

Table 1

Occurrences of native species in bushland areas within 5 km of Whites Creek

NOTES: 1. See accompanying text for key to column heading abbreviations

2. Letters in cells of matrix indicate abundance, assessed subjectively: A = abundant; F = frequent; O = occasional

3. A "7" after abundance code indicates a suspicion that the species has been planted at this locality

Species — botanical and common names		Growth form	Bushland area and subdivision																								
			BH	BI	SP	GC1	GC2	GC3	GC4	CPR	GR1	GR2	GR3	GR4	GR5	GR6	GR7	GR8	BP	TC1	TC2	GP1	GP2	GP3	IP	SR	
1. Pteridophytes																											
Adiantaceae																											
Adiantum aethiopicum	Maidenhair Fern	Fern	O																					O	O		
Aspleniaceae																											
Asplenium australasicum	Birds-nest Fern	Epiphyte							O																		
Blechnaceae																											
Blechnum nudum	Fishbone Water Fern	Fern			O																						
Doodia caudata	Small Rasp Fern	Fern			O																				O		
Cyatheaceae																											
Cyathea australis	Rough Tree-fern	Tree fern							F																F		
Dennstaedtiaceae																											
Histiopteris incisa	Batswing Fern, Oak Fern	Fern	O		O			O	F																F		
Hypolepis muelleri	Harsh Ground Fern	Fern							F					O										O	A		
Pteridium esculentum	Bracken	Fern	O	F	F	F			F	F										F	F	F	F	A	F	F	F
Dicksoniaceae																											
Calochlaena dubia	Rainbow Fern, Soft Bracken	Fern			O	O			O	F													F	A	A		F
Gleicheniaceae																											
Gleichenia dicarpa	Pouched Coral-fern	Fern							F																O		
Lindsaeaceae																											
Lindsaea linearis	Screw Fern	Fern																							O		
Lindsaea microphylla	Lacy Wedge-fern	Fern																							O		
Osmundaceae																											
Todea barbara	King Fern	Fern							O															O	O		
Polypodiaceae																											
Platyterium bifurcatum	Elkhorn Fern, Staghorn Fern	Fern																							O		O

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			BH	BI	SP	GC1	GC2	GC3	GC4	CPR	GR1	GR2	GR3	GR4	GR5	GR6	GR7	GR8	BP	TC1	TC2	GP1	GP2	GP3	IP	SR	
Psilotaceae																											
Psilotum nudum	Skeleton Fork-fern	Fern (ally)													O												
Pteridaceae																											
Pteris tremula	Tender Brake	Fern																						O			
Sinopteridaceae																											
Cheilanthes sieberi subsp. sieberi	Rock Fern	Fern																							O		
Pellaea falcata var. falcata	Sickle Fern	Fern																						O	O	O	
Thelypteridaceae																											
Christella dentata	Binung	Fern																							F		
2. Dicotyledons																											
Myrtaceae																											
Corymbia gummifera	Red Bloodwood	Medium tree																							F	F	
2. Gymnosperms																											
Cupressaceae																											
Callitris rhomboidea	Port Jackson Cypress-pine, Oyster Bay Pine	Small tree																								O?	
Podocarpaceae																											
Podocarpus spinulosus		Shrub																							O		
3. Dicotyledons																											
Acanthaceae																											
Pseuderanthemum variable		Perennial herb	O		O																						
Alzooaceae																											
Lampranthus tegens		Herb																						O			
Tetragonia tetragonoides	New Zealand Spinach, Native Spinach, Wa	Herb																						O			
Amaranthaceae																											
Alternanthera denticulata	Lesser Joyweed	Herb													O									F	O		
Aplaceae																											
Actinotus helianthi	Flannel Flower	Shrub																								O	
Centella asiatica	Heart-leaved Pennywort	Herb													O									O	O	F	
Platysace lanceolata	Lance-leaf Platysace	Shrub																						O	F	F	
Trachymene indica		Herb																						O		O	
Xanthosia pilosa		Herb																						F	O	O	
Xanthosia tridentata		Herb																						O		O	

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Araliaceae																										
Polyscias sambucifolia subsp. sambucifolia	Elderberry Panax	Shrub	F	F	F	F			O		O	O		O		O		O	O	O		F	F	F	F	F
Asteraceae																										
Cassinia sp. (unidentified)		Shrub																								
Olearia microphylla		Shrub																							O	
Ozothamnus diosmifolius	Pill Flower, White Dogwood	Shrub	O						O		O													O	O	F
Avicenniaceae																										
Avicennia marina var. Grey Mangrove		Medium tree																								
Bignoniaceae																										
Pandorea pandorana	Wonga Vine	Climber	F	F	F	F	F	F	F	F	O	O	O	F	O	O	O	O	O	F	F	O	O	O	O	F
Campanulaceae																										
Wahlenbergia gracilis	Sprawling Bluebell	Herb									O															
Casuarinaceae																										
Allocasuarina littoralis	Black She-Oak	Small tree		O		O		F	F		O?										O		F	F	O	F
Allocasuarina paludosa		Shrub									O?															
Allocasuarina torulosa	Forest Oak, Forest She-oak	Medium tree		O							O?														O	
Casuarina glauca	Swamp Oak, Swamp She-oak	Medium tree	F	F	F	F			F		O?							O?					F	F	F	O
Centrolepidaceae																										
Centrolepis strigosa		Grass(like)																								
Chenopodiaceae																										
Atriplex australasica	Prostrate Orache	Herb																								
Einadia trigonos subsp. trigonos	Fishweed	Herb																								
Sarcocornia quinqueflora	Glasswort, Samphire	Herb																								
Suaeda australis	Seablite	Herb																								
Convolvulaceae																										
Dichondra micrantha	Kidney-weed	Herb																								
Dichondra repens	Kidney-weed, Mercury Bay Weed	Herb																								O
Cunoniaceae																										
Callicoma serratifolia	Blackwattle	Shrub									O?														F	F
Ceratopetalum apetalum	Coachwood	Medium tree									O?															O
Ceratopetalum gummiferum	NSW Christmas Bush	Small tree																							O	O
Dilleniaceae																										
Hibbertia aspera	Rough Guinea-flower	Shrub																								
Hibbertia dentata	Toothed Guinea-flower	Climber																							O	O

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Hibbertia linearis	Guinea-flower	Shrub																									
Hibbertia scandens	Twining Guinea-flower	Climber	O		O																			O			
Elaeocarpaceae																											
Elaeocarpus reticulatus	Blueberry Ash	Small tree	O		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	F	F	F	F			
Epacridaceae																											
Brachyoma daphnoides	Daphne Heath	Shrub																				O				O	
Epacris longiflora	Fuchsia Heath	Shrub					F	O													O	F	F	F			
Epacris pulchella		Shrub																						O	O	O	
Leucopogon ericoides	Beard-heath	Shrub																								O	
Leucopogon juniperinus	Long-flowered Beard-heath	Shrub			O					F	O									O	O					F	
Leucopogon lanceolatus	Lance-leaf Beard-heath	Shrub																					F	F			
Monotoca elliptica	Tree Broom-heath	Shrub		O						O	O				F	O				O	F			A			
Monotoca scoparia	Prickly Broom-heath	Shrub																							O		
Euphorbiaceae																											
Breynia oblongifolia	Coffee Bush	Shrub			O	F	O			F																	
Glochidion ferdinandii	Cheese Tree	Small tree	A	F	F	F			F	O	O	F	O		O	O							F			O	
Omalanthus populifolius	Bleeding Heart Tree, Native Poplar	Shrub		O		F			F					O	O								O	F		O	
Phyllanthus hirtellus	Thyme Spurge	Shrub			O															O						O	
Poranthera microphylla	Small Poranthera	Herb																								O	
Ricinocarpus pinifolius	Wedding Bush	Shrub																								O	
Fabaceae Faboideae																											
Aotus ericoides	Common Aotus	Grass																									
Bossiaea heterophylla		Shrub																									
Dillwynia retorta	Eggs-and-bacon Pea, Parrot Pea	Shrub					O								O								F	O	F	O	
Glycine clandestina	Twining Glycine	Climber								F																	
Hardenbergia violacea	False Sarsaparilla	Climber			O	O				O													O	O	O	F	
Hovea linearis	Narrow-leaf Hovea	Shrub																									
Kennedia rubicunda	Dusky Coral-pea	Climber	O	O	F	O				O	O	O						O					O	F	O	O	
Platylobium formosum	Handsome Flat-pea	Shrub			O	O	O			O														F	O	F	
Pultenaea flexilis		Shrub								O																	
Pultenaea retusa		Shrub																								O	
Fabaceae Mimosoideae																											
Acacia binervia	Coast Myall	Medium tree																						O	F		
Acacia floribunda	Sally Wattle	Shrub		O								O	O							O?							
Acacia implexa	Lightwood, Hickory	Medium tree	F	A	O?	F																					

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Acacia linifolia	Flax Wattle	Shrub			O																			O		
Acacia longifolia	Sydney Golden Wattle	Shrub	F	F				F	O	O?												F	O	O	F	F
Acacia myrtifolia	Myrtle Wattle	Shrub																								
Acacia parramattensis	Sydney Green Wattle	Small tree			O		O?	F		O?																
Acacia suaveolens	Sweet Wattle	Shrub	O	O				O		F		O		O					O	F	O	F	O	F	F	
Acacia terminalis	Sunshine Wattle	Shrub						O		F	F	F	O	O		O		F	O		O	F	O			O
Acacia ulicifolia	Prickly Moses, Prickly Wattle	Shrub	O																F		O	O	O			F
Geraniaceae																										
Geranium homeanum	Native Geranium	Perennial herb			O				O																	
Goodeniaceae																										
Goodenia hederacea subsp. hederacea	Ivy Goodenia	Perennial herb									O									O						O
Haloragaceae																										
Gonocarpus teucrioides	Raspwort	Herb																				O	O	O		
Lauraceae																										
Cassytha paniculata	Devil's Twine, Dodder-laurel	Shrub	O				O	O																		
Cassytha pubescens	Devil's Twine, Dodder-laurel	Climber								O									O							O
Lobeliaceae																										
Lobelia alata	Angled Lobelia	Herb													O					F						
Lobelia dentata		Herb																					O			
Pratia purpurascens	Whiteroot	Herb																						O		
Loranthaceae																										
Dendrophthoe vitellina	Mistletoe	Parasite																				F				O
Lysiana subfalcata	Northern Mistletoe	Mistletoe																								
Muellerina eucalyptoides	Mistletoe	Mistletoe																								
Menispermaceae																										
Sarcopetalum harveyanum	Pearl Vine	Climber	O																							
Stephania japonica var. discolor	Snake Vine	Climber		O																						
Moraceae																										
Ficus rubiginosa	Port Jackson Fig, Rusty Fig	Medium tree	O	F		F	O	F	F	O	O	O	O	F	F	F	F	F	O	O	F					
Myrsinaceae																										
Rapanea variabilis	Muttonwood	Small tree	O			O				F									O	O						
Myrtaceae																										
Acmena smithii	Lilly-pilly	Medium tree			O?						F															
Angophora costata	Angophora, Rusty Gum, Sydney Red Gum	Medium tree	A	A	F	O				F										A		A	A	F	A	A

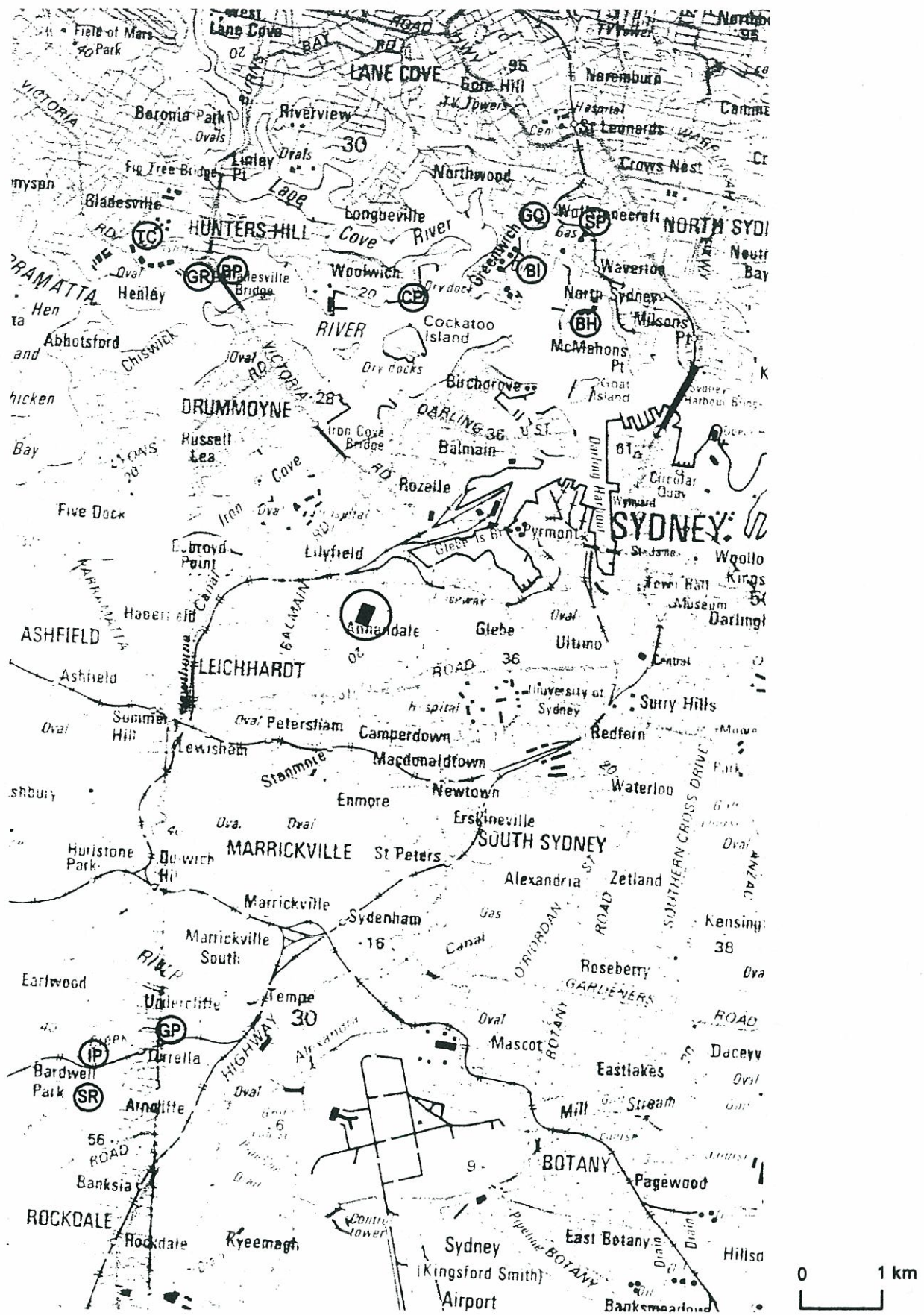
Species — botanical and common names		Growth form	Bushland area and subdivision																								
			BH	BI	SP	GC1	GC2	GC3	GC4	CPR	GR1	GR2	GR3	GR4	GR5	GR6	GR7	GR8	BP	TC1	TC2	GP1	GP2	GP3	IP	SR	
Angophora floribunda	Rough-barked Apple	Large tree	O				O																	O			
Callistemon linearis	Narrow-leaved Bottlebrush	Shrub																								O	
Callistemon salignus	White Bottlebrush, Pink-tips	Small tree			O?																						
Eucalyptus botryoides	Bangalay	Medium tree								O	FI												A				
Eucalyptus botryoides X saligna	Bangalay-Blue Gum hybrid	Large tree			F		O?																				
Eucalyptus haemastoma	Broad-leaved Scribbly Gum	Medium tree									O?								O							F	
Eucalyptus ptilularis	Blackbutt	Large tree	O	F	A	A	A	A	A		F				O					A			O	O	F	F	
Eucalyptus piperita	Sydney Peppermint	Medium tree						F	O										L		O	F	O			O	
Eucalyptus punctata	Grey Gum	Large tree		O	O					F																	
Eucalyptus resinifera	Red Mahogany	Large tree	F	F																							
Eucalyptus robusta	Swamp Mahogany	Large tree	O?	O			O?																				
Kunzea ambigua	Tick-bush	Shrub	O	F	O	F		F	F		F	F	A	O	F	F	A			F	A	F	A	A	A	F	
Leptospermum laevigatum	Coast Tea Tree	Shrub	O?																								
Leptospermum polygalifolium	Yellow Tea-tree, Tantoon Tea-Tree	Shrub			O																						
Leptospermum trinervium	Paperbark Tea-tree	Shrub																								O	
Melaleuca armillaris	Bracelet Honey-myrtle	Small tree									O?								O?								
Melaleuca linariifolia	Flax-leaved Paperbark, Snow-in-summer	Medium tree																		O	F	O	F	O		O	
Melaleuca nodosa	Bail Honey-myrtle	Small tree									O?											O	F	O		O	
Melaleuca styphelioides	Prickly Paperbark	Medium tree																						O			
Syncarpia glomulifera	Turpentine	Medium tree			F	O?				O?											F					F	
Syzygium australe	Brush Cherry	Medium tree			O?																			O			
Oleaceae																											
Notelaea longifolia forma intermedia	Mock-olive	Shrub		F					O					O											O		
Notelaea longifolia forma longifolia	Mock-olive	Shrub	F							O							O						O			O	
Notelaea ovata	Mock-olive	Shrub																						O	O		
Oxalidaceae																											
Oxalis exilis	Creeping Oxalis	Herb																			O		O			O	
Pittosporaceae																											
Billardiera scandens	Dumplings, Apple-berry	Climber																O		F		O	O	O			
Bursaria spinosa var. spinosa	Australian Boxthorn	Shrub			O																		O	O		O	
Pittosporum revolutum	Yellow Pittosporum	Small tree	F	F																			O		O	O	
Pittosporum undulatum	Sweet Pittosporum	Small tree	O	F	F	A	A	A	A	F	A	A	A	A	A	A	A	A	A	A	A	F	A	A	A	F	
Polygonaceae																											
Persicaria decipiens	Slender Knotweed	Herb																								O	
Rumex brownii	Slender Dock	Herb																									

[illegible]

Species — botanical and common names		Growth form	Bushland area and subdivision																								
			BH	BI	SP	GC1	GC2	GC3	GC4	CPR	GR1	GR2	GR3	GR4	GR5	GR6	GR7	GR8	BP	TC1	TC2	GP1	GP2	GP3	IP	SR	
Isoplepis inundata		Grass(like)																			O						
Isoplepis nodosa Knobby Club-rush		Grass(like)																			F						
Lepidosperma laterale Variable Sword-sedge		Grass(like)	A	O	O	F		F											F	O		O	O			F	
Lepidosperma viscidum Sticky Sword-sedge		Grass(like)																				O	F				
Schoenus melanostachys Black Bog-rush		Grass(like)																	O			O				O	
Juncaceae																											
Juncus continuus		Grass(like)			O											O											O
Juncus kraussii Sea Rush		Grass(like)															A			F							
Juncus usitatus Common Rush, Tussock Rush		Grass(like)			O		F			O									O				O	O	O		
Lomandraceae																											
Lomandra cylindrica Needle Mat-rush		Grass(like)						O																			O
Lomandra filiformis subsp. filiformis Wattle Mat-rush		Grass(like)		O			O		O	O	O				O												O
Lomandra gracilis		Grass(like)																				O	F	F			O
Lomandra longifolia Honey Reed, Spike Mat-rush		Grass(like)	A	F	F	A		F	F	F	O		O	A	F	A		F	A	F	A	F	A	F	A	F	A
Lomandra multiflora Many-flowered Mat-rush		Grass(like)		F							O				O					O							
Lomandra obliqua		Grass(like)		O							O												O				O
Luzuriagaceae																											
Eustrephus latifolius Wombat Berry		Climber	O	O					O																		O
Geitonoplesium cymosum Scrambling Lily		Climber	O																								
Phormiaceae																											
Dianella caerulea Blue Flax-ily		Grass(like)	A	F	F	F		F	F		O	O	O	O	O	O		O	F	F	F	F	F	F	F	F	F
Dianella longifolia Smooth Flax-ily		Grass(like)																				O		O	F	F	
Dianella revoluta Blue Flax-ily, Spreading Flax-ily		Grass(like)	O	O	O					F	O	O	O		O		O	O	O		F	F	F	F		O	
Poaceae																											
Anisopogon avenaceus Oat Spear Grass		Grass																				O	O				F
Aristida ramosa var. ramosa Purple Wiregrass		Grass								F									F								
Aristida vagans Wiregrass		Grass		O						O											O	O	O	O			O
Cymbopogon refractus Barbed-wire Grass		Grass																	O		O						
Cynodon dactylon Couch Grass, Bermuda Grass		Grass								F		O	O	O	O	F			A								
Danthonia longifolia Longleaf Wallaby Grass		Grass								O																	
Danthonia tenuior Wallaby Grass		Grass		O						O											F	O	O	O			
Deyeuxia sp. (unidentified)		Grass								O																	
Dichelachne crinita Long-haired Plume Grass		Grass																									
Dichelachne micrantha Short-haired Plume Grass		Grass		O	F					F	F	O	F												O	F	
Digitaria didactyla Queensland Blue Couch		Grass		F						F																	

Species — botanical and common names		Growth form	Bushland area and subdivision																								
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Digitaria parviflora	Smallflower Finger Grass	Grass	O																								
Echinopogon ovatus	Forest Hedgehog Grass	Grass	F	O				O												O		O				F	
Entolasia marginata	Bordered Panic	Grass			A							O		O	F	O				O	O		F	F		F	
Entolasia stricta	Wiry Panic	Grass	A	F		F		O	O	F	O	F	O	O					O	F	O	F	F	A		A	
Eragrostis brownii	Brown's Lovegrass	Grass	O					O		F			O						F		O	O					
Eragrostis leptostachya	Paddock Lovegrass	Grass																				O	F			O	
Imperata cylindrica var. major	Blady Grass, Kunai Grass	Grass	O	F		F										F		F	A			A				A	
Microlaena stipoides	Meadow Rice-grass, Weeping Grass	Grass	A	F	O	F		F	F	O		O	F			F		F	F	O	F	F	F	F		F	
Opismenus aemulus var. aemulus	Broad-leaved Basket Grass	Grass		O	A				F																	F	
Opismenus imbecillis	Narrow-leaved Basket Grass	Grass	O			O										O				O	O		O	O			
Panicum simile	Two-colour Panic	Grass																								O	
Paspalidium crinitiforme		Grass			O					O			O	O												O	
Phragmites australis	Common Reed	Grass																									
Poa affinis		Grass	A	F	A	F			F			F			O	F				A	A	F	A	A	F	A	
Sporobolus creber	Slender Rat's-tail Grass	Grass																	F								
Sporobolus virginicus	Sand Couch	Grass																O			F						
Stipa pubescens	Tall Speargrass	Grass																		O						O	
Stipa ramosissima	Bamboo Speargrass	Grass			O																						
Stipa rudis subsp. nervosa		Grass																									
Themeda australis	Kangaroo Grass	Grass	O	F		O								F					O	F		F	O	O		O	
Restionaceae																											
Lepyrodia scariosa	Scale-rush	Grass(like)																			O					O	
Smilacaceae																											
Smilax glyciphylla	Native Sarsaparilla, Sweet Tea Plant	Climber			O	O	O		O			O			O	O	F			F	F	O	A	A		F	
Uvulariaceae																											
Schelhammera undulata	Lilac Lily	Herb							O																		
Xanthorrhoeaceae																											
Xanthorrhoea arborea	Forest Grass-tree	Shrub																						O	O	O	
Xanthorrhoea sp.	Grass-tree	Shrub							O																	F	

Figure 1
Remnant bushland areas surveyed



- | | | |
|-------------------------------------|---|------------------------------------|
| BH - Balls Head, Waverton | CP - Clarks Point Reserve, Woolwich | GP - Girrawheen Park, Earlwood |
| BI - Berry Island, Wollstonecraft | GR - Gladesville Reserve, Henley | IP - Illoura Park, Earlwood |
| SP - Smoothery Park, Wollstonecraft | BP - Betts Park, Huntleys Point | SR - Stotts Reserve, Bardwell Park |
| GC - Gore Creek Reserve, Northwood | TC - Tarban Creek Reserve, Hunters Hill | |

Gladesville Reserve, Henley (GR): extends along shores of Parramatta River on gentle slope with low sandstone outcrops; heavily degraded by landfill and rubbish dumping, but many natives persist. The main reason for including this reserve was that some lists had already been compiled by myself in 1997, for purposes unconnected with this project. Eight subdivisions of the area had been recognised, rather smaller than those used for the other bushland areas:

- GR1 - patch of bush fronting Huntleys Point Road opposite High School: very degraded and with many planted native trees and shrubs
- GR2 - across ferry path from GR1, tongue of vegetation between service road descending to west and semi-enclosed patch of grass; understorey mainly lantana
- GR3 - east of GR2 on other side of grassy patch, and south to bush track to rocky point; dense lantana with some remnant trees
- GR4 - lower slope southwest of ferry wharf, back to bush track down to rocky point; many natives persisting, some weedy patches
- GR5 - foreshore facing southwest onto bay, below main cliff line
- GR6 - foreshore near head of bay, near foot of service road
- GR7 - foreshore and foot of slope below GR4
- GR8 - small patch of saltmarsh adjacent to GR6

Betts Park, Huntleys Point (BP): virtually a continuation of Gladesville Reserve along foreshore to east. Very degraded and mostly very weedy but with many remnant natives.

Tarban Creek Reserve, Hunters Hill (TC): between head of saltwater in estuary and Manning Road, on north side of creek. Mostly very degraded bushland with dense lantana occupying much of understorey, but indigenous canopy trees survive as well as good patches of ground layer vegetation. Two broad subdivisions are used, namely:

- TC1 - hillside below Richmond Crescent, down to freshwater section of creek
- TC2 - creek bank and narrow strip of hill slope, from upper limit of saltwater to where creek starts to broaden; includes lower edge of St Joseph's College property, which has numerous old planted pine trees but with native understorey

Girrahween Park, Earlwood (GP): together with associated reserves along the Wolli Creek system, this is the only major remnant of sandstone bushland in the inner southwestern suburbs. It is in a sheltered valley not much deeper than the Whites Creek valley and a similar distance above the head of the saltwater, though the total catchment is much larger. The original landforms are mostly well preserved, and some parts of the park are relatively weed-free. Three subdivisions have been recognised for this survey:

- GP1 - upper to middle slope below Sutton Avenue, in dry sclerophyll woodland; rather disturbed at upper edge but little disturbance further from street
- GP2 - lower down same slope, within about 60 m of creek; grades into wet sclerophyll forest, understorey very weedy close to creek, less so further up slope
- GP3 - further downstream toward east end of main longitudinal track, near Finlays Road; whole slope from creek to top of spur, very disturbed in places

Illoura Park, Earlwood (IP): remnant of bushland between Forest Road and Wolli Creek, extremely degraded by landfill, rubbish dumping and weed invasion; access is very difficult due to dense lantana and blackberries, but native tree

canopy survives in a few parts; probably very close to sandstone-shale boundary.

Stotts Reserve, Bardwell Park (SR): bushland remnant in shallow gully, remarkably well preserved though with weed invasion at edges and possibly some planted trees; close to top of sandstone and forest type differs significantly from that of the nearby Girrawheen Park.

2.0 Discussion

Benson & Howell (1990) in their brief treatment of Leichhardt LGA surmise "that on the clay soils derived from Wianamatta Shale which largely make up the suburbs of Leichhardt, Annandale and Lilyfield, there would have been Turpentine–Ironbark Forest". This may have been true on the more subdued topography of the southern part of the LGA closer to Parramatta Road, but the geological map (cited above) and the soil landscape map (Chapman et al. 1989) indicate that the larger part of the LGA is on Hawkesbury Sandstone, including the middle and lower parts of Whites Creek valley. Consequent on this, the present investigation of comparable sites would seem to indicate that the predominant forest type in the middle part of the Whites Creek valley is more likely to have been one of the variants of Sydney Sandstone Complex (Benson & Howell 1994). Their map unit 10ag under this heading, namely **Sydney Sandstone Gully Forest**, is further subdivided into three types, namely:

- i) Open-forest/woodland: *Eucalyptus piperita*–*Angophora costata*–*Eucalyptus pilularis*
- ii) Tall open-forest: *Eucalyptus pilularis*–*Syncarpia glomulifera*
- iii) Closed-forest: *Ceratopetalum apetalum*–*Tristaniopsis laurina*

Table 1 below reveals a consistent pattern of forest tree composition, especially in those reserves most closely resembling Whites Creek in topography, namely Gore Creek, Tarban Creek and Girrawheen Park. Looking at family Myrtaceae (p 5–6 of table), it can be seen that *Eucalyptus pilularis* is present in all three of these reserves, and scored as abundant in most parts of the first. *Angophora costata* and *Eucalyptus piperita* are also frequently recurring, whereas *Syncarpia glomulifera* is not so common (though scored as 'frequent' in the downstream half of Tarban Creek). The vegetation community in these valleys seems therefore to fit best into type (i) of Benson & Howell's (1994) Sydney Sandstone Gully Forest, as listed above, though perhaps tending in parts toward type (ii). There is a possibility also that type (iii) Closed-forest, which Benson & Howell describe as 'the distinctive riparian flora occurring in narrow bands along perennial creeks' occurred in the past along these three creeks, but has been virtually eliminated by pollution, weeds and siltation. Note, though, that *Ceratopetalum apetalum* is present in one part of Girrawheen Park, close to the bank of Wolli Creek.

But being able to pigeonhole any particular piece of vegetation in terms of a community name is only part of what characterises that vegetation. The predictive power of such a classification, with respect to the presence any given species, goes no further than probability, as should be evident from scanning the species presence in any of the areas surveyed here. But in relying on inference, as the basis for reconstructing native vegetation on a site where it has long since been eliminated, a reasonable *probability* of each suggested species having once been there is all that can be hoped for.

As noted above, one of the factors influencing the composition of local vegetation is distance from the sea. As well exposure to salt-laden air, there is also the matter of salinity of groundwater, closeness of water table to surface and, in harbourside areas of Sydney, alteration of soil characteristics by extensive Aboriginal shell deposits. Some of the species encountered in this survey are regarded as indicative of one or more of these factors, notably the eucalypts *E. botryoides* and *E. robusta*, the two *Melaleuca* species *M. linariifolia* and *M. styphelioides*, *Casuarina glauca*, *Banksia integrifolia*, and *Monotoca elliptica*. The Whites Creek site is sufficiently close to the harbour and saline soil that some of these species may well have been present.

3.0 Re-establishment of indigenous flora

In view of the radically altered nature of the land surface and soils in the Whites Creek valley, and more particularly in the area proposed for parkland, it would be quite wrong to expect that any truly 'natural' vegetation could be re-established in the area, unless, perhaps, time and money imposed no constraints.

The cultivation or maintenance in built-up areas of indigenous flora from low-nutrient habitats such as the Sydney sandstone runs up against several problems that have not always been adequately recognised. One is the increase in major soil nutrients from a variety of sources, resulting in massive invasion of weeds which, because they show a more rapid response to nutrients and also tolerate levels of some nutrients toxic to many natives, out-compete the native sandstone flora which then gradually dies out (Clements 1983). This is commonly treated as a problem affecting remnant bushland, but it can also be relevant to plantings of native species.

A second major problem is the permanent absence of fire in the smaller areas of urban bushland. Many of the native shrubs and small trees are fast growing and short-lived, and within 10–20 years become senescent, finally rotting at the base and falling over. The fire cycle experienced in larger areas of bushland, commonly of different duration in different parts of the bushland and varying more or less randomly, results in periodic renewal of these plants and also opens up areas of bare soil where seeds can germinate and grasses and other low herbs can resprout and thrive for a period in adequate light. The mechanisms that have evolved among native plants for survival and reproduction in a fire-prone environment are enormously varied and complex, with botanical research only beginning to reveal their complexity.

However, there are many local native species that adapt readily enough to cultivation in such altered habitats, and if planted in sufficient density and diversity can eventually form something resembling bushland. In particular, species from the less fire-prone, higher nutrient situations such as moist stream banks and rainforest patches are found to give better long term results in urban environments. Below are listed a large selection of species, all extracted from Table 1, which have been found to adapt to cultivation in such sites

1. Trees

<i>Acacia implexa</i>	Lightwood, Hickory
<i>Acacia parramattensis</i>	Sydney Green Wattle
<i>Acmena smithii</i>	Lilly-pilly
<i>Alphitonia excelsa</i>	Red Ash
<i>Angophora floribunda</i>	Rough-barked Apple
<i>Banksia integrifolia</i>	Coast Banksia
<i>Callicoma serratifolia</i>	Blackwattle
<i>Callistemon salignus</i>	White Bottlebrush, Pink-tips

<i>Ceratopetalum apetalum</i>	Coachwood
<i>Ceratopetalum gummiferum</i>	NSW Christmas Bush
<i>Clerodendrum tomentosum</i>	Hairy Clerodendrum
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Eucalyptus botryoides</i>	Bangalay
<i>Eucalyptus pilularis</i>	Blackbutt
<i>Eucalyptus piperita</i>	Sydney Peppermint
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus robusta</i>	Swamp Mahogany
<i>Ficus rubiginosa</i>	Port Jackson Fig, Rusty Fig
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark
<i>Melaleuca nodosa</i>	Ball Honey-myrtle
<i>Melaleuca styphelioides</i>	Prickly Paperbark
<i>Omalanthus populifolius</i>	Bleeding Heart Tree, Native Poplar
<i>Syncarpia glomulifera</i>	Turpentine

2. Shrubs

<i>Acacia floribunda</i>	Sally Wattle
<i>Acacia terminalis</i>	Sunshine Wattle
<i>Breynia oblongifolia</i>	Coffee Bush
<i>Bursaria spinosa</i>	Australian Boxthorn
<i>Dodonaea triquetra</i>	Native Hops
<i>Grevillea linearifolia</i>	
<i>Hakea sericea</i>	Needlebush, Silky Hakea
<i>Kunzea ambigua</i>	Tick-bush
<i>Leptospermum polygalifolium</i>	Yellow Tea-tree, Tanton Tea-Tree
<i>Leucopogon juniperinus</i>	Long-flowered Beard-heath
<i>Lomatia silaifolia</i>	Native Parsley, Crinklebush
<i>Persoonia linearis</i>	Narrow-leaf Geebung
<i>Phebalium dentatum</i>	
<i>Platylobium formosum</i>	Handsome Flat-pea
<i>Podocarpus spinulosus</i>	
<i>Polyscias sambucifolia</i>	Elderberry Panax
<i>Pomaderris elliptica</i>	
<i>Pultenaea flexilis</i>	
<i>Rapanea variabilis</i>	Muttonwood
<i>Solanum aviculare</i>	Kangaroo Apple
<i>Xanthorrhoea arborea</i>	Forest Grass-tree
<i>Zieria smithii</i>	Sandfly Zieria, Stinkwood

3. Climbers and creepers

<i>Cissus hypoglauca</i>	Native Grape, Water Vine
<i>Eustrephus latifolius</i>	Wombat Berry
<i>Geitonoplesium cymosum</i>	Scrambling Lily
<i>Glycine clandestina</i>	Twining Glycine
<i>Hardenbergia violacea</i>	False Sarsaparilla
<i>Hibbertia dentata</i>	Toothed Guinea-flower
<i>Hibbertia scandens</i>	Twining Guinea-flower
<i>Kennedia rubicunda</i>	Dusky Coral-pea
<i>Morinda jasminoides</i>	
<i>Pandorea pandorana</i>	Wonga Vine
<i>Sarcopetalum harveyanum</i>	Pearl Vine
<i>Smilax glycyphylla</i>	Native Sarsaparilla, Sweet Tea Plant

Stephania japonica

Snake Vine

4. Grasses, sedges and other grass-like plants

<i>Aristida ramosa</i>	Purple Wiregrass
<i>Aristida vagans</i>	Wiregrass
<i>Cymbopogon refractus</i>	Barbed-wire Grass
<i>Cyperus gracilis</i>	Slender Sedge
<i>Danthonia tenuior</i>	Wallaby Grass
<i>Dianella caerulea</i>	Blue Flax-lily
<i>Dianella longifolia</i>	Smooth Flax-lily
<i>Dichelachne micrantha</i>	Short-haired Plume Grass
<i>Digitaria parviflora</i>	Smallflower Finger Grass
<i>Entolasia marginata</i>	Bordered Panic
<i>Gahnia clarkei</i>	Tall Saw-sedge
<i>Gahnia sieberiana</i>	Red-fruit Saw-sedge
<i>Imperata cylindrica</i>	Blady Grass, Kunai Grass
<i>Juncus continuus</i>	
<i>Juncus usitatus</i>	Common Rush, Tussock Rush
<i>Lomandra longifolia</i>	Honey Reed, Spike Mat-rush
<i>Microlaena stipoides</i>	Meadow Rice-grass, Weeping Grass
<i>Oplismenus aemulus</i>	Broad-leaved Basket Grass
<i>Oplismenus imbecillis</i>	Narrow-leaved Basket Grass
<i>Paspalidium criniforme</i>	
<i>Poa affinis</i>	
<i>Schoenus melanostachys</i>	Black Bog-rush
<i>Stipa ramosissima</i>	Bamboo Speargrass
<i>Stipa rudis subsp. nervosa</i>	Speargrass
<i>Themeda australis</i>	Kangaroo Grass

5. Other herbaceous plants

<i>Centella asiatica</i>	Heart-leaved Pennywort
<i>Dichondra micrantha</i>	Kidney-weed
<i>Dichondra repens</i>	Kidney-weed, Mercury Bay Weed
<i>Geranium homeanum</i>	Native Geranium
<i>Pratia purpurascens</i>	Whiteroot
<i>Pseuderanthemum variabile</i>	

6. Ferns

<i>Adiantum aethiopicum</i>	Maidenhair Fern
<i>Calochlaena dubia</i>	Rainbow Fern, Soft Bracken
<i>Christella dentata</i>	Binung
<i>Doodia caudata</i>	Small Rasp Fern
<i>Histiopteris incisa</i>	Batswing Fern, Oak Fern
<i>Hypolepis muelleri</i>	Harsh Ground Fern
<i>Pteris tremula</i>	Tender Brake

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