Quadrat JCCA03

BUSHLAND PLANT SURVEY RECORDING SHEET 1 (2005 update) – use pencil only

BUSHLAND AREA John Curtin College of Arts SITE NUMBER JCCA 3

DATE TRIP 3.9.10 BOTANIST Anne Behman RECORDERS Dorothy Pesret +

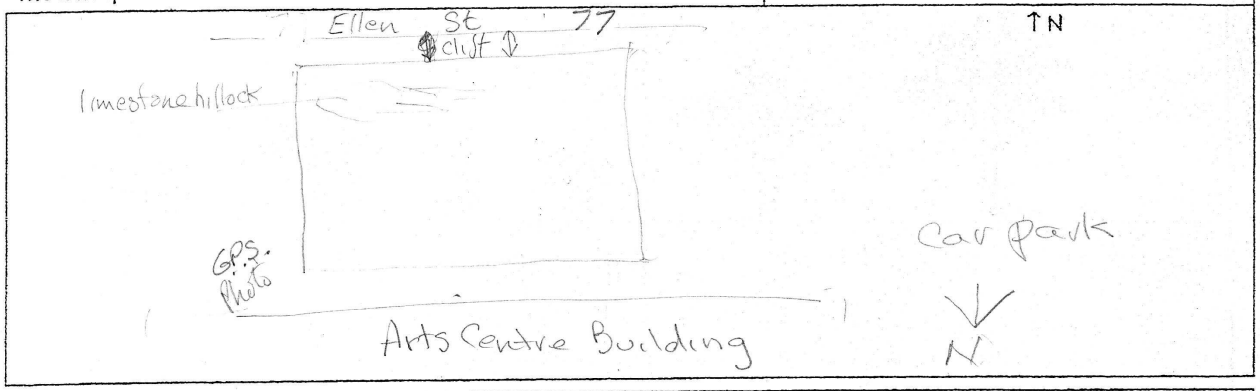
DATE TRIP 21/11/10 BOTANIST _____ RECORDERS Vanda Longman

DATE TRIP _____ BOTANIST _____ RECORDERS _____

From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

1. LOCATION of the QUADRAT/SAMPLE POINT

Mud Map Draw a sketch of the location of the site below.



Road Location Ellen Street Fremantle.

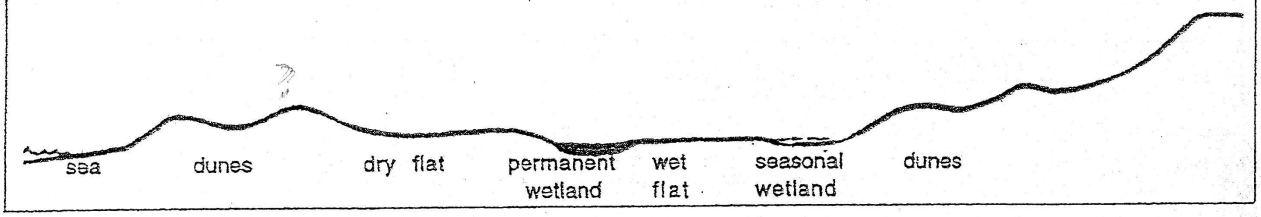
Geographic Location Latitude 32 3' 0.3" S Longitude 115° 45' 22.3" E

GPS Used: yes/no GPS Datum OR Reference Map Used: GDA94

Photograph Photographer's Name Photo No.

Topographic position Circle position of site on the transect (alter the transect if necessary eg. for Jarrah Forest)

SWAN COASTAL PLAIN — Upland or Wetland? (circle one)



2. SITE DATA Circle the correct response.

Slope: flat (gentle) steep	Aspect: N NE E SE (S) (SW) W NW na
Surface Soil: sand, loamy sand, sandy loam, loam, clay, gravel/laterite	Colour White
Exposed Rock: type limestone	% surface 50
Sub-surface Soil: sand, loamy sand, (sandy loam,) loam, clay, gravel/laterite	Colour
Sub-surface Rock: type limestone	depth to rock 30 cm
Drainage: (well) mod poor	Water depth cm / Wet: all year winter/spring na
Litter: 10 % cover	Bare Ground 50 % cover
Depth 5 cm	

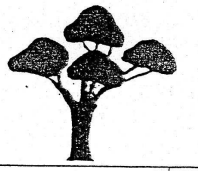
BUSHLAND PLANT SURVEY RECORDING SHEET 2 (2005 update) – use pencil only

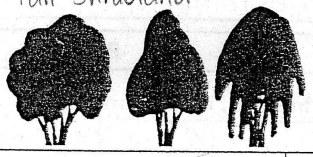
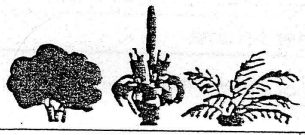
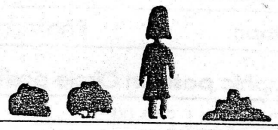
3. VEGETATION STRUCTURE AND COVER

From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

For each layer **record** – appropriate **growth form, cover class** (see below) and **dominant species** in their order of dominance, up to a maximum of 3 species. If more than 3 species are obviously dominant record as many as appropriate to describe each layer. For NVIS record max. height of layer & % crown cover to nearest 5%.

Cover Class	2 – 10%	10 – 30%	30 – 70%	over 70%

	TREES			MALLEES	
	over 30m	10 – 30m	under 10m	over 8m	under 8m
GROWTH FORM			Open Low Woodland 		30m  10m
COVER CLASS (%)	#	#	2-10 #	#	#
HEIGHT & CROWN COVER (NVIS)			4m x 4m		
DOMINANT SPECIES			Eucalypt i gomph.		

	SHRUBS		SHRUBS
	over 2m	2m – 1m	under 1m
GROWTH FORM	Tall Shrubland 	Shrubland 	Low Shrubland  2m 1m
COVER CLASS (%)	10-30 #	10-30 #	10-30 #
HEIGHT & CROWN COVER (NVIS)	1-2 m x 0.5-1	1.5 x .5	0.3m x 0.8
DOMINANT SPECIES	*Leptospermum leavigatum 2	Acacia cochlearis ~~2 Host~~ 3 Acacia xanthina 7	Acacia lasiocarpa 4

	GRASSES	HERBS	SEDGES	OTHER (eg. ferns)
GROWTH FORM		Very Open Herbland 		1m
COVER CLASS (%)	<2 #	2-10 #	#	#
HEIGHT & CROWN COVER (NVIS)	.75 x .2	.25 x .3 x .1		
DOMINANT SPECIES	*Avena barbata 5	*Freesia alba x l. 6 *Hypochaeris glabra 25		

4. VEGETATION CONDITION - Keighery (1994) Vegetation Condition Scale

1 'PRISTINE'	
2 EXCELLENT	
3 VERY GOOD	
4 GOOD	✓
5 DEGRADED	

COMMENTS (give reasoning for choice)

FIRE 2 years ago, Now regrowth of many species
WEED INVASION
Numerous A. cochlearis recruits on N side of plot (adjacent)
Galls on Acacia cochlearis (21/11/10)

BUSHLAND PLANT SURVEY RECORDING SHEET 3 - use pencil only

5. SPECIES PRESCENCE

SITE No JCCA 3
Date 3/9/10

Label each plant with plants number, site code, date and plant's name or working name if required
Record on Sheet
- Column 1 plant name
- Column 2 plant number
- Column 3 flowering time- record flower colour if species flowering
- Column 4 identification check

From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

TREES	No	Fl	ID
Eucalyptus gomphocephala	1		✓
Eucalptus (2)	8		
MALLEES			
SHRUBS			
* Leptospermum laevigatum	2	W	✓
Acacia cochlearis (? ~~fraterna~~)	3	Y	✓
Acacia lasiocarpa (FH)	4	Y	✓
Acacia xanthina (FH)	7	Y	✓
Acacia saligna (FH)	9	Y	✓
Templetonia retusa (FH)	10	R	✓
Melaleuca systena	11		✓
Melaleuca huegelii	12		✓
Wattle leaf Ac. truncata (FH)	13	Y? Y	✓
Dodonaea aptera	14		✓
Grevillea preissii subsp. preissii	15	R	✓
Calothamnus quadrifidus (FH)	16		✓
Trichorbine elatior (FH)	19		✓

SHRUBS (cont.)	No	Fl	ID
GRASSES			
* Avena barbata (FH)	5	✓	✓
HERBS			
* Freesia alba x leichtlinii	6	W/Y	✓
* Hypochaeris radicata - FLATWEED	25		✓
* Euphorbia terracina (FH)	17		✓
* Trifolium Oxalis Pes-caprae	18		✓
* Guildford grass Romulea rosea	20		✓
* Euphorbia terracina	21		✓
?* Sonchus oleraceous	22		✓
* ?-thistle	23		
~~? Crassula sp~~ * Galium sp.	24		✓
* Lysimachia arvensis	26		✓

HERBS (cont.)	No	Fl	ID
SEDGES			
Adjacent not numbered			
Dodonaea (Hillpod) aptera	27		✓ (FH)
Acacia cyclops	28	Y	✓
* Avena barbata	29		✓

Quadrat JCCA04

BUSHLAND PLANT SURVEY RECORDING SHEET 1 (2005 update) – use pencil only

BUSHLAND AREA John Curtain College of the Arts SITE NUMBER JCCA 4

DATE TRIP 3/9/2010 BOTANIST B Keighery RECORDERS Geoff Corrick, Joyce Evans, Phylis Roberts

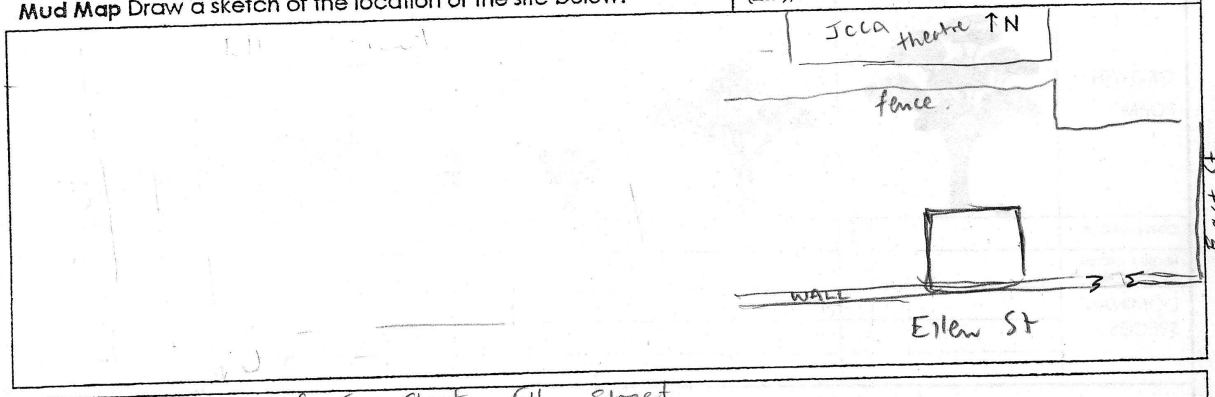
DATE TRIP BOTANIST RECORDERS Ocean, Cassandra Linley, Tamala

DATE TRIP BOTANIST RECORDERS Kristy

1. LOCATION of the QUADRAT/SAMPLE POINT

From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

Mud Map Draw a sketch of the location of the site below.



Road Location corner of East Street + Ellen Street.

Geographic Location Latitude 32° 3" 0.2' S Longitude 115° 45" 23.1 E

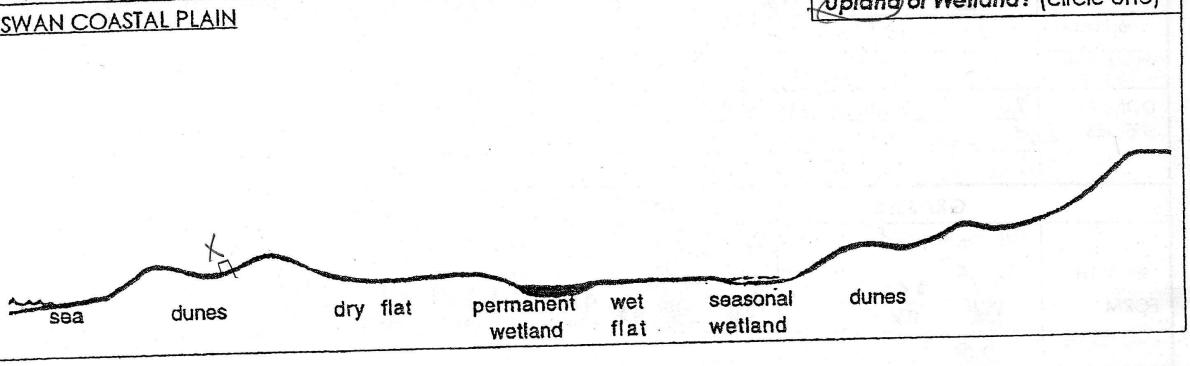
GPS Used: (yes)/no GPS Datum OR Reference Map Used: GDA 94

Photograph Photographer's Name Photo No.

Topographic position Circle position of site on the transect (alter the transect if necessary eg. for Jarrah Forest)

SWAN COASTAL PLAIN

Upland or Wetland? (circle one)



2. SITE DATA Circle the correct response.

Slope: (flat) gentle steep | Aspect: N NE E SE S SW W NW na

Surface Soil: (sand), loamy sand, sandy loam, loam, clay, gravel/laterite Colour Grey

Exposed Rock: type Limestone | % surface 5%

Sub-surface Soil: (sand), loamy sand, sandy loam, loam, clay, gravel/laterite Colour Pinkish grey

Sub-surface Rock: type Limestone | depth to rock Surface + subsurface (15cm)

Drainage: well (mod) poor | Water depth cm | Wet: all year winter/spring (na)

Litter: % cover 75 % Depth 1-2 cm | Bare Ground Scattered. % cover 25%

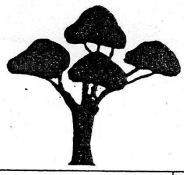
BUSHLAND PLANT SURVEY RECORDING SHEET 2 (2005 update) – use pencil only

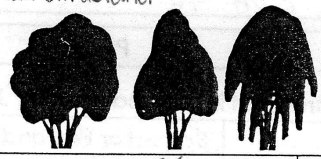
From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

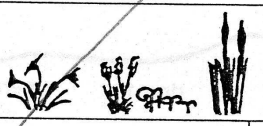
3. VEGETATION STRUCTURE AND COVER

For each layer **record** – appropriate **growth form**, **cover class** (see below) and **dominant species** in their order of dominance, up to a maximum of 3 species. If more than 3 species are obviously dominant record as many as appropriate to describe each layer. For NVIS record max. height of layer & % crown cover to nearest 5%.

Cover Class (2 – 10%) 10 – 30% 30 – 70% over 70%

	TREES			MALLEES	
	over 30m	10 – 30m	under 10m	over 8m	under 8m
GROWTH FORM			Open Low Woodland 		30m  10m
COVER CLASS (%)		#	2 – 10%	#	#
HEIGHT & CROWN COVER (NVIS)			6m x 10%		
DOMINANT SPECIES			*Ficus carica 1		

	SHRUBS		SHRUBS	
	over 2m	2m – 1m	under 1m	
GROWTH FORM	Tall Shrubland 	Open Shrubland 	 2m 1m	
COVER CLASS (%)	10 – 30%	#	# 3%	#
HEIGHT & CROWN COVER (NVIS)	6m x 30%	5 Melaleuca huegelii 2m	6 Templetonia retusa	7%
DOMINANT SPECIES	2 *Leptospermum laragatum 30%			
	4 Acacia saligna 2%			
	3 Acacia xanthina <1%			

	GRASSES	HERBS	SEDGES	OTHER (eg. ferns)
	Open Grassland	Open Herbland		1m
GROWTH FORM				
COVER CLASS (%)	25%	# 25%	#	#
HEIGHT & CROWN COVER (NVIS)	various weeds	various weeds		
DOMINANT SPECIES		Hardenbergia 15 conspicuous		

4. VEGETATION CONDITION - Keighery (1994) Vegetation Condition Scale

1 'PRISTINE'	
2 EXCELLENT	
3 VERY GOOD	
4 GOOD	
5 DEGRADED	✓

COMMENTS (give reasoning for choice)

Feral trees, shrubs, grasses.

BUSHLAND PLANT SURVEY RECORDING SHEET 3b- use pencil only

5. SPECIES PRESCENCE

SITE No JCOA 4
Date 3/9/2010

Label each plant with plants number, site code, date and plant's name or working name if required
Record on Sheet
- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time- TICK if species flowering
- Column 4 identification check

From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

TREES	No	Fl	ID
* Ficus macrophylla	1		✓
Eucalyptus rudis (FH)	23		✓
* Eucalyptus utilis (adjacent)			
MALLEES			
SHRUBS			
* Leptospermum laevigatum	2		✓
Acacia Xanthena	3		✓
Acacia Saligna	4		✓
Melaleuca huegelii (FH)	5		✓
Templetonia retusa (FH)	6		✓
Acacia lasiocarpa (FH) Adj	22		✓

SHRUBS (cont.)	No	Fl	ID
GRASSES			
* Bromus diandrus	16		✓
* Lagurus ovatus (FH)	17		✓
* Avena barbata	19		✓
* Avena barbata Adj	20		✓
HERBS			
* Lupinus cosentinii	7		✓
* Euphorbia terracina (FH)	8		✓
* Thistle- Sonchus oleraceus (FH)	9		✓
* Euphorbia peplus	10		✓
* Medicago polymorpha (FH)	11		✓
* Oxalis pres-caprae (FH)	12		✓
* Freesia alba x leichtlinii	13		✓
* Flat weed- Hypochaeris radicata (FH)	14		✓
Hardenbergia comptoniana (FH)	15	P	✓
* Romulea rosea (FH)	18		✓
* Malva parviflora (FH)	21		✓

HERBS (cont.)	No	Fl	ID
SEDGES			

APPENDIX 2 Keys for vegetation structure and condition

Vegetation structure

The classification system used to describe vegetation structure (based on Keighery 1994, as adapted from Muir 1977 and Aplin 1979). Each row indicates a different vegetation layer.

Growth Form/Height Class	Canopy Cover			
	100-70%	**70-30%**	**30-10%**	**10-2%**
Trees over 30m	Closed Tall Forest **CTF**	Open Tall Forest **OTF**	Tall Woodland **TW**	Open Tall Woodland **OTW**
Trees 10-30m	Closed Forest **CF**	Open Forest **OF**	Woodland **W**	Open Woodland **OW**
Trees under 10m	Closed Low Forest **CLF**	Open Low Forest **OLF**	Low Woodland **LW**	Open Low Woodland **OLW**
Mallee over 8m (Tree Mallee)	Closed Tree Mallee **CTM**	Tree Mallee **TM**	Open Tree Mallee **OTM**	Very Open Tree Mallee **VOTM**
Mallee under 8m (Shrub Mallee)	Closed Shrub Mallee **CSM**	Shrub Mallee **SM**	Open Shrub Mallee **OSM**	Very Open Shrub Mallee **VOSM**
Shrubs over 2m	Closed Scrub **CSC**	Open Scrub **OSC**	Tall Shrubland **TS**	Open Tall Shrubland **OTS**
Shrubs 1-2m	Closed Heath **CH**	Open Heath **OH**	Shrubland **S**	Open Shrubland **OS**
Shrubs under 1m	Closed Low Heath **CLH**	Open Low Heath **OLH**	Low Shrubland **LS**	Open Low Shrubland **OLS**
Grasses	Closed Grassland **CG**	Grassland **G**	Open Grassland **OG**	Very Open Grassland **VOG**
Herbs	Closed Herbland **CHB**	Herbland **HB**	Open Herbland **OHB**	Very Open Herbland **VOHB**
Sedges	Closed Sedgeland **CSG**	Sedgeland **SG**	Open Sedgeland **OSG**	Very Open Sedgeland **VOSG**
Ferns	Closed Fernland **CFL**	Fernland **FL**	Open Fernland **OFL**	Very Open Fernland **VOFL**
Climbers	Closed Climbers **CC**	Climbers **C**	Open Climbers **OC**	Very Open Climbers **VOC**

Vegetation condition

Taken from Keighery (1994).

Vegetation Condition Scale	
1	**Pristine** Pristine or nearly so, no obvious signs of disturbance
2	**Excellent** Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
3	**Very Good** Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
4	**Good** Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing
5	**Degraded** Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
6	**Completely Degraded** The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

APPENDIX 3 Useful books for identification of Perth plants

Barrett R and Tay EP 2005 *Perth Plants: A Field Guide to the Bushland and Coastal Flora of Kings Park and Bold Park, Perth, Western Australia*. Botanic Gardens and Parks Authority, West Perth.

Hussey BMJ, Keighery GJ, Dodd J, Lloyd SG, Cousens RD 2007 *Western Weeds*. 2nd edition. The Plant Protection Society of Western Australia (Inc.), Victoria Park.

Marchant NG, Wheeler JR, Rye BL, Bennett EM, Lander NS, Macfarlane TD 1987 *Flora of the Perth Region*. Western Australian Herbarium Department of Agriculture, Perth.

Powell R 2009 *Leaf and Branch: Trees and tall shrubs of Perth*. Department of Environment and Conservation, Kensington, Western Australia.

Powell R and Emberson J 1996 *Growing Locals: Gardening with Local Plants in Perth*. Western Australian Naturalists' Club, Perth.

Ramage J 2008 *Tuart Dwellers*. Department of Environment and Conservation, Western Australia.

Rippey E and Rowland B 2004 *Coastal Plants: Perth and the South-West Region*. 2nd edition. University of Western Australia Press, Crawley.