, characterised by species such as *Eucalyptus haemastoma*, *E. piperita* and *E. sparsifolia*.

Distribution and habitat in survey area: Scattered locations (North Epping, Dural and Cowan) on ridges and plateaus on Hawkesbury Sandstone where there is a shale influence (from shale lenses in the sandstone or from proximity to Wianamatta Group shales).

Total extent in survey area (March 2007): 15.5 ha.

Conservation significance: Listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. A rare and depleted community, with an estimated 84% of its original extent now cleared (Smith and Smith 2000). **Endangered Community**

Photo 9. Duffys Forest, Dural

3.10 Blackbutt Gully Forest (Community L1)

Description: Tall open-forest in which the main tree species are *Eucalyptus pilularis* (Blackbutt), *Angophora costata* (Sydney Red Gum) and *Syncarpia glomulifera* (Turpentine). Other, less common tree species include *Corymbia gummifera* (Red Bloodwood), *Eucalyptus piperita* (Sydney Peppermint) and *E. resinifera* (Red Mahogany), with occasional *E. punctata* (Grey Gum) and *E. saligna* (Sydney Blue Gum). Low tree and shrub species include *Acacia linifolia*, *Allocasuarina littoralis*, *A. torulosa*, *Banksia serrata, Callicoma serratifolia*, *Ceratopetalum gummiferum*, *Dodonaea triquetra*, *Elaeocarpus reticulatus*, *Grevillea linearifolia*, *Leptospermum trinervium*, *Persoonia linearis*, *Pittosporum undulatum* and *Pultenaea flexilis*. Ground layer species include *Calochlaena dubia*, *Dianella caerulea*, *Entolasia stricta*, *Lomandra longifolia*, *Microlaena stipoides*, *Pratia purpurascens*, *Pteridium esculentum* and *Xanthosia pilosa*. Climbers include *Billardiera scandens*, *Cassytha pubescens* and *Smilax glyciphylla*.

Distribution and habitat in survey area: Gullies on Hawkesbury Sandstone with a shale influence (from shale lenses in the sandstone or from proximity to Wianamatta Group shales), in the southern parts of the Shire (Epping to Galston).

Total extent in survey area (March 2007): 837.3 ha.

Conservation significance: Recognised as a locally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). Although it is a common community in Hornsby Shire, it is uncommon and poorly conserved outside the Shire. For example, only small areas occur in Ku-ring-gai Chase National Park (Thomas and Benson 1985a). **Locally Significant Community**

Photo 10. Blackbutt Gully Forest, Beecroft

3.11 Angophora-Red Mahogany Forest (Community L2)

Description: Tall open-forest in which the main tree species are *Angophora costata* (Sydney Red Gum), *Eucalyptus resinifera* (Red Mahogany), *Syncarpia glomulifera* (Turpentine) and *Corymbia gummifera* (Red Bloodwood). Other, less common tree species include *Eucalyptus piperita* (Sydney Peppermint), *E. sparsifolia* (Narrow-leaved Stringybark) and *E. punctata* (Grey Gum).

Distribution and habitat in survey area: Occurs in undulating country in the transition zone between Hawkesbury Sandstone and Wianamatta Group shales. Appears to be restricted to the western part of Arcadia, between Wylds Road and Ridge Road. The only examples seen were stands of remnant trees without a native understorey. There appear to be no remnants that could be classified as bushland.

Total extent in survey area (March 2007): No bushland examples known, but 14.1 ha of remnant tree stands without a native understorey (Smith and Smith 2008).

Conservation significance: Recognised as a distinct community during a recent survey of remnant trees in the Southern Rural District of Hornsby Shire (Smith and Smith 2008). The community has a very restricted distribution in Hornsby Shire, and does not appear to be represented in any reserve. There appear to be no intact examples remaining, only scattered stands of remnant trees. **Regionally Significant Community**

Photo 11. Angophora-Red Mahogany Forest, Arcadia

3.12 Rough-barked Apple-Forest Oak Forest (Community Q1)

Description: Open-forest in which the main tree species are *Allocasuarina torulosa* (Forest Oak), *Angophora floribunda* (Rough-barked Apple) and *Eucalyptus punctata* (Grey Gum). *Eucalyptus piperita* (Sydney Peppermint) is a co-dominant on Hawkesbury Sandstone. Other tree species that may be present include *Angophora costata* (Sydney Red Gum), *Corymbia eximia* (Yellow Bloodwood) and *Ficus rubiginosa* (Port Jackson Fig). Low tree and shrub species include *Acmena smithii*, *Astrotricha floccosa*, *Banksia integrifolia*, *Dodonaea triquetra*, *Elaeocarpus reticulatus*, *Glochidion ferdinandi*, *Leptospermum trinervium*, *Pittosporum undulatum*, *Rapanea variabilis*, *Tristaniopsis laurina* and *Xanthorrhoea arborea*. Ground layer species include *Adiantum aethiopicum*, *Calochlaena dubia*, *Dianella caerulea*, *Entolasia stricta*, *Lomandra longifolia*, *Poa affinis*, *Pteridium esculentum* and *Themeda australis*. Climbers include *Pandorea pandorana* and *Smilax glyciphylla*.

Distribution and habitat in survey area: Lower slopes beside the Hawkesbury River (downstream of Gentlemans Halt) and the wider sections of Berowra Creek. Occurs on both Narrabeen Group rocks (Hawkesbury River and lower Berowra Creek) and Hawkesbury Sandstone (upper Berowra Creek). Replaced by Narrow-leaved Apple Slopes Forest upstream of Gentlemans Halt.

Total extent in survey area (March 2007): 271.1 ha.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). It is a form of Narrabeen Slopes Forest (Benson and Howell 1994, map unit 9h), which has been recognised as a regionally significant community by the NSW Department of Environment and Conservation (2006). **Regionally Significant Community**

Photo 12. Rough-barked Apple-Forest Oak Forest, Crosslands

3.13 Blackbutt-Rough-barked Apple Forest (Community Q2)

Description: Open-forest of *Eucalyptus pilularis* (Blackbutt), *Allocasuarina torulosa* (Forest Oak), *Angophora costata* (Sydney Red Gum), *A. floribunda* (Rough-barked Apple) and *Corymbia gummifera* (Red Bloodwood). Low tree and shrub species include *Banksia integrifolia*, *B. serrata*, *Ceratopetalum gummiferum*, *Dodonaea triquetra*, *Elaeocarpus reticulatus*, *Glochidion ferdinandi*, *Hakea dactyloides*, *Leptospermum trinervium*, *Notelaea longifolia*, *Persoonia linearis*, *Pittosporum undulatum*, *Platylobium formosum*, *Pultenaea flexilis* and *Xanthorrhoea arborea*. Ground layer species include *Calochlaena dubia*, *Dianella caerulea*, *Entolasia stricta*, *Lomandra longifolia*, *Pteridium esculentum* and *Themeda australis*. Climbers include *Eustrephus latifolius* and *Smilax glyciphylla*.

Distribution and habitat in survey area: Lower (Narrabeen Group) and upper (Hawkesbury Sandstone) slopes beside the Hawkesbury River at Dangar Island.

Total extent in survey area (March 2007): 6.6 ha.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). It is a form of Narrabeen Slopes Forest (Benson and Howell 1994, map unit 9h), which has been recognised as a regionally significant community by the NSW Department of Environment and Conservation (2006). Blackbutt-Rough-barked Apple Forest appears to be restricted to Dangar Island, where it has been depleted by urban development. **Regionally Significant Community**

Photo 13. Blackbutt-Rough-barked Apple Forest, Dangar Island

3.14 Narrow-leaved Apple Slopes Forest (Community R)

Description: Open-forest of *Angophora bakeri* (Narrow-leaved Apple) in combination with other tree species, including *Allocasuarina torulosa* (Forest Oak), *Eucalyptus punctata* (Grey Gum), *E. tereticornis* (Forest Red Gum) and, less frequently, *Corymbia eximia* (Yellow Bloodwood) and *Eucalyptus eugenioides* (Thin-leaved Stringybark). Shrub species include *Astrotricha floccosa*, *Breynia oblongifolia*, *Bursaria spinosa* and *Leucopogon juniperinus*. Ground layer species include *Desmodium rhytidophyllum*, *Gahnia aspera*, *Entolasia marginata*, *E. stricta*, *Microlaena stipoides* and *Themeda australis*.

Distribution and habitat in survey area: Lower slopes on Narrabeen Group geology beside the Hawkesbury River upstream of Gentlemans Halt. Replaced by Rough-barked Apple-Forest Oak Forest downstream of Gentlemans Halt.

Total extent in survey area (March 2007): 281.1 ha.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). It is a form of Narrabeen Slopes Forest (Benson and Howell 1994, map unit 9h), which has been recognised as a regionally significant community by the NSW Department of Environment and Conservation (2006). **Regionally Significant Community**

Photo 14. Narrow-leaved Apple Slopes Forest, Singletons Mill

3.15 Shale Gravel Transition Forest (Community SG)

Description: Open-forest dominated by *Eucalyptus tereticornis* (Forest Red Gum). Other, less common tree species include *Eucalyptus fibrosa* (Red Ironbark), *E. resinifera* (Red Mahogany), *E. punctata* (Grey Gum), *Angophora floribunda* (Rough-barked Apple) and *Melaleuca decora* (a paperbark). There appear to be no intact remnants of the community in Hornsby Shire, only two small, highly disturbed stands of remnant trees without a native understorey. These have been classified as remnants of Shale Gravel Transition Forest because one stand (Galston) has a combination of *E. tereticornis*, *E. fibrosa* and *M. decora*, which is characteristic of this community (Tozer 2003). The other stand (Arcadia) has only *E. tereticornis*.

Distribution and habitat in survey area: Only known in Hornsby Shire from two small stands of remnant trees near Colah Creek. One stand is in Galston; the other stand is in Arcadia. Both sites are in the transition zone between Wianamatta Group shales and Hawkesbury Sandstone.

Total extent in survey area (March 2007): No bushland examples known, but 0.7 ha of remnant tree stands without a native understorey (Smith and Smith 2008).

Conservation significance: Listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. An estimated 68% of the original extent of the community on the Cumberland Plain has been cleared (Tozer 2003). Its occurrence in Hornsby Shire is unexpected and has only been discovered during a recent survey of remnant trees in the Southern Rural District of Hornsby Shire (Smith and Smith 2008). The community was probably always very restricted in Hornsby Shire, and there appear to be no intact examples remaining, only two small stands of remnant trees. **Endangered Community**

Photo 15. Shale Gravel Transition Forest, Arcadia

3.16 Shale/Sandstone Transition Forest (Community SS)

Description: Open-forest of mixed composition, including *Angophora costata* (Sydney Red Gum), *Corymbia gummifera* (Red Bloodwood), *Eucalyptus eugenioides* (Thin-leaved Stringybark), *E. punctata* (Grey Gum) and, less commonly, *Corymbia eximia* (Yellow Bloodwood) and *Eucalyptus haemastoma* (Broad-leaved Scribbly Gum). Low tree and shrub species include *Acacia linifolia*, *Allocasuarina littoralis*, *Bossiaea obcordata*, *Daviesia corymbosa*, *Hakea sericea* and *Pultenaea tuberculata*. Ground layer species include *Austrostipa pubescens*, *Dianella caerulea*, *Entolasia stricta*, *Lomandra longifolia*, *Patersonia glabrata*, *Pteridium esculentum* and *Themeda australis.*

Distribution and habitat in survey area: Only recorded from two sites on a Hawkesbury Sandstone plateau at Maroota, apparently where there is a shale influence in the soils. Lembit (2005) recorded the community more widely in Hornsby Shire, but close examination of a selection of his sites indicated that they are not Shale/Sandstone Transition Forest as circumscribed by Tozer (2003).

Total extent in survey area (March 2007): 4.7 ha.

Conservation significance: Listed as an endangered ecological community under both the NSW *Threatened Species Conservation Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. An estimated 78% of the original extent of the community on the Cumberland Plain has been cleared (Tozer 2003). **Endangered Community**

Photo 16. Shale/Sandstone Transition Forest, Maroota

3.17 Peppermint-Angophora Forest (Community A)

Description: Open-forest in which the main tree species are *Eucalyptus piperita* (Sydney Peppermint) and *Angophora costata* (Sydney Red Gum). Other tree species may include *Corymbia gummifera* (Red Bloodwood), *Syncarpia glomulifera* (Turpentine) and, less frequently, *Eucalyptus punctata* (Grey Gum) and *E. resinifera* (Red Mahogany). Low tree and shrub species include *Acacia suaveolens*, *Allocasuarina littoralis*, *Banksia serrata*, *Ceratopetalum gummiferum*, *Dillwynia retorta*, *Dodonaea triquetra*, *Grevillea linearifolia*, *Leptospermum trinervium*, *Persoonia levis*, *Platysace linearifolia* and *Pultenaea flexilis*. Ground layer species include *Actinotus minor*, *Calochlaena dubia*, *Caustis flexuosa*, *Dianella caerulea*, *Entolasia stricta*, *Lomandra longifolia*, *Pteridium esculentum*, *Stylidium productum*, *Xanthosia pilosa* and *X. tridentata.* Climbers include *Billardiera scandens*, *Cassytha pubescens* and *Smilax glyciphylla*.

Distribution and habitat in survey area: Hawkesbury Sandstone gullies throughout Hornsby Shire.

Total extent in survey area (March 2007): 5,579.4 ha.

Conservation significance: The most common community in Hornsby Shire. Well represented in local conservation reserves.

Photo 17. Peppermint-Angophora Forest, Brooklyn

3.18 Bloodwood-Scribbly Gum Woodland (Community C)

Description: Woodland or open-forest, sometimes low woodland or low open-forest, in which *Corymbia gummifera* (Red Bloodwood) and *Eucalyptus haemastoma* (Broad-leaved Scribbly Gum) are the dominant species or co-dominant with one or more of *Allocasuarina littoralis* (Black She-oak), *Angophora costata*, *Corymbia eximia* (Yellow Bloodwood), *Eucalyptus oblonga* (Sandstone Stringybark), *E. piperita* (Sydney Peppermint) and *E. sparsifolia* (Narrow-leaved Stringybark). Shrub species include *Acacia suaveolens*, *Banksia serrata*, *B. spinulosa*, *Dillwynia retorta*, *Grevillea buxifolia*, *Lambertia formosa*, *Leptospermum trinervium*, *Petrophile pulchella*, *Platysace linearifolia* and *Pultenaea tuberculata.*Ground layer species include *Actinotus minor*, *Anisopogon avenaceus*, *Caustis flexuosa*, *Cyathochaeta diandra*, *Dampiera stricta*, *Entolasia stricta* and *Lomandra glauca*.

Distribution and habitat in survey area: Plateaus, ridges and exposed slopes on Hawkesbury Sandstone from Pennant Hills north to Cowan, Coba Ridge and Fiddletown.

Total extent in survey area (March 2007): 638.4 ha.

Conservation significance: A common community in the Sydney region (e.g. Smith and Smith 2005). Well represented in local conservation reserves.

Photo 18. Bloodwood-Scribbly Gum Woodland, Dural

3.19 Silvertop Ash-Scribbly Gum Woodland (Community E)

Description: Woodland or open-forest in which the main tree species are *Corymbia gummifera* (Red Bloodwood), *Eucalyptus sieberi* (Silvertop Ash), *E. haemastoma* (Broad-leaved Scribbly Gum), *Angophora costata* (Sydney Red Gum), and either or both of the stringybarks, *E. oblonga* (Sandstone Stringybark) and *E. sparsifolia* (Narrow-leaved Stringybark). Low tree and shrub species include *Acacia suaveolens*, *Allocasuarina littoralis*, *Banksia ericifolia*, *Lambertia formosa*, *Leptospermum polygalifolium*, *L. trinervium*, *Persoonia pinifolia*, *Pittosporum undulatum*, *Platysace linearifolia* and *Woollsia pungens.* Ground layer species include *Anisopogon avenaceus*, *Cyathochaeta diandra*, *Dianella caerulea*, *Entolasia stricta*, *Lepyrodia scariosa*, *Lomandra glauca*, *L. longifolia* and *Pteridium esculentum*. *Cassytha pubescens* is a common climber.

Distribution and habitat in survey area: Plateaus, ridges and exposed slopes on Hawkesbury Sandstone in scattered locations in the east of Hornsby Shire, from Asquith north to Berowra Heights, and west to the western side of Berowra Valley Regional Park.

Total extent in survey area (March 2007): 46.5 ha.

Conservation significance: Recognised as a locally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). A rare community in the survey area, poorly represented in Berowra Valley Regional Park, and threatened by urban development because of its association with plateaus and ridgetops. **Locally Significant Community**

Photo 19. Silvertop Ash-Scribbly Gum Woodland, Asquith

3.20 Narrow-leaved Scribbly Gum Woodland (Community F)

Description: Woodland or open-forest, sometimes low woodland or low open-forest, with a mixed tree layer that includes *Eucalyptus racemosa* (Narrow-leaved Scribbly Gum) and *Corymbia gummifera* (Red Bloodwood). The other tree species vary, and may include *Allocasuarina littoralis* (Black She-oak), *Angophora costata* (Sydney Red Gum), *Corymbia eximia* (Yellow Bloodwood), *Eucalyptus haemastoma* (Broad-leaved Scribbly Gum), *E. oblonga* (Sandstone Stringybark), *E. piperita* (Sydney Peppermint), *E. punctata* (Grey Gum), *E. sieberi* (Silvertop Ash) and *E. sparsifolia* (Narrow-leaved Stringybark). Shrub species include *Banksia serrata*, *Dillwynia retorta*, *Epacris pulchella*, *Grevillea buxifolia*, *Lambertia formosa*, *Leptospermum trinervium*, *Petrophile pulchella*, *Phyllota phylicoides*, *Platysace linearifolia* and *Pultenaea tuberculata.* Ground layer species include *Actinotus minor*, *Austrostipa pubescens*, *Caustis flexuosa*, *Dampiera stricta*, *Dianella caerulea*, *Entolasia stricta*, *Lepyrodia scariosa*, *Lomandra glauca*, *Micrantheum ericoides*, *Stylidium productum*, *Xanthorrhoea media*, *Xanthosia pilosa* and *X. tridentata*.

Distribution and habitat in survey area: Plateaus, ridges and exposed slopes on Hawkesbury Sandstone from Westleigh north to Cowan in the east, and Glenorie in the west.

Total extent in survey area (March 2007): 1289.6 ha.

Conservation significance: A common community in Hornsby Shire, well represented in Berowra Valley Regional Park and other local conservation reserves.

Photo 20. Narrow-leaved Scribbly Gum Woodland, Mt Kuring-gai

3.21 Angophora Woodland (Community S)

Description: Woodland or open-forest in which *Angophora costata* (Sydney Red Gum) is usually the dominant species. Other tree species include *Corymbia gummifera* (Red Bloodwood), *Eucalyptus umbra* (Bastard White Mahogany) and, less frequently, *E. punctata* (Grey Gum) and *E. piperita* (Sydney Peppermint). Low tree and shrub species (only one site examined) include *Banksia integrifolia*, *Ceratopetalum gummiferum*, *Elaeocarpus reticulatus*, *Glochidion ferdinandi*, *Monotoca elliptica*, *Notelaea longifolia*, *Pittosporum undulatum*, *Pultenaea daphnoides*, *P. flexilis* and *Xanthorrhoea arborea.* Ground layer species (only one site examined) include *Calochlaena dubia*, *Dianella caerulea*, *Entolasia stricta*, *Lindsaea microphylla*, *Lomandra longifolia* and *Poa affinis*. *Smilax glyciphylla* is a common climber.

Distribution and habitat in survey area: Moderate to steep slopes, sometimes ridgetops, in scattered sites along the Hawkesbury River from Brooklyn to Fishermans Point, and at one site north of Cowan. Occurs on both Hawkesbury Sandstone and Narrabeen Group geology. Exposure to salt-laden breezes appears to be an important feature of the habitat.

Total extent in survey area (March 2007): 62.3 ha.

Conservation significance: Recognised as a locally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). A rare community in the survey area, but more common in Ku-ring-gai Chase National Park (Thomas and Benson 1985a, Community 13) and Muogamarra Nature Reserve (Thomas and Benson 1985b, Community 13). **Locally Significant Community**

Photo 21. Angophora Woodland, Brooklyn

3.22 Narrow-leaved Apple Gully Forest (Community B)

Description: Open-forest in which the main tree species are *Eucalyptus piperita* (Sydney Peppermint) and the lower-growing *Angophora bakeri* (Narrow-leaved Apple). Other tree species that may be present include *Corymbia gummifera* (Red Bloodwood), *Eucalyptus punctata* (Grey Gum) and *E. racemosa* (Narrow-leaved Scribbly Gum). Shrub species include *Banksia spinulosa*, *Ceratopetalum gummiferum*, *Dillwynia retorta*, *Lambertia formosa*, *Leptospermum trinervium*, *Persoonia linearis*, *Platysace linearifolia*, *Pittosporum undulatum* and *Xanthorrhoea arborea.* Ground layer species include *Actinotus minor*, *Dianella caerulea*, *Entolasia stricta*, *Lepidosperma laterale*, *Lomandra cylindrica*, *L. glauca*, *L. longifolia* and *Pteridium esculentum*.

Distribution and habitat in survey area: Gullies and slopes on Hawkesbury Sandstone along upper Colah Creek and its tributaries between Galston and Glenorie. Also occurs on one Hawkesbury Sandstone ridgetop in Berowra Valley Regional Park at Cherrybrook.

Total extent in survey area (March 2007): 93.4 ha.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). Appears to be restricted to Hornsby Shire, with only 4 ha (4% of its total extent) reserved in Berowra Valley Regional Park. **Regionally Significant Community**

Photo 22. Narrow-leaved Apple Gully Forest, Glenorie

3.23 Grey Gum-Scribbly Gum Woodland (Community D)

Description: Woodland or open-forest in which the main tree species are *Corymbia gummifera* (Red Bloodwood), *Eucalyptus punctata* (Grey Gum), *E. haemastoma* (Broad-leaved Scribbly Gum) and *Angophora costata* (Sydney Red Gum). Other tree species that may be present include *Eucalyptus sparsifolia* (Narrow-leaved Stringybark), *E. piperita* (Sydney Peppermint) and *Corymbia eximia* (Yellow Bloodwood). Low tree and shrub species include *Acacia linifolia*, *A. suaveolens*, *Allocasuarina littoralis*, *Banksia serrata*, *B. spinulosa*, *Dillwynia retorta*, *Epacris pulchella*, *Hakea laevipes*, *Lambertia formosa*, *Leptospermum trinervium*, *Persoonia pinifolia*, *Phyllota phylicoides*, *Platysace linearifolia* and *Pultenaea tuberculata.* Ground layer species include *Actinotus minor*, *Dianella caerulea*, *Entolasia stricta*, *Lomandra glauca*, *L. multiflora*, *Phyllanthus hirtellus* and *Xanthorrhoea media*. *Billardiera scandens* is a common climber.

Distribution and habitat in survey area: Plateaus, ridges and exposed slopes on Hawkesbury Sandstone from Galston Gorge north to Brooklyn and Wisemans Ferry. Widespread on plateaus and ridgetops in the north of Hornsby Shire, but restricted to steep slopes at the southern end of its distribution.

Total extent in survey area (March 2007): 4408.7 ha.

Conservation significance: A common community in Hornsby Shire, well represented in Marramarra National Park and, to a lesser extent, in Muogamarra Nature Reserve and Berowra Valley Regional Park.

Photo 23. Grey Gum-Scribbly Gum Woodland, Canoelands

3.24 Yellow Bloodwood Woodland (Community T)

Description: Woodland or low woodland in which the dominant tree species is *Corymbia eximia* (Yellow Bloodwood). Other tree species that may be present include *Angophora bakeri* (Narrow-leaved Apple), *Eucalyptus punctata* (Grey Gum), *E. haemastoma* (Broad-leaved Scribbly Gum) and *E. umbra* (Bastard White Mahogany). Low tree and shrub species include *Allocasuarina littoralis*, *Banksia integrifolia*, *Dillwynia elegans*, *Lambertia formosa*, *Leptospermum trinervium*, *Monotoca scoparia*, *Phyllota phylicoides*, *Platysace linearifolia*, *Pultenaea tuberculata* and *Xanthorrhoea arborea.* Ground layer species include *Anisopogon avenaceus*, *Cyathochaeta diandra*, *Entolasia stricta*, *Hovea linearis*, *Lomandra glauca*, *Patersonia sericea*, *Pteridium esculentum* and *Themeda australis*.

Distribution and habitat in survey area: Steep, exposed slopes on Hawkesbury Sandstone along the Hawkesbury River from Brooklyn to Wisemans Ferry.

Total extent in survey area (March 2007): 283.7 ha.

Conservation significance: Well represented in Marramarra National Park (1097 ha; NSW Department of Environment and Conservation 2006) and, to a more limited extent, in Muogamarra Nature Reserve and Ku-ring-gai Chase National Park. Because of its steep, rocky habitat, little of the community has been cleared or disturbed.

Photo 24. Yellow Bloodwood Woodland, Wisemans Ferry

3.25 Scribbly Gum Open-woodland/Heath (Community G)

Description: May take the form of closed-heath or closed-scrub without a tree layer, but more typically open-woodland or low open-woodland with a closed-heath or closed-scrub understorey. The tree species usually include either or both of *Eucalyptus haemastoma* (Broad-leaved Scribbly Gum) and *E. racemosa* (Narrow-leaved Scribbly Gum). Other tree species that may be present include *Allocasuarina littoralis* (Black She-oak), *Banksia serrata* (Old Man Banksia), *Corymbia gummifera* (Red Bloodwood), *Eucalyptus oblonga* (Sandstone Stringybark), *E. punctata* (Grey Gum) and *E. sparsifolia* (Narrow-leaved Stringybark). Shrub species include *Angophora hispida*, *Banksia oblongifolia*, *B. ericifolia*, *Boronia ledifolia*, *Bossiaea scolopendria*, *Dillwynia retorta*, *Epacris pulchella*, *Grevillea buxifolia*, *G. speciosa*, *Hakea laevipes*, *H. teretifolia*, *Isopogon anethifolius*, *Kunzea ambigua*, *Leptospermum trinervium*, *Leucopogon microphyllus*, *Petrophile pulchella*, *Phyllota phylicoides*, *Platysace linearifolia* and *Pultenaea tuberculata.* Ground layer species include *Actinotus minor*, *Cyathochaeta diandra*, *Dampiera stricta*, *Entolasia stricta*, *Lepyrodia scariosa*, *Lomandra glauca*, *Patersonia sericea* and *Ptilothrix deusta*. *Cassytha glabella* is a common climber. Wetter sites support a closed-heath or closed-scrub of species such as *Allocasuarina distyla*, *Banksia ericifolia*, *B. oblongifolia*, *Dillwynia floribunda*, *Epacris microphylla*, *Hakea teretifolia* and *Leptospermum squarrosum*. This 'Wet Heath' form of the community, which corresponds to Benson and Howell's (1994) map unit 21g, subunit (v), is rare in Hornsby Shire, but more common further east, closer to the coast. Heath vegetation in Hornsby Shire is generally characterised by species of drier conditions, such as *Angophora hispida* and *Leptospermum trinervium*.

Distribution and habitat in survey area: Shallow soils, or soils with impeded drainage (limiting tree growth), on plateaus, ridges, upper slopes, mid-slope benches and upper gullies on Hawkesbury Sandstone throughout Hornsby Shire.

Total extent in survey area (March 2007): 657.7 ha.

Conservation significance: A common community in Hornsby Shire, well represented in local conservation reserves.

Photo 25. Scribbly Gum Open-woodland/Heath, Mt Kuring-gai

3.26 Rock Platform Heath (Community H)

Description: Pockets of open-heath or closed-heath interspersed with areas of bare rock. Species composition varies. Shrub species include *Acacia suaveolens*, *Allocasuarina distyla*, *Angophora hispida*, *Baeckea brevifolia*, *B. diosmifolia*, *Banksia ericifolia*, *B. oblongifolia*, *Dillwynia floribunda*, *Epacris microphylla*, *Grevillea speciosa*, *Kunzea ambigua*, *Leptospermum arachnoides*, *L. parvifolium*, *L. squarrosum*, *L. trinervium*, *Mirbelia rubiifolia*, *Petrophile pulchella*, *Phebalium squamulosum* and *Platysace lanceolata*. Sedge and grass species include *Austrostipa pubescens*, *Caustis pentandra*, *Lepidosperma viscidum*, *Lepyrodia scariosa*, *Lomandra glauca*, *Ptilothrix deusta* and *Schoenus imberbis*.

Distribution and habitat in survey area: Depressions, crevices and edges of flat Hawkesbury Sandstone outcrops throughout Hornsby Shire. Occurs in scattered small patches, only some of which have been mapped.

Total extent in survey area (March 2007): 18.8 ha mapped, but other occurrences are likely to have been missed because of their small size.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). It is an important habitat for threatened plant species, especially *Kunzea rupestris* and *Micromyrtus blakelyi*, which are restricted to this habitat (but only occur in some areas). **Regionally Significant Community**

Photo 26. Rock Platform Heath, Canoelands

3.27 Sandstone Swamp (Community I)

Description: Closed-sedgeland or closed-heath of mixed and varying composition. Shrub species include *Baeckea imbricata*, *Banksia ericifolia*, *B. oblongifolia*, *Bauera rubioides*, *Callistemon citrinus*, *Epacris microphylla*, *Hakea teretifolia*, *Leptospermum polygalifolium*, *L. squarrosum*, *Leucopogon microphyllus* and *Viminaria juncea*. Sedge and herb species include *Actinotus minor*, *Lepidosperma filiforme*, *Lepyrodia scariosa*, *Restio fastigiatus*, *Schoenus brevifolius*, *S. paludosus* and *Xanthorrhoea resinifera*. *Cassytha glabella* is a common climber.

Distribution and habitat in survey area: Poorly drained Hawkesbury Sandstone soils subject to prolonged waterlogging. Typically occurs along drainage lines, but may also occur in seepage zones on hillsides ('hanging swamps'). Occurs in small, scattered patches throughout Hornsby Shire.

Total extent in survey area (March 2007): 10.4 ha mapped, but other occurrences are likely to have been missed because of their small size.

Conservation significance: Recognised as a regionally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006), and by the NSW Department of Environment and Conservation (2006). It is a rare community in the survey area, but more common further east in Ku-ring-gai Chase National Park, although still limited in extent (Thomas and Benson 1985a, Community 21). **Regionally Significant Community**

Photo 27. Sandstone Swamp, Berowra Heights

3.28 Swamp Mahogany Forest (Community SF1)

Description: Open-forest in which *Eucalyptus robusta* (Swamp Mahogany) is the dominant tree species or co-dominant with *Melaleuca quinquenervia* (Broad-leaved Paperbark). Other tree species that may be present include *Angophora floribunda* (Rough-barked Apple), *Eucalyptus tereticornis* (Forest Red Gum) and *Casuarina glauca* (Swamp Oak). Low tree and shrub species include *Glochidion ferdinandi*, *Goodenia ovata*, *Melaleuca ericifolia*, *M. linariifolia* and *Pittosporum undulatum*. Ground layer species include *Blechnum camfieldii*, *B. indicum*, *Cynodon dactylon*, *Cyperus polystachyos*, *Hemarthria uncinata*, *Hypolepis muelleri*, *Imperata cylindrica*, *Phragmites australis* and *Pteridium esculentum*.

Distribution and habitat in survey area: Quaternary alluvium on the Hawkesbury River floodplain at Brooklyn (*Eucalyptus robusta* co-dominant with *Melaleuca quinquenervia*) and One Tree Reach (*E. robusta* dominant).

Total extent in survey area (March 2007): 4.6 ha.

Conservation significance: Swamp Mahogany Forest is a form of 'Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions', which is listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. **Endangered Community**

Photo 28. Swamp Mahogany Forest, One Tree Reach

3.29 Floodplain Paperbark Scrub (Community SF2)

Description: Closed-scrub dominated by *Melaleuca ericifolia* (Swamp Paperbark), interspersed with pockets of *Phragmites australis* (Common Reed) closed-grassland and *Juncus kraussii* (Sea Rush) closed-rushland.

Distribution and habitat in survey area: Quaternary alluvium on the Hawkesbury River floodplain between Laughtondale and Singletons Mill.

Total extent in survey area (March 2007): 11.7 ha.

Conservation significance: Floodplain Paperbark Scrub is a form of 'Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions', which is listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. **Endangered Community**

Photo 29. Floodplain Paperbark Scrub, One Tree Reach

3.30 Floodplain Reedland (Community SF3)

Description: Closed-grassland dominated by *Phragmites australis* (Common Reed), which may be the only species present, except at the edge of the community.

Distribution and habitat in survey area: Quaternary alluvium on the Hawkesbury River floodplain between Wisemans Ferry and Brooklyn.

Total extent in survey area (March 2007): 17.8 ha.

Conservation significance: Floodplain Reedland is a form of 'Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions', which is listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. **Endangered Community**

Photo 30. Floodplain Reedland, Wisemans Ferry

3.31 Swamp Oak Floodplain Forest (Community SO)

Description: Closed-forest or open-forest dominated by *Casuarina glauca* (Swamp Oak). Other tree species may include *Avicennia marina* (Grey Mangrove) and *Melaleuca styphelioides* (Prickly-leaved Paperbark). Apart from young *Casuarina glauca* plants, the main understorey layer is the ground layer, which includes native species such as *Apium prostratum*, *Commelina cyanea*, *Juncus kraussii*, *Phragmites australis*, *Samolus repens*, *Sporobolus virginicus*, *Suaeda australis* and *Triglochin striata*, and introduced species such as *Acetosa sagittata*, *Stenotaphrum secundatum* and *Tradescantia albiflora*.

Distribution and habitat in survey area: Quaternary alluvium on the floodplains of the Hawkesbury River (Brooklyn to Wisemans Ferry) and its tributaries, Marramarra Creek and Berowra Creek (upstream to Crosslands).

Total extent in survey area (March 2007): 109.8 ha.

Conservation significance: Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions is listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. **Endangered Community**

Photo 31. Swamp Oak Floodplain Forest, Singletons Mill

3.32 Mangrove Swamp (Community W)

Description: Varies from low closed-forest dominated by *Avicennia marina* (Grey Mangrove) to closed-scrub dominated by *Aegiceras corniculatum* (River Mangrove). The lower-growing *Aegiceras corniculatum* may form an understorey within the *Avicennia marina* low closed-forest, or it may form a separate band of closed-scrub on the landward side of the *Avicennia marina*. Other vascular plant species are absent except on the landward edge of the community.

Distribution and habitat in survey area: Intertidal zone on Quaternary alluvium fringing the Hawkesbury River (Brooklyn to Wisemans Ferry) and its tributaries, Marramarra Creek, Berowra Creek (upstream to Crosslands) and Cowan Creek.

Total extent in survey area (March 2007): 321.0 ha.

Conservation significance: Recognised as a locally significant community in the Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006). Mangroves are vital for maintaining the ecological health and productivity of estuaries, playing important roles as primary producers and as fish habitat. **Locally Significant Community**

Photo 32. Mangrove Swamp, Brooklyn

3.33 Coastal Saltmarsh (Community CS)

Description: Sites visited were closed-rushland dominated by *Juncus kraussii* (Sea Rush). Other species include *Samolus repens* (Creeping Brookweed) and *Sporobolus virginicus* (Sand Couch).

Distribution and habitat in survey area: Quaternary alluvium along the Hawkesbury River (upstream to Singletons Mill) and its tributaries, Marramarra Creek and Berowra Creek (upstream to Crosslands). Occurs in sites that are more frequently inundated than Swamp Oak Floodplain Forest, but less frequently inundated than Mangrove Swamp.

Total extent in survey area (March 2007): 53.4 ha.

Conservation significance: Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions is listed as an endangered ecological community under the NSW *Threatened Species Conservation Act 1995*. **Endangered Community**

Photo 33. Coastal Saltmarsh, Singletons Mill

4. Vegetation Changes Between 2005 and 2007

A total area of 15.4 ha of bushland has been cleared in Hornsby Shire over the 26 months between January 2005 and March 2007 (Table 6). Sixteen native vegetation communities in Hornsby Shire have been reduced in extent over this period. Critically endangered communities have been reduced by 1.8 ha, endangered communities by 3.5 ha, regionally significant communities by 1.0 ha, locally significant communities by 0.8 ha, and common communities by 8.1 ha. The greatest reductions have been for Grey Gum-Scribbly Gum Woodland (3.8 ha), Floodplain Reedland (2.5 ha), Scribbly Gum Open-woodland/Heath (2.2 ha), Turpentine-Ironbark Forest (1.2 ha) and Peppermint-Angophora Forest (1.1 ha).

Table 6. Clearing of Hornsby Shire vegetation communities between 2005 and 2007

Status: A* = critically endangered community in Australia, A = endangered community in Australia, N* = critically endangered community in NSW, N = endangered community in NSW, R = regionally significant community (Sydney region), L = locally significant community (Hornsby Shire)

Vegetation community	Status	Map symbol	Mapped area (ha)		Change (ha)
			Jan 2005	Mar 2007	
Coachwood Rainforest	R	O1	107.9	107.9	0
Grey Myrtle Rainforest	R	O2	10.9	10.9	0
Blue Gum Shale Forest	A*,N*	BG1	37.8	37.2	-0.6
Blue Gum Diatreme Forest	N*	BG2	14.0	14.0	0
Rough-barked Apple River-flat Forest	N	RF1	5.9	5.9	0
Forest Red Gum River-flat Forest	N	RF2	2.4	2.4	0
Blue-leaved Stringybark Diatreme Forest	R	N	7.9	7.9	0
Turpentine-Ironbark Forest	A*,N	TI	296.2	295.0	-1.2
Duffys Forest	N	DF	15.5	15.5	0
Blackbutt Gully Forest	L	L1	838.0	837.3	-0.7
Angophora-Red Mahogany Forest	R	L2	14.2*	14.1*	-0.1*
Rough-barked Apple-Forest Oak Forest	R	Q1	271.4	271.1	-0.3
Blackbutt-Rough-barked Apple Forest	R	Q2	6.7	6.6	-0.1
Narrow-leaved Apple Slopes Forest	R	R	281.8	281.1	-0.6
Shale Gravel Transition Forest	N	SG	0.7*	0.7*	0*
Shale/Sandstone Transition Forest	A,N	SS	4.7	4.7	0
Peppermint-Angophora Forest		A	5580.5	5579.4	-1.1
Bloodwood-Scribbly Gum Woodland		C	639.3	638.4	-0.9
Silvertop Ash-Scribbly Gum Woodland	L	E	46.6	46.5	-0.1
Narrow-leaved Scribbly Gum Woodland		F	1289.6	1289.6	0
Angophora Woodland	L	S	62.3	62.3	0
Narrow-leaved Apple Gully Forest	R	B	93.4	93.4	0
Grey Gum-Scribbly Gum Woodland		D	4412.6	4408.7	-3.8
Yellow Bloodwood Woodland		T	283.8	283.7	-0.1
Scribbly Gum Open-woodland/Heath		G	659.9	657.7	-2.2
Rock Platform Heath	R	H	18.8	18.8	0
Sandstone Swamp	R	I	10.4	10.4	0
Swamp Mahogany Forest	N	SF1	4.6	4.6	0
Floodplain Paperbark Scrub	N	SF2	12.3	11.7	-0.7
Floodplain Reedland	N	SF3	20.3	17.8	-2.5
Swamp Oak Floodplain Forest	N	SO	110.1	109.8	-0.3
Mangrove Swamp	L	W	321.0	321.0	0
Coastal Saltmarsh	N	CS	53.4	53.4	0
Total			**15520.0**	**15504.6**	**-15.4**

* These figures refer to stands of remnant trees without a native understorey and have been derived from Smith and Smith (2008). They have not been included in the totals. No bushland examples of these communities are known in Hornsby Shire.

5. Discussion

A total of 34 native vegetation communities have been distinguished in the survey area. Three of these have not been mapped here, but have been mapped in other studies. Angophora-Red Mahogany Forest and Shale Gravel Transition Forest appear to be represented now only by stands of remnant trees without a native understorey. These two communities are discussed in this report, but have been mapped by Smith and Smith (2008). Seagrass Meadow is submerged aquatic vegetation dominated by seagrasses, and has been mapped by West *et al*. (1985). It occurs in Cowan Creek and Berowra Creek, and is dominated by *Zostera capricorni* (Eelgrass). It is recognised as a regionally significant vegetation community by the NSW Department of Environment and Conservation (2006).

Twenty-eight of the 34 communities are significant at national, State, regional or local level. Especially significant are Turpentine-Ironbark Forest, Blue Gum Shale Forest and Blue Gum Diatreme Forest, which have been listed as critically endangered ecological communities at either national level (Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) or State level (NSW *Threatened Species Conservation Act 1995*). The two Blue Gum communities are forms of a single listed community, 'Blue Gum High Forest' (the situation is complicated, however, because although Blue Gum Diatreme Forest now forms part of the NSW listing, it is not part of the national listing of Blue Gum High Forest). All three communities occur on easy topography on relatively fertile soils, and have been severely depleted and fragmented by clearing for urban and rural development. Over 95% of their original extent on the Cumberland Plain has been cleared (Tozer 2003). Hornsby Shire has about a quarter of the remaining area of both Turpentine-Ironbark Forest (295 of 1183 ha) and Blue Gum Shale Forest (37 of 168 ha), and possibly all of the remaining area of Blue Gum Diatreme Forest (14 ha). Very little of these communities is conserved in the local Department of Environment and Climate Change reserves. Hornsby Shire Council has a major role to play in the conservation of the three communities.

Another community, Shale/Sandstone Transition Forest, has been listed as an endangered ecological community at national level. Nine other communities have been listed as endangered ecological communities at State level (NSW *Threatened Species Conservation Act 1995*): Duffys Forest, Rough-barked Apple River-flat Forest, Forest Red Gum River-flat Forest, Shale Gravel Transition Forest, Swamp Oak Floodplain Forest, Coastal Saltmarsh, Swamp Mahogany Forest, Floodplain Paperbark Scrub and Floodplain Reedland. The last three are all forms of a single listed community, 'Swamp Sclerophyll Forest on Coastal Floodplains', but are recognised here as separate communities because of their distinct structural and floristic differences. Similarly, Rough-barked Apple River-flat Forest and Forest Red Gum River-flat Forest are two forms of a single listed community, 'River-flat Eucalypt Forest on Coastal Floodplains'.

Shale Gravel Transition Forest, Shale/Sandstone Transition Forest and Duffys Forest are all associated with ridges and plateaus with soils that have both shale and sandstone influences. All three communities are rare in Hornsby Shire, which is on the margin of their distribution. Shale Gravel Transition Forest and Shale/Sandstone Transition Forest are more typical of areas west of the Shire (Tozer 2003), while Duffys Forest is more typical of areas to the east (Smith and Smith 2000). The other seven endangered communities are all associated with alluvial soils on the floodplain of the Hawkesbury River and its tributaries (Rough-barked Apple River-flat Forest also occurs on the Lane Cove River floodplain). The listing of coastal floodplain communities as endangered reflects the extensive clearing, disturbance and on-going threats to coastal floodplains throughout New South Wales.

Apart from the endangered communities, 11 communities have been recognised as regionally significant (in the Sydney region), and four other communities as locally significant (in Hornsby Shire). The regionally significant communities are Coachwood Rainforest, Grey

Myrtle Rainforest, Blue-leaved Stringybark Diatreme Forest, Angophora-Red Mahogany Forest, Rough-barked Apple-Forest Oak Forest, Blackbutt-Rough-barked Apple Forest, Narrow-leaved Apple Slopes Forest, Narrow-leaved Apple Gully Forest, Rock Platform Heath, Sandstone Swamp, and the unmapped Seagrass Meadow. The locally significant communities are Blackbutt Gully Forest, Silvertop Ash-Scribbly Gum Woodland, Angophora Woodland and Mangrove Swamp.

Most of the regionally and locally significant communities are ones with a restricted distribution in Hornsby Shire. An exception is Blackbutt Gully Forest, which is common within the Shire (837 ha in the survey area, including good representation in Berowra Valley Regional Park and Lane Cove River National Park), but uncommon and poorly conserved outside the Shire. For example, only small areas occur in Ku-ring-gai Chase National Park (Thomas and Benson 1985a).

Two of the regionally and locally significant communities face particular threats. Coachwood Rainforest, which occurs along creeks, is highly prone to weed invasion from water-borne and bird-spread propagules, especially Small-leaved Privet (*Ligustrum sinense*), which has become a major component of many stands of this community around Sydney. Silvertop Ash-Scribbly Gum Woodland, which occurs on ridges and plateaus in the eastern part of Hornsby Shire, mainly outside Berowra Valley Regional Park, is threatened by the continual spread and intensification of urban development within its distribution. A number of stands of this community have been cleared or reduced since our 1990 survey.

The remaining six communities of lesser conservation significance are Peppermint-Angophora Forest, Bloodwood-Scribbly Gum Woodland, Narrow-leaved Scribbly Gum Woodland, Grey Gum-Scribbly Gum Woodland, Yellow Bloodwood Woodland and Scribbly Gum Open-woodland/Heath. Together, these six communities make up 83% of the native vegetation of the survey area (12,858 of 15,505 ha). The significant communities make up only 17% (2647 ha).

Yellow Bloodwood Woodland has a relatively restricted distribution (284 ha), but has not been recognised as regionally or locally significant because it is common outside the survey area in Marramarra National Park (1097 ha; NSW Department of Environment and Conservation 2006) and, to a lesser extent, in Muogamarra Nature Reserve and Ku-ring-gai Chase National Park.

The Hornsby Shire Biodiversity Conservation Strategy (Hornsby Shire Council 2006) needs to be updated to take account of the results of the present study and the parallel remnant trees study (Smith and Smith 2008). We recommend the following changes:

- addition of Shale Gravel Transition Forest to the list of endangered ecological communities in Hornsby Shire,
- addition of Angophora-Red Mahogany Forest and Seagrass Meadow to the list of regionally significant communities,
- revision of Table 1 to take account of the changes to community symbols in Table 1 of the present report, and the splitting of River-flat Eucalypt Forest into two separate communities,
- recognition in Appendix 2 of the revised status of Blue Gum High Forest as a critically endangered community, and
- revision of Appendix 3 to make it consistent with Table 1.

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Appendix 1. Native plant species recorded at sampling sites

Sampling sites are grouped into communities as in Table 3. B = Berowra Valley Regional Park 0.04 ha plots (1990). P = Pennant Hills Park and surrounds 0.04 ha plots (1993). H = other sites (2006-08; numbers indicate 0.04 ha plots; letters indicate lists of tree species and main understorey species).1 = few plants, minimal cover; 2 = <5% foliage cover; 3 = 5-25% foliage cover; 4 = 25-50% foliage cover; 5 = 50-75% foliage cover; 6 =75-100% foliage cover.

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1		
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31
Class Lycopsida	**Clubmosses**																																		
Family Lycopodiaceae																																			
Lycopodiella lateralis	Slender Clubmoss																																		
Class Filicopsida	**Ferns**																																		
Family Adiantaceae																																			
Adiantum aethiopicum s.lat.	Common Maidenhair	2			2	X	2		3		1						X							2			3						2		
Adiantum hispidulum	Rough Maidenhair			1	2																									1					
Family Aspleniaceae																																			
Asplenium flabellifolium	Necklace Fern						2																		1				2						
Family Blechnaceae																																			
Blechnum ambiguum					4																								1						
Blechnum cartilagineum	Gristle Fern								3					X															1						
Blechnum indicum	Swamp Water Fern																																		
Blechnum nudum	Fishbone Water Fern																												1						
Doodia aspera	Prickly Rasp Fern								2		1																						2		
Doodia caudata	Small Rasp Fern	1	1				2																						1						
Family Cyatheaceae																																			
Cyathea australis	Rough Treefern				1																								1						
Family Dennstaedtiaceae																																			
Dennstaedtia davallioides	Lacy Ground-fern						1																												
Hypolepis muelleri	Harsh Ground Fern										4	X																							
Pteridium esculentum	Bracken	2	2		1			X	3		1	X		X			X	X	X	2			X	2	2	2		1		1	X	X	2	3	2
Family Dicksoniaceae																																			
Calochlaena dubia	Common Ground Fern	2	2	3	3				4		4	X		X										2	3		5		5				3		
Family Dryopteridaceae																																			
Polystichum australiense									2																										
Family Gleicheniaceae																																			
Gleichenia dicarpa	Pouched Coral Fern																																		
Gleichenia microphylla	Scrambling Coral Fern																												1						
Sticherus flabellatus	Umbrella Fern	2																											1						
Family Hymenophyllaceae																																			
Hymenophyllum cupressiforme	Common Filmy Fern				1																														
Family Lindsaeaceae																																			
Lindsaea linearis	Screw Fern																			2															
Lindsaea microphylla	Lacy Wedge Fern																		X	1		X		1	1			1	1	1				1	
Family Osmundaceae																																			
Todea barbara	King Fern	1																											2						
Family Polypodiaceae																																			
Pyrrosia rupestris	Rock Felt Fern			2																															

Scientific name	Common name	Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Class Lycopsida	**Clubmosses**																																																
Family Lycopodiaceae																																																	
Lycopodiella lateralis	Slender Clubmoss																						1																										
Class Filicopsida	**Ferns**																																																
Family Adiantaceae																																																	
Adiantum aethiopicum s.lat.	Common Maidenhair											2																	X																				
Adiantum hispidulum	Rough Maidenhair											1																																					
Family Aspleniaceae																																																	
Asplenium flabellifolium	Necklace Fern																																																
Family Blechnaceae																																																	
Blechnum ambiguum																																																	
Blechnum cartilagineum	Gristle Fern																																																
Blechnum indicum	Swamp Water Fern																																											X					
Blechnum nudum	Fishbone Water Fern																																																
Doodia aspera	Prickly Rasp Fern																																																
Doodia caudata	Small Rasp Fern				1																																												
Family Cyatheaceae																																																	
Cyathea australis	Rough Treefern																																																
Family Dennstaedtiaceae																																																	
Dennstaedtia davallioides	Lacy Ground-fern											1	1																																				
Hypolepis muelleri	Harsh Ground Fern							1																																									
Pteridium esculentum	Bracken	X		X	3	3			2	3	1	2	3				3					2					X	1	X															X					
Family Dicksoniaceae																																																	
Calochlaena dubia	Common Ground Fern					2						3													X						X																		
Family Dryopteridaceae																																																	
Polystichum australiense																																																	
Family Gleicheniaceae																																																	
Gleichenia dicarpa	Pouched Coral Fern					2							1																																				
Gleichenia microphylla	Scrambling Coral Fern						1																																										
Sticherus flabellatus	Umbrella Fern					2			3			2															X																						
Family Hymenophyllaceae																																																	
Hymenophyllum cupressiforme	Common Filmy Fern				2																																												
Family Lindsaeaceae																																																	
Lindsaea linearis	Screw Fern								1			1			2					1	2	2													1			2		1										
Lindsaea microphylla	Lacy Wedge Fern				1	1			1		2		1		1									1	X														1										
Family Osmundaceae																																																	
Todea barbara	King Fern																																																
Family Polypodiaceae																																																	
Pyrrosia rupestris	Rock Felt Fern																																																

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Family Pteridaceae																																																																																		
Pteris tremula	Tender Brake															X																																																																		
Family Schizaeaceae																																																																																		
Schizaea bifida s.lat.	Forked Comb Fern																																						1	1						1		1	1				1	1	1							X				1			1	1		1										
Family Sinopteridaceae																																																																																		
Cheilanthes sieberi	Poison Rock Fern															X													1									1																							X		X																		
Pellaea falcata	Sickle Fern				X			2																																																																										
Class Magnoliopsida	**Flowering plants**																																																																																	
Subclass Magnoliidae	**Dicotyledons**																																																																																	
Family Acanthaceae																																																																																		
Brunoniella pumilio	Dwarf Blue Trumpet																X	X			X																																									X																				
Pseuderanthemum variabile	Pastel Flower		1	2		2	X	1						2					2					2		1		2	3		X		1												1																																					
Family Aizoaceae																																																																																		
Tetragonia tetragonoides	New Zealand Spinach																																																																															1		
Family Amaranthaceae																																																																																		
Alternanthera denticulata	Lesser Joyweed																																																																																	1
Family Apiaceae																																																																																		
Actinotus helianthi	Flannel Flower																		2														1		X											2				1		2							1														2									
Actinotus minor	Lesser Flannel Flower														X												2											1	1	1	2	3	1	3		2	1	3	2	1			2	1		3	1		2							2	2	3	3	3	2	2	1			X						
Apium prostratum	Sea Celery																																																																															3		
Centella asiatica	Swamp Pennywort														X																																																																			
Hydrocotyle laxiflora/peduncularis								1		1													1			2		1				2																																																		
Platysace lanceolata	Native Parsnip																	X				X						1					1					2				1	1																																						
Platysace linearifolia	Narrow-leaf Platysace												X				X				X	X			1					X				1				2	3	3	2	2	1			2	1		2	1	3	3	2	2	1	1		2	X	1	X		X	X	2			2		1	1	2									
Xanthosia pilosa s.lat.	Woolly Xanthosia																					X	2	2	1		1		1					1				2	1	2	1	1	1	2	1	1							1				2		2		1																					
Xanthosia tridentata	Rock Xanthosia															X			3																			1	2	1	1	1		2		2	1	2	1		1	3	1			1	2					X																				
Family Apocyanaceae																																																																																		
Parsonsia purpurascens												X																																																																						
Family Araliaceae																																																																																		
Astrotricha floccosa	Flannel Leaf												X					X				X		2	1							2	3		X																																														
Astrotricha latifolia	Broad-leaf Star-hair																									2																																																								
Astotricha longifolia	Long-leaf Star-hair																						2														1	1		1		1																																							
Polyscias sambucifolia	Elderberry Panax							1						1	X				1				1	1		1	3		2	X	X		1					1							1	2																																				
Family Asclepiadaceae																																																																																		
Marsdenia suaveolens	Scented Marsdenia																									1		2																	1																																					
Tylophora barbata	Bearded Tylophora									1																																																																								
Family Asteraceae																																																																																		
Cassinia aculeata	Dolly Bush															X				X	X																																																													
Cassinia denticulata	Stiff Cassinia																																						1	2	2			1								2	1	2	1																											
Cassinia longifolia	Shiny Cassinia																																1																																																	
Cassinia uncata	Stciky Cassinia																X																																																																	
Gnaphalium sphaericum	Cudweed																																																															X																		
Helichrysum elatum	White Paper Daisy																											1																																																						
Lagenifera stipitata s.lat.	Blue Bottle-daisy																							2																																																									

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13
Leptinella longipes													X																									
Olearia microphylla	Small-leaved Daisy-Bush																											1										
Ozothamnus diosmifolius	White Dogwood				1										1	X	X	X		1		X		2				2		1		X						
Senecio hispidulus	Hill Fireweed												X																									
Senecio linearifolius	Fireweed Groundsel								1																													
Family Avicenniaceae																																						
Avicennia marina	Grey Mangrove																																					
Family Baueraceae																																						
Bauera rubioides	Dog Rose																							1														
Family Bignoniaceae																																						
Pandorea pandorana	Wonga Wonga Vine			2	2		1		3														X		1		3		3		X		1	1	2			
Family Campanulaceae																																						
Wahlenbergia gracilis	Sprawling Bluebell																	X					X		2													
Family Casuarinaceae																																						
Allocasuarina distyla	Scrub She-oak																																					
Allocasuarina littoralis	Black She-oak									X							X	X					X	3								X			3	X		X
Allocasuarina torulosa	Forest Oak		1	3	1	X			1		2	X		X					X	1					3	1	2	3	3	1			3	4	3	X	X	
Casuarina glauca	Swamp Oak											X	X																									
Family Celastraceae																																						
Maytenus silvestris					1																						1											
Family Chenopodiaceae																																						
Einadia hastata	Berry Saltbush												X																									
Sarcocornia quinqueflora	Samphire																																					
Suaeda australis	Austral Seablite																																					
Family Chloanthaceae																																						
Chloanthes stoechadis	Common Chloanthes																																					
Family Clusiaceae																																						
Hypericum gramineum	Small St Johns Wort														1																							
Family Convolvulaceae																																						
Dichondra repens s.lat.	Kidney Weed						2			X					2	X							X														X	
Family Cunoniaceae																																						
Callicoma serratifolia	Black Wattle	2	1		3		1																	2					2									
Ceratopetalum apetalum	Coachwood	3	2	4	4																								3									
Ceratopetalum gummiferum	Christmas Bush	2			3									X						1				2	2		2		3		X			3		X		
Family Dilleniaceae																																						
Hibbertia aspera	Rough Guinea Flower														1										1							X	1	1				
Hibbertia bracteata	Blue Mountains Guinea Flower																		X			X						1						1				X
Hibbertia cistiflora																																						
Hibbertia dentata	Twining Guinea Flower																								1		1		1	1								
Hibbertia diffusa																																						X
Hibbertia empetrifolia	Trailing Guinea Flower																				X																	
Hibbertia fasciculata																																						
Hibbertia linearis	Showy Guinea Flower																																					
Hibbertia obtusifolia	Grey Guinea Flower																																					
Hibbertia scandens	Climbing Guinea Flower								1																													

Scientific name	Common name	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Leptinella longipes																																														
Olearia microphylla	Small-leaved Daisy-Bush																																														
Ozothamnus diosmifolius	White Dogwood																									X		X																		
Senecio hispidulus	Hill Fireweed																																													
Senecio linearifolius	Fireweed Groundsel																																													
Family Avicenniaceae																																														
Avicennia marina	Grey Mangrove																																											2	5	
Family Baueraceae																																														
Bauera rubioides	Dog Rose		1	2						2																														X						
Family Bignoniaceae																																														
Pandorea pandorana	Wonga Wonga Vine																											X																		
Family Campanulaceae																																														
Wahlenbergia gracilis	Sprawling Bluebell																																													
Family Casuarinaceae																																														
Allocasuarina distyla	Scrub She-oak																															3						X								
Allocasuarina littoralis	Black She-oak	1	1		3			2	2	1			2	1				5							1	X		X		1	1	2	2	2	5	2										
Allocasuarina torulosa	Forest Oak																					X																								
Casuarina glauca	Swamp Oak																																									X	X	4		
Family Celastraceae																																														
Maytenus silvestris																																														
Family Chenopodiaceae																																														
Einadia hastata	Berry Saltbush																																													
Sarcocornia quinqueflora	Samphire																																													1
Suaeda australis	Austral Seablite																																											2		
Family Chloanthaceae																																														
Chloanthes stoechadis	Common Chloanthes						1																																							
Family Clusiaceae																																														
Hypericum gramineum	Small St Johns Wort																																													
Family Convolvulaceae																																														
Dichondra repens s.lat.	Kidney Weed																																													
Family Cunoniaceae																																														
Callicoma serratifolia	Black Wattle	2	1			1			3															X																						
Ceratopetalum apetalum	Coachwood	3							3																																					
Ceratopetalum gummiferum	Christmas Bush	1	2	1	1	1	3	3	3	3											1	X		X																						
Family Dilleniaceae																																														
Hibbertia aspera	Rough Guinea Flower																																1	2		2										
Hibbertia bracteata	Blue Mountains Guinea Flower	1	1			1		1			2	1	1		1		1		1	2	3		2		1							1				1										
Hibbertia cistiflora																															1	1														
Hibbertia dentata	Twining Guinea Flower								2																																					
Hibbertia diffusa																																														
Hibbertia empetrifolia	Trailing Guinea Flower					1					2	2				1				1								X			1	2														
Hibbertia fasciculata				1																											2	1														
Hibbertia linearis	Showy Guinea Flower						2	1		1		1																																		
Hibbertia obtusifolia	Grey Guinea Flower	2		1		1								1									2		2																					
Hibbertia scandens	Climbing Guinea Flower																																													

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Hibbertia serpyllifolia																						X																																																													
Family Droseraceae																																																																																			
Drosera auriculata/peltata																								1										1															1	1					1															1					1		1							
Drosera spatulata	Common Sundew																																							1																													2								2							
Family Elaeocarpaceae																																																																																			
Elaeocarpus reticulatus	Blueberry Ash		1	1	1		1		1					X	2	X								1	1		1		3	2	X			1	2	X							1		1	2	2											1	X																								
Family Epacridaceae																																																																																			
Brachyloma daphnoides	Daphne Heath																																									1						1		1		1	1			1	1					2					1		2	1	1	2	1										
Epacris longiflora	Fuchsia Heath																																								2																																												
Epacris microphylla	Coral Heath																																								1						1																				2	2						2	X		X						
Epacris pulchella	NSW Coral Heath																X			3	X			1				2						2					1	2	1	1	2		2				2	1			2	1	1	1	1	1											1		2													
Epacris purpurascens																	X																																																																			
Leucopogon esquamatus																																																					1														1																
Leucopogon juniperinus	Prickly Beard-heath				1										2	X	X											1				X					X																																																
Leucopogon lanceolatus	Lance Beard-heath				1																				1	1			1	1									1							1	1																																						
Leucopogon microphyllus	Small-leaved White-beard																																								1		2				1		1	1			1				1	1									2	2	3	2	1		2				X						
Leucopogon muticus	Blunt Beard-heath																																		2																																																		
Leucopogon setiger																																																									1								X					1														
Leucopogon virgatus																																																																								1											
Monotoca elliptica	Tree Broom-heath																																																									X																										
Monotoca scoparia	Prickly Broom-heath																				X	X									X	X		1				X				1		2				1	1	1	1	1				1	1			2		1				X	1																
Styphelia longifolia	Long-leaf Styphelia																																												1																																							
Styphelia triflora																																													1																																							
Styphelia tubiflora	Red Five-corners																																						2				1				1		1								1																											
Trochocarpa laurina	Tree Heath				1																								1																																																								
Woollsia pungens	Woollsia																																								2		2		1		2								1		3	1				4					1			4				1									
Family Euphorbiaceae																																																																																				
Amperea xiphoclada	Broom Spurge																																	1					1					2				1										1				1																						
Breynia oblongifolia	Breynia				1																					1	1				X						X	X																											X																			
Glochidion ferdinandi	Cheese Tree			2							4	X																				X	5				X																						X																										
Micrantheum ericoides	Heath Micrantheum															X	X			2	X	X		1		1						X			1										2		1	1	1		2		1	2									1	X	X	X		1		1	1	3	2	3										
Omalanthus populifolius	Bleeding Heart				2										1		X																																																																				
Phyllanthus hirtellus	Thyme Spurge															X	X			1	X	X	X	1		1		2			X	X		1	1			X		1		1			2			2	1		1	2	1	1	1	2		1		2		1	X	X						1		1												
Poranthera ericifolia																																																2																																						
Poranthera microphylla	Small Poranthera															X											1			1					1																																																		
Ricinocarpos pinifolius	Wedding Bush																																											3																													1											
Family Eupomatiaceae																																																																																			
Eupomatia laurina	Bolwarra				2																																																																																	
Family Fabaceae																																																																																				
Acacia falcata	Sickle Wattle																		X				X									X																																																					
Acacia floribunda	Sally Wattle	1	1				1		1		2													1		1													2							2																X																							
Acacia hispidula																		X																																	1											1																						
Acacia implexa	Hickory Wattle							X																																																																													
Acacia linifolia	Flax-leaved Wattle														1	X	X	X		2	X	X		2		1		2		2	X	X						X	2	1	1		1	1	2		3		1	1		1			1			2		1		1		X																				
Acacia longifolia	Sydney Golden Wattle	1	1													X		X	X					1			2				X															2	1																																					1		

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Acacia myrtifolia	Myrtle Wattle																X	X	X	2	X	X	X																										1															X																			
Acacia oxycedrus	Spike Wattle																																								3			2																												2											
Acacia parramattensis	Parramatta Green Wattle		1							X	1					X							X			1						X						X																																										X					
Acacia parvipinnula	Silver-stemmed Wattle																		X																																																																	
Acacia schinoides	Green Cedar Wattle																						X				4																																																								
Acacia stricta															1																																																																					
Acacia suaveolens	Sweet Wattle															X	X				X		X	1							X	X						X	1	1	2	1	2		1			2	1	2	1	1	2			1	2			1		1		X						1		1		2	X		X						
Acacia terminalis	Sunshine Wattle																							1															2		1	1	2		2															2		1												1									
Acacia ulicifolia	Prickly Moses													X	1			X	X	1		X	X	1		1		1				X									1		2	1	1		1									1		1		1		1	X										1										
Bossiaea heterophylla																					X					1									2				1		2			1	1			2	1	1	1	1	2	1			1			2		1		X			1	2	1		1	1	1										
Bossiaea lenticularis																																						X																																															
Bossiaea obcordata	Spiny Bossiaea															X		X	X	3	X	X		2				2		1	X	X						X							2		3	1												2				X	X																		
Bossiaea scolopendria	Leafless Bossiaea																																										1				1	1	1		1	1	1				1					1					2	2	2		2	1	2										
Desmodium varians	Slender Tick-trefoil		1	1					2																																																																											
Desmodium rhytidophyllum																																					X																																															
Daviesia acicularis																			X																																																																	
Daviesia corymbosa																						X																X																																													
Daviesia ulicifolia	Gorse Bitter Pea																								2															1														1																														
Dillwynia floribunda s.lat.																																			1							3								2		4	2	2			2									X	1	3						2									
Dillwynia retorta	Heathy Parrot Pea																							2		1													2	1	3		4	3	2		2	2	3	4	3	2	1					4		3		3					2		3	2			1										
Dillwynia rudis	Showy Parrot Pea																																																																									1										
Glycine clandestina	Love Creeper	1	1						1		1				2			X	X	2				1						2		X	1																																																			
Glycine microphylla																	X															X																																																				
Gompholobium glabratum	Dainty Wedge Pea																																																	1		1	1												X				1	1														
Gompholobium grandiflorum	Large Wedge Pea																	X			X																			1		2	2					2	2	2		1	2	1		1	1	2		2		1		X			1	1	1														
Gompholobium latifolium	Golden Glory Pea																												1					1									1																																										
Hardenbergia violacea	False Sarsaparilla								1									X	X				X									X																																																				
Hovea linearis s.lat.																X						X													1							1			1			1					1			1	1			1		1				X					1		1										
Kennedia rubicunda	Red Kennedy Pea														1									1	1								1																																																		
Phyllota grandiflora																												1																																																									
Phyllota phylicoides	Heath Phyllota																									1														2	3	2		1			1	1	2		3		1	2		3	1	1		2		3				X	1		2	1	2	1	2	1									
Platylobium formosum	Handsome Flat-pea														1						X		X		1		1		2	2		X				X										1																																							
Pultenaea daphnoides	Large-leaf Bush-pea													X									X																						1									1					X																									
Pultenaea ferruginea																		X																																																																		
Pultenaea flexilis	Graceful Bush-pea	2													1								X	2		3	2									X			3	1						2	2												X																									
Pultenaea linophylla																																											1																																									
Pultenaea retusa																														2																																																					
Pultenaea stipularis	Fine-leaf Bush-pea																																												2																																						
Pultenaea tuberculata																				3																						2	4				1		3	3	2			2	1	2	2	2						X		X	1			2	3		2										
Viminaria juncea	Native Broom																																																																															X						
Family Geraniaceae																																																																																					
Geranium sp.		1	1						1																																																																												
Family Goodeniaceae																																																																																					
Dampiera purpurea	Purple Dampiera																		X						1	1														2																		1																											
Dampiera stricta	Blue Dampiera																			1								1												1	2	2	1				1	1	2	2	2	1	1	2	2	2	1			2							2	1	2	2	2	2	2	1		1							

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Goodenia bellidifolia	Daisy-leaved Goodenia																			2																												1																					1	1	2		1	1		2							
Goodenia hederacea	Violet-leaved Goodenia																			2																																																																
Goodenia heterophylla	Variable-leaved Goodenia																																		1																																															
Goodenia ovata	Hop Goodenia												X																																																																	X					
Scaevola ramosissima	Purple Fan-flower																			1			X																			1									1		1																																
Family Haloragaceae																																																																																				
Gonocarpus tetragynus	Poverty Raspwort																																																																		1															
Gonocarpus teucrioides	Germander Raspwort														1					2							1												1	2	2		2						2								2	2																1									
Family Lamiaceae																																																																																				
Plectranthus parviflorus	Cockspur Flower								1																																																																											
Prostanthera linearis		1																																																																																			
Family Lauraceae																																																																																				
Cassytha glabella	Slender Devil's Twine																X					X																		1			1					2	2					1			1						X	X				2	2	1	2		2				X						
Cassytha pubescens	Common Devil's Twine	2	1																X		X			2		2	1	2		1									2		2	2	2		2	2	2				2							2		1		2	X						1		1	2	2										
Family Lentibulariaceae																																																																																			
Utricularia dichotoma	Fairy Aprons																																																																										1							
Utricularia lateriflora	Small Bladderwort																																																																										1							
Family Lobeliaceae																																																																																				
Lobelia alata	Angled Lobelia												X																																																																						
Lobelia gracilis	Trailing Lobelia															X																																																																		
Pratia purpurascens	Whiteroot	1							2		1					X				1					1	1	1	2		3		X	1	1				X																				1																										
Family Loganiaceae																																																																																			
Logania albiflora																																							2							2	1																																						
Mitrascame polymorpha	Mitre Weed																																																																		1	2			1					1							
Family Meliaceae																																																																																				
Synoum glandulosum	Bastard Rosewood			1	1						1	X																																																																								
Family Menispermaceae																																																																																				
Sarcopetalum harveyanum	Pearl Vine																										3						1																																																			
Stephania japonica	Stephania			1						X	1															1							1																																																		
Family Monimiaceae																																																																																				
Doryphora sassafras	Sassafras													X																																																																					
Family Moraceae																																																																																				
Ficus rubiginosa	Port Jackson Fig			2	2																													1	1	X																																																
Family Myoporaceae																																																																																					
Myoporum acuminatum	Mangrove Boobialla												X																																																																						
Family Myrsinaceae																																																																																				
Aegiceras corniculatum	River Mangrove																																																																																		2	2	1
Rapanea variabilis	Muttonwood			2	2		1							X													3		2				1	1	2																																																	
Family Myrtaceae																																																																																				
Acmena smithii	Lillypilly			4	1																																																																															
Angophora bakeri	Narrow-leaved Apple															X								2													X																						4	X				X	X																		
Angophora costata	Sydney Red Gum	3	1		1		3	X						X		X	X	X	X	3	X	X	X	2	3	1	3	3	3	3	X	X				X		X	4	2	3	3	3	2	3	1	3					1			3	2			X			1	X	X																			
Angophora floribunda	Rough-barked Apple			1					3	X	3	X																					4		1	X																																																
Angophora hispida	Dwarf Apple																				X	X																		1							1		1					1			4											3	1	2	3	4	2		4	X		X						
Austromyrtus tenuifolia	Narrow-leaf Myrtle	1	2																																					1						2																																							

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13
Backhousia myrtifolia	Grey Myrtle					X																																
Baeckea brevifolia	Short-leaved Heath-myrtle																																					
Baeckea diosmifolia																																						
Baeckea imbricata																																						
Baeckea linifolia	Swamp Baeckea																							2														
Euryomyrtus ramosissima	Rosy Baeckea																																					
Callistemon linearis	Narrow-leaved Bottlebrush																			1																		
Calytrix tetragona	Fringe-myrtle																																					
Corymbia eximia	Yellow Bloodwood													X									X			3									3			
Corymbia gummifera	Red Bloodwood													X		X	X	X	X	3	X	X	X					3			X					X		X
Darwinia biflora																																						
Darwinia fascicularis	Clustered Scent-myrtle																																					
Eucalyptus agglomerata	Blue-leaved Stringybark													X									X															
Eucalyptus botryoides	Bangalay																X																					
Eucalyptus botryoides X saligna																	X																					
Eucalyptus eugenioides	Thin-leaved Stringybark																																					X
Eucalyptus globoidea	White Stringybark																				X																	
Eucalyptus haemastoma	Broad-leaved Scribbly Gum																X																					X
Eucalyptus oblonga/sparsifolia																	X			3		X																
Eucalyptus paniculata	Grey Ironbark							X							4				X											2								
Eucalyptus pilularis	Blackbutt				2		3	X	3		1	X				X		X		2	X	X		3	4	4	4	3	4	3	X	X				X		
Eucalyptus piperita	Sydney Peppermint	1		3							3	X					X		X		X		X	3						2				3				
Eucalyptus punctata	Grey Gum			1		X													X				X												2			X
Eucalyptus racemosa	Narrow-leaved Scribbly Gum																																					
Eucalyptus resinifera	Red Mahogany							X							3	X		X																				
Eucalyptus robusta	Swamp Mahogany																																					
Eucalyptus saligna	Sydney Blue Gum						3	X	4	X	4	X																										
Eucalyptus sieberi	Silvertop Ash																																					
Eucalyptus squamosa	Scaly Bark																																					
Eucalyptus tereticornis	Forest Red Gum					X							X																								X	
Eucalyptus umbra	Bastard White Mahogany																																					
Kunzea ambigua	Tick Bush														1	X	X				X																	X
Leptospermum arachnoides	Spidery Teatree																																					
Leptospermum polygalifolium	Yellow Teatree																							1					1									
Leptospermum squarrosum	Pink Tea-tree																																					
Leptospermum trinervium	Paperbark Teatree	1														X		X		1	X	X		2	1	3		3				X		3	2			
Melaleuca ericifolia	Swamp Paperbark												X																									
Melaleuca styphelioides	Prickly-leaved Paper-bark												X																									
Micromyrtus ciliata	Fringed Heath-myrtle																																					
Syncarpia glomulifera	Turpentine				2		3					X			2	X	X	X	X	2		X	X				4	4	4			X						
Tristaniopsis laurina	Water Gum	3	3	3			2																															
Family Olacaceae																																						
Olax stricta	Olax																																					
Family Oleaceae																																						
Notelaea longifolia	Large Mock-olive			2	2		2																				3									X		

Scientific name	Common name	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Backhousia myrtifolia	Grey Myrtle																																													
Baeckea brevifolia	Short-leaved Heath-myrtle	1																																			3									
Baeckea diosmifolia																														1	3	1							1							
Baeckea imbricata																																							3							
Baeckea linifolia	Swamp Baeckea																																													
Euryomyrtus ramosissima	Rosy Baeckea																																1	1		2										
Callistemon linearis	Narrow-leaved Bottlebrush																	1																												
Calytrix tetragona	Fringe-myrtle																								2							2														
Corymbia eximia	Yellow Bloodwood				3							3					2				3								X									X								
Corymbia gummifera	Red Bloodwood			1		3	3	3		3	3	3	3	3	3	3		3	3	2	3	X			3	X	X	X				1		1	2	3		X								
Darwinia biflora				1																													1			2										
Darwinia fascicularis	Clustered Scent-myrtle																																				2		1							
Eucalyptus agglomerata	Blue-leaved Stringybark																																													
Eucalyptus botryoides	Bangalay																																													
Eucalyptus botryoides X saligna																																														
Eucalyptus eugenioides	Thin-leaved Stringybark																																													
Eucalyptus globoidea	White Stringybark																																													
Eucalyptus haemastoma	Broad-leaved Scribbly Gum										3	3	3	1	2											X	X	X	X		2	3	3		2	3										
Eucalyptus oblonga/sparsifolia														3												X	X	X																		
Eucalyptus paniculata	Grey Ironbark																																													
Eucalyptus pilularis	Blackbutt																																													
Eucalyptus piperita	Sydney Peppermint	3	3	3	3	3	4	3	4	3								1					3	X										3	2											
Eucalyptus punctata	Grey Gum		2		1	3								1			2		3		3			X	2	X	X	X	X																	
Eucalyptus racemosa	Narrow-leaved Scribbly Gum															3	3	1	3	3	4									3																
Eucalyptus resinifera	Red Mahogany																											X									1									
Eucalyptus robusta	Swamp Mahogany																																								X					
Eucalyptus saligna	Sydney Blue Gum																																													
Eucalyptus sieberi	Silvertop Ash											1	1	3	3																															
Eucalyptus squamosa	Scaly Bark												3																																	
Eucalyptus tereticornis	Forest Red Gum																																													
Eucalyptus umbra	Bastard White Mahogany																					X																								
Kunzea ambigua	Tick Bush								2																										1		1	X								
Leptospermum arachnoides	Spidery Teatree																	1										X		2	2	2							2							
Leptospermum polygalifolium	Yellow Teatree		1	1					1									1									X																			
Leptospermum squarrosum	Pink Tea-tree																																				2		2	X						
Leptospermum trinervium	Paperbark Teatree	3	2	3	4	3	3	2		3	3	3	3	1	2	2	3	2	4	4	3		4	X	3	X	X	X	X	3	3	3	4	4	3	4	3									
Melaleuca ericifolia	Swamp Paperbark																																								X	X				
Melaleuca styphelioides	Prickly-leaved Paper-bark																																													
Micromyrtus ciliata	Fringed Heath-myrtle																																1			1										
Syncarpia glomulifera	Turpentine									2																																				
Tristaniopsis laurina	Water Gum	3																																												
Family Olacaceae																																														
Olax stricta	Olax																						1																							
Family Oleaceae																																														
Notelaea longifolia	Large Mock-olive																					X																								

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Family Oxalidaceae																																																																																			
Oxalis sp.		1	1													X									2																																																										
Family Passifloraceae																																																																																				
Passiflora herbertiana	Native Passionfruit																										2																																																										
Family Pittosporaceae																																																																																					
Billardiera scandens	Appleberry			1												X	X	X	X	2		X	X	1	1	1	1	2	1		X	X			1			X		2		1	1	1	2		2			1	1	1		1	1	1		1		1		1	X								2		1										
Bursaria spinosa	Blackthorn							X							2				X															2	2	X	X																																															
Pittosporum revolutum	Rough-fruit Pittosporum			1	2										1												1		1																																																							
Pittosporum undulatum	Pittosporum		2	3	4		4	X	1	X					3	X	X			1			X		1		1	2	2	2	X	X			1											2	2				2								X		X		X		X																				
Rhytidosporum procumbens																																															1																																						
Family Polygalaceae																																																																																			
Comesperma ericinum	Matchheads																		X																						1							3							1																2												
Family Polygonaceae																																																																																				
Persicaria decipiens	Slender Knotweed	1	1																					1																																																						1		
Persicaria hydropiper	Water Pepper		1																																																																													1		
Family Primulaceae																																																																																				
Samolus repens	Creeping Brookweed																																																																																	3	1	3
Family Proteaceae																																																																																				
Banksia ericifolia	Heath Banksia																																						1	1	1						2		1	1							2	2		1							3	2	4	3	2	3	1	4		2	X						
Banksia integrifolia	Coast Banksia																																2	2	2	X																							X																									
Banksia marginata	Silver Banksia																																						3									2																			2						3										
Banksia oblongifolia	Rock Banksia																					X																		1							2			2		2		2			3			1							2	3	2	3	3	1	1	2		2	X						
Banksia serrata	Old Man Banksia															X								1		1		2						1	1	X			1	2	3	2	2	2	1		2	2		3	3	3	3	2	2	2	3			2		3		X	X		2	1		3	3	2											
Banksia spinulosa	Hairpin Banksia	1														X		X		2	X	X			1			1			X								1			2	2		1		2	2	2	1	3	2	1		1	1	1	2		2	X	1	X	X	X						2		1										
Conospermum longifolium	Long-leaf Coneseeds																																										1					1	2	2	1	1	2	2		2	1			1		2		X																				
Conospermum taxifolium	Coneseeds																																																																		1																
Grevillea buxifolia	Grey Spider-flower															X	X									1									2				1	1	1	2	1	1	2		3	2		1	2	2	1	2		1	1			1		1	X	X			1		2	2	2	1	2										
Grevillea linearifolia	White Spider-flower	1																						2		2	1												3	2		2			3	2	3										1	3		1																							
Grevillea mucronulata	Green Spider-flower																																																															X																				
Grevillea sericea	Pink Spider-flower																X					X	X																		2				1			1							1	1														1	2	1	1										
Grevillea speciosa	Red Spider-flower																																										1				2		2		1																2	2	1						X								
Hakea dactyloides s.lat.		1																		2	X					1								2	3	X				1	1	3	2					1		2		1		2		1	1	2		1		1	X		X		1	1	2	1	3	1	1										
Hakea gibbosa																																																		1																		3						1		1							
Hakea propinqua																																										1											2													2			1													
Hakea salicifolia	Willow-leaved Hakea																																																												X																						
Hakea sericea	Silky Hakea															X				2	X	X		2		1						X			1			X	2			1	1		1	1	2		1	1	2			2	2	3	1	3		1			X	X	X					1	2		3										
Hakea teretifolia	Dagger Hakea																																																																			1								1	X						
Isopogon anemonifolius	Broad-leaf Drumsticks																					X						2																				2	1	1		1			1		2			2		1																					
Isopogon anethifolius	Narrow-leaf Drumsticks																																								1												2					1									2		2			3	3	1									
Lambertia formosa	Mountain Devil															X	X			2	X			2														X	1	1		1	2	1	1		1	3	2	2	3	2	2	2	1	1	2	2		2	X	2	X	X	X	X	1		2	2	2		2										
Lomatia myricoides	River Lomatia	1	1	1																																			1							2																																						
Lomatia silaifolia	Crinkle Bush	1														X	X	X	X	2	X	X		1				2		1	X	X		1				X				1	1			1	1	1	1	1	1	1	1		1	1	1	1		1		1	X	X	X		1	1			1												
Persoonia lanceolata	Lance-leaf Geebung																															X												1			1				1																	1		1			1										
Persoonia laurina	Golden Geebung																			2	X			1				1				X						X														1																															
Persoonia levis	Broad-leaved Geebung																			3	X	X		1				2		1		X						X	2			1	2	1	1		1	1	1	1	2	1		1		1	1	1		2		1		X	X		1		1	1	2	2	1										

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13
Persoonia linearis	Narrow-leaved Geebung	1												X				X	X				X		2	1	1					X	1	2		X		
Persoonia pinifolia	Pine-leaf Geebung															X	X							1		1		1		2	X	X						
Petrophile pulchella	Conesticks																			2															1			
Telopea speciosissima	Waratah																																					
Xylomelum pyriforme	Woody Pear													X							X					1		1										X
Family Ranunculaceae																																						
Clematis aristata	Old Man's Beard			1	2			X	1							X										1		1			X		1					
Clematis glycinoides	Headache Vine														1												1											X
Family Rhamnaceae																																						
Cryptandra amara																																						
Pomaderris discolor	Pomaderris																									1												
Pomaderris elliptica	Smooth Pomaderris																										1					X						
Pomaderris intermedia																							X												2			
Pomaderris lanigera	Woolly Pomaderris	1																								1												
Family Rubiaceae																																						
Galium binifolium					1				1																				1	1								
Morinda jasminoides	Jasmine Morinda			2	3	X				X	2														1		1		2	2								
Opercularia aspera	Coarse Stinkweed																							1	1				1									
Opercularia diphylla																													1			X						
Opercularia hispida	Hairy Stinkweed														2																							
Opercularia varia	Variable Stinkweed																			1																		
Pomax umbellata	Pomax															X												1			X			1				X
Family Rutaceae																																						
Boronia floribunda	Pale-pink Boronia																																					
Boronia ledifolia	Sydney Boronia																																		1			
Boronia pinnata	Pinnate Boronia																				X																	
Correa reflexa	Common Correa																						X															
Eriostemon australasius	Waxflower																																					
Leionema dentatum	Toothed Phebalium	1																																	3			
Philotheca hispidula																										2												
Zieria pilosa	Hairy Zieria																								1		1			1				1				
Zieria smithii	Sandfly Zieria						1																						1		X							
Family Santalaceae																																						
Exocarpus cupressiformis	Cherry Ballart																	X	X																			
Leptomeria acida	Sour Currant Bush																																					
Family Sapindaceae																																						
Dodonaea triquetra	Common Hop Bush			2											3	X		X	X	2		X		2	2	4	1	2		4		X	1	3	3			
Family Scrophulariaceae																																						
Veronica plebeia	Trailing Speedwell	1													1	X														1								
Family Solanaceae																																						
Solanum americanum	Glossy Nightshade	2																																				
Solanum aviculare/vescum																											1											
Family Sterculiaceae																																						
Lasiopetalum ferrugineum	Rusty-petals																	X	X	2	X	X																
Seringia arborescens																											1											

Scientific name	Common name	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Persoonia linearis	Narrow-leaved Geebung		2		1														2					X																						
Persoonia pinifolia	Pine-leaf Geebung	2		1	1	1	1	1		2		1		1	1						3				1	X		X			1															
Petrophile pulchella	Conesticks	1	2	1							1	2	3			2		2	1	1	2		1		1	X		X		2	3	1	1	2	2	1	1		1							
Telopea speciosissima	Waratah																								1																					
Xylomelum pyriforme	Woody Pear										1			1	1										1																					
Family Ranunculaceae																																														
Clematis aristata	Old Man's Beard																																											1		
Clematis glycinoides	Headache Vine																																													
Family Rhamnaceae																																														
Cryptandra amara																															1															
Pomaderris discolor	Pomaderris																																													
Pomaderris elliptica	Smooth Pomaderris								1																																					
Pomaderris intermedia																																														
Pomaderris lanigera	Woolly Pomaderris																																													
Family Rubiaceae																																														
Galium binifolium																																														
Morinda jasminoides	Jasmine Morinda								1	1																																				
Opercularia aspera	Coarse Stinkweed		1	1					1																																					
Opercularia diphylla																																														
Opercularia hispida	Hairy Stinkweed																																													
Opercularia varia	Variable Stinkweed																																													
Pomax umbellata	Pomax						2				2																X																			
Family Rutaceae																																														
Boronia floribunda	Pale-pink Boronia																																		1	1										
Boronia ledifolia	Sydney Boronia	1		2		1		1				1	2		1					1			2		1							2		2		3	1									
Boronia pinnata	Pinnate Boronia					1						1								2	1				2							2														
Correa reflexa	Common Correa																																													
Eriostemon australasius	Waxflower			2		1								1		2							1							1																
Leionema dentatum	Toothed Phebalium	2							2																																					
Philotheca hispidula			2	1	2												2																													
Zieria pilosa	Hairy Zieria	1		2						1																				1																
Zieria smithii	Sandfly Zieria																																													
Family Santalaceae																																														
Exocarpus cupressiformis	Cherry Ballart							1																																						
Leptomeria acida	Sour Currant Bush					1				1																																				
Family Sapindaceae																																														
Dodonaea triquetra	Common Hop Bush		2	2	1			4	2	3							2																													
Family Scrophulariaceae																																														
Veronica plebeia	Trailing Speedwell																																													
Family Solanaceae																																														
Solanum americanum	Glossy Nightshade																																											2		
Solanum aviculare/vescum																																														
Family Sterculiaceae																																														
Lasiopetalum ferrugineum	Rusty-petals							1																																						
Seringia arborescens																																														

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13
Family Stylidiaceae																																						
Stylidium lineare	Narrow-leaved Triggerplant																																					
Stylidium productum		1																							2	2												
Family Thymelaeaceae																																						
Pimelea curviflora	Curved Rice-flower																			2																		
Pimelea linifolia	Slender Rice-flower																																					
Family Tremandaceae																																						
Tetratheca ericifolia																																						
Tetratheca glandulosa																																						
Tetratheca thymifolia	Black-eyed Susan																	X	X						1									1				
Family Ulmaceae																																						
Trema tomentosa	Native Peach																X										1											
Family Verbenaceae																																						
Clerodendrum tomentosum	Hairy Clerodendrum			1																													1		1			
Family Violaceae																																						
Viola hederacea	Ivy-leaved Violet	1		1			2		1		1		X		1													1										
Family Vitaceae																																						
Cayratia clematidea	Slender Grape																																2					
Cissus hypoglauca	Giant Water Vine										1	X															3						1	1				
Subclass Liliidae	**Monocotyledons**																																					
Family Anthericaceae																																						
Caesia parviflora	Pale Grass-lily																			1								1										
Laxmannia gracilis	Slender Wire Lily																X																					
Tricoryne simplex																				1								2										
Family Commelinaceae																																						
Commelina cyanea	Scurvy Weed		1													X																						
Family Cyperaceae																																						
Caustis flexuosa	Curly Wig																X																					
Caustis pentandra																																						
Cyathochaeta diandra	Sheath Rush															X	X		X	2	X	X						1				X						
Cyperus polystachyos													X																									
Gahnia aspera	Rough Saw-sedge																																	1	1		X	
Gahnia clarkei	Tall Saw-sedge												X																									
Gahnia erythrocarpa																																						
Gahnia sieberiana																																						
Lepidosperma filiforme																														1								
Lepidosperma laterale/gunnii				1										X	1		X	X	X			X	X		1	1		1		3		X	1	3	2			X
Lepidosperma viscidum	Sticky Sword-sedge																																					
Ptilothrix deusta																						X																
Schoenus brevifolius	Zig-zag Bog-rush																																					
Schoenus ericetorum	Heath Bog-rush																																					
Schoenus imberbis																																			1			
Schoenus lepidosperma																																						
Schoenus melanostachys	Black Bog-rush																																					

Scientific name	A									C			E		F						S	B		D				T
	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb
Family Stylidiaceae																												
Stylidium lineare																												
Stylidium productum	2	2	1		2	2					2							2	1	3								
Family Thymelaeaceae																												
Pimelea curviflora																												
Pimelea linifolia	1		1		2	1	2			1	1				1	1			1			2						
Family Tremandaceae																												
Tetratheca ericifolia					2						1					1			1									
Tetratheca glandulosa												1			1													
Tetratheca thymifolia	2	2																				2						
Family Ulmaceae																												
Trema tomentosa																												
Family Verbenaceae																												
Clerodendrum tomentosum																												
Family Violaceae																												
Viola hederacea																												
Family Vitaceae																												
Cayratia clematidea																												
Cissus hypoglauca								2	1																			
Subclass Liliidae																												
Family Anthericaceae																												
Caesia parviflora										1			1									1						
Laxmannia gracilis									1																			
Tricoryne simplex							1																					
Family Commelinaceae																												
Commelina cyanea																												
Family Cyperaceae																												
Caustis flexuosa	1		1	1	3		3		2	2	2	2	2	2		2		1	3	2				3	X			
Caustis pentandra																												
Cyathochaeta diandra					1				2	1	1	2		2	1		2		2			1		1	X	X	X	X
Cyperus polystachyos																												
Gahnia aspera																												
Gahnia clarkei								2																				
Gahnia erythrocarpa	2	1	1		1				1										1									
Gahnia sieberiana																1												
Lepidosperma filiforme	1		1		1				1													1						
Lepidosperma laterale/gunnii	1	1		1		1	2	1	2	1			1			1		1		2		2					X	
Lepidosperma viscidum																												
Ptilothrix deusta				1									1		1	3												
Schoenus brevifolius																												
Schoenus ericetorum																												
Schoenus imberbis	1		3	1		1			1				1			1						2		1				
Schoenus lepidosperma																												
Schoenus melanostachys		1																										

Scientific name	G							H		I		SF1	SF2	SF3	SO	W	CS
	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Family Stylidiaceae																	
Stylidium lineare		2															
Stylidium productum								2									
Family Thymelaeaceae																	
Pimelea curviflora																	
Pimelea linifolia	1	1					2										
Family Tremandaceae																	
Tetratheca ericifolia																	
Tetratheca glandulosa				1	2		2										
Tetratheca thymifolia																	
Family Ulmaceae																	
Trema tomentosa																	
Family Verbenaceae																	
Clerodendrum tomentosum																	
Family Violaceae																	
Viola hederacea																	
Family Vitaceae																	
Cayratia clematidea																	
Cissus hypoglauca																	
Subclass Liliidae																	
Family Anthericaceae																	
Caesia parviflora	1			1	2												
Laxmannia gracilis				1													
Tricoryne simplex																	
Family Commelinaceae																	
Commelina cyanea															2		
Family Cyperaceae																	
Caustis flexuosa	1		1			1											
Caustis pentandra			1			3			X								
Cyathochaeta diandra	1	2	2	4	3		3	1									
Cyperus polystachyos												X					
Gahnia aspera																	
Gahnia clarkei																	
Gahnia erythrocarpa																	
Gahnia sieberiana								1									
Lepidosperma filiforme	2		2					1			X						
Lepidosperma laterale/gunnii				1			2										
Lepidosperma viscidum								2	X								
Ptilothrix deusta	2	3		3			2	2									
Schoenus brevifolius		2								4	X						
Schoenus ericetorum				1													
Schoenus imberbis	1					1											
Schoenus lepidosperma		3					1										
Schoenus melanostachys																	

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1								
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3
Schoenus paludosus																																
Schoenus turbinatus																																
Schoenus villosus	Hairy Bog-rush																															
Family Haemodoraceae																																
Haemodorum corymbosum	Rush-leaf Bloodroot																															
Family Iridaceae																																
Patersonia fragilis	Short Purple-flag																															
Patersonia glabrata	Leafy Purple Flag																		X	1	X	X	X					1		1		
Patersonia longifolia	Dwarf Purple Flag																			2								1				
Patersonia sericea	Silky Purple-flag																						X									
Family Juncaceae																																
Juncus kraussii	Sea Rush																															
Juncus usitatus	Common Rush										1				1									1								
Family Juncaginaceae																																
Triglochin striata	Streaked Arrow-grass																															
Family Lomandraceae																																
Lomandra brevis	Tufted Mat-rush																															
Lomandra confertifolia	Slender Mat-rush																															
Lomandra cylindrica	Needle Mat-rush															X			X							1					X	X
Lomandra filiformis	Wattle Mat-rush														1	X											1		1	1	X	X
Lomandra glauca	Pale Mat-rush																	X		1		X	X	1		1		1			X	
Lomandra gracilis																X	X	X	X				X	1	1						X	X
Lomandra longifolia	Spiny-headed Mat-rush	2	2	2	2		2		1	X		X		X	2		X	X	X		X		X	3	2	2	1	1	1	1	X	X
Lomandra multiflora	Many-flowered Mat-rush														1		X		X	1				1						1		X
Lomandra obliqua	Twisted Mat-rush															X	X	X	X	1	X			1		1		2		1	X	X
Family Luzuriagaceae																																
Eustrephus latifolius	Wombat Berry			1	2	X	2		2		1																1		2			
Geitonoplesium cymosum	Scrambling Lily			1		X																										
Family Orchidaceae																																
Acianthus sp.																									2				1	1		
Caleana major	Large Duck Orchid																															
Calochilus sp.																												1				
Cryptostylis erecta	Tartan Tongue Orchid																X										1					
Cryptostylis subulata	Large Tongue Orchid																		X	2												
Cymbidium suave	Snake Orchid																															
Dendrobium linguiforme	Tongue Orchid																															
Dipodium punctatum s.lat.	Hyacinth Orchid																			1												
Prasophyllum striatum	Streaked Leek Orchid																															
Family Phormiaceae																																
Dianella caerulea	Blue Flax Lily	1		2	1	X			1		1	X	X	X	3	X	X	X	X	2			X	1	2	1	2	2	2	2	X	X
Dianella prunina																					X	X						1				
Dianella revoluta	Mauve Flax Lily															X	X	X													X	
Family Poaceae																																
Ancistrachne maidenii																																
Anisopogon avenaceus	Oat Speargrass																				X							3				

Scientific name	Q1			Q2	R	SS	A									C			E		F					
	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30
Schoenus paludosus																										
Schoenus turbinatus																									1	
Schoenus villosus																										
Family Haemodoraceae																										
Haemodorum corymbosum																										
Family Iridaceae																										
Patersonia fragilis																								1	1	
Patersonia glabrata						X					1		1		1		1									1
Patersonia longifolia			1										1		2										1	
Patersonia sericea								1		1							1	1	2	1	2	1				
Family Juncaceae																										
Juncus kraussii																										
Juncus usitatus																										
Family Juncaginaceae																										
Triglochin striata																										
Family Lomandraceae																										
Lomandra brevis																			1			1	1			
Lomandra confertifolia			3																							
Lomandra cylindrica		1							1	1						1		2		1			1			1
Lomandra filiformis							1		1		1					1	1					2			2	1
Lomandra glauca			3			X		2	2	3						2	2	2	1	2	2	2		3	3	2
Lomandra gracilis							2	1	2			1	1		2	3				1						
Lomandra longifolia	1	2	1	X		X	2	2	2	1	2	2	2	3	1				1				1	1		1
Lomandra multiflora			1			X				2									1							
Lomandra obliqua		1				X	1		1		1	2	2		2	1			1							2
Family Luzuriagaceae																										
Eustrephus latifolius	1		1	X											1											
Geitonoplesium cymosum																										
Family Orchidaceae																										
Acianthus sp.		2							1		1	1				1										
Caleana major												1														
Calochilus sp.																										
Cryptostylis erecta														1	2	1			1	1						1
Cryptostylis subulata																										1
Cymbidium suave	1																									1
Dendrobium linguiforme			1																							
Dipodium punctatum s.lat.																										
Prasophyllum striatum																										
Family Phormiaceae																										
Dianella caerulea	1	2	1	X		X	1	2	2	1		1	2	2	2	1	1	1	1	1	2		1	1	1	2
Dianella prunina												2	1		1											
Dianella revoluta			2			X																				
Family Poaceae																										
Ancistrachne maidenii			1																							
Anisopogon avenaceus								2					1			2	3	2	2	2	2			2	3	3

Scientific name	S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Schoenus paludosus																		2	X						
Schoenus turbinatus																									
Schoenus villosus											1														
Family Haemodoraceae																									
Haemodorum corymbosum										1															
Family Iridaceae																									
Patersonia fragilis						X					1														
Patersonia glabrata		1										1	2	2	2	1									
Patersonia longifolia												1	1		1										
Patersonia sericea				1				X		1	1														
Family Juncaceae																									
Juncus kraussii																					X		2	1	6
Juncus usitatus																									
Family Juncaginaceae																									
Triglochin striata																							2		
Family Lomandraceae																									
Lomandra brevis				1		X			1																
Lomandra confertifolia																									
Lomandra cylindrica			X		X						1		2												
Lomandra filiformis											1		2												
Lomandra glauca		2		2	X	X		X	1	2	2	2	2		3										
Lomandra gracilis		1				X						1	2	2	2	1									
Lomandra longifolia	X	1	X			X																			
Lomandra multiflora		1			X		X																		
Lomandra obliqua		2			X	X	X							1											
Family Luzuriagaceae																									
Eustrephus latifolius																									
Geitonoplesium cymosum																									
Family Orchidaceae																									
Acianthus sp.																									
Caleana major																									
Calochilus sp.																									
Cryptostylis erecta																									
Cryptostylis subulata																1									
Cymbidium suave																									
Dendrobium linguiforme																									
Dipodium punctatum s.lat.																									
Prasophyllum striatum																1									
Family Phormiaceae																									
Dianella caerulea	X	1	X	1	X	X	X									1									
Dianella prunina						X								1											
Dianella revoluta																									
Family Poaceae																									
Ancistrachne maidenii																									
Anisopogon avenaceus				2	X				1		2	2	2	1	3	1									

Scientific name	Common name	O1				O2	BG1		BG2		RF1		RF2	N	TI					DF				L1									Q1			Q2	R	SS	A									C			E		F						S	B		D				T	G							H		I		SF1	SF2	SF3	SO	W	CS
		B3	B24	B32	P14	Hc	P13	Ho	B20	Hi	B18	Hm	H14	Ha	P9	H1	H5	H11	H12	P16	H4	H6	H7	B4	B6	B25	P1	P4	P7	P8	H2	H3	B17	B19	B31	Hj	Hg	H13	B1	B7	B26	B27	B37	P2	P6	P11	P15	B13	B28	B36	B23	B35	B5	B11	B21	B22	B29	B30	Hk	B2	Hh	B33	H8	H9	H10	Hb	B8	B9	B34	P3	P5	P10	P12	B12	Hn	B10	Hl	Hd	He	Hf	B14	B16	B15
Aristida benthamii																																																															X																				
Aristida ramosa																	X																																																																		
Aristida vagans	Threeawn Speargrass															X	X	X	X		X	X													2			X																							X	X	X																			
Austrodanthonia pilosa	Smooth-flower Wallaby Grass														2																																																																				
Austrodanthonia tenuior																X	X											1																																																						
Austrostipa pubescens	Tall Speargrass													X			X	X	X	2	X	X	X	2	1			2				X		2	2			X		2		1			2										2	3		1					X	X	X						1			1									
Austrostipa rudis																														3																																																					
Cynodon dactylon	Common Couch												X																																																																	X					
Cymbopogon refractus	Barbed Wire Grass															X	X																																																																		
Dichelachne micrantha	Shorthair Plumegrass														2													1																											1																													
Dichelachne rara s.lat																																X															1																X																				
Digitaria parviflora	Small-flowered Finger Grass															X																X		1																																																
Echinopogon caespitosus	Hedgehog Grass	1													2	X	X			1			X	1						1								X																									X		X																		
Entolasia marginata	Bordered Panic					X			1		2		X		2	X	X										1			2		X					X									2	1									1																											
Entolasia stricta	Wiry Panic	1		2	1								X	X		X	X	X	X	3	X	X	X	2	2	3	2	3		3	X	X		3	3	X	X	X	2	3	2	3			3		3	2	1	2	3	1		2	2	2	1	3	X	2			X	X	X	X				2		1	1			1							
Eragrostis brownii	Brown's Lovegrass																					X									X				1			X			1													1									X	X	X																		
Eragrostis leptostachya	Paddock Lovegrass																X																																																																			
Hemarthria uncinata	Matgrass																																																																														X					
Imperata cylindrica	Blady Grass							X			1	X				X		X		3		X	X	1	2	1				2		X	2																														X	X	X													X					
Microlaena stipoides	Weeping Grass		1		1	X			2	X						X	X	X					X	1	2	2		2	1	3	X	X		1				X		1																							X																			1		
Oplismenus aemulus	Basket Grass	1			2		2			X					2	X	X										1			3			1	1												2																																							
Oplismenus imbecilis	Basket Grass	2	2						2		3	X					X							2			4		1		X																																																				
Panicum simile	Two Colour Panic															X	X	X	X	2	X	X	X									X						X																																															
Paspalidium distans													X				X																																																																			
Phragmites australis	Common Reed												X																																																																		X	X			
Poa affinis			1	1	1		2		3		1													2	2		2			2		X	3	2					1							2													X																									
Sporobolus virginicus	Sand Couch																																																																															3		3
Tetrarrhena juncea	Wiry Ricegrass																													2	X														3																																								
Themeda australis	Kangaroo Grass													X	4	X	X	X	X	5		X	X							2		X		3	3		X	X																												X																	
Family Restionaceae																																																																																					
Empodisma minus	Spreading Rope-rush																																																																												1							
Leptocarpus tenax	Slender Twine-rush																																																																												X						
Lepyrodia scariosa	Scale-rush																																							1	1		3				1		2				1	3	1	1	3	2					X				3	3	2	1	1		2	2	X	2	X						
Restio fastigiatus																																																																													X						
Family Smilacaceae																																																																																				
Smilax australis	Sarsaparilla								3																																																																											
Smilax glyciphylla	Sweet Sarsaparilla	1		2	3		2										X	X						2	1	1	2	1	3	2	X		1	3	2	X			2	2	1	1	1			2	2											1	X		X	1																					
Family Xanthorrhoeaceae																																																																																			
Xanthorrhoea arborea	Broad-leaf Grass-tree	1		1										X										2	2	3	1		1					3	1	X			2	1					2	2													X	2	X																						
Xanthorrhoea media/resinifera																X		X	X		X	X			1	2								2	1			X	2	2	2	1		2	1			1	2	1	3	1	3	2	1	3	1	2		2		3	X	X	X		1			2	1	1		1		1	X						
Family Xyridaceae																																																																																				
Xyris gracilis	Slender Yellow-eye																																																																		1	3								1							