

SWAN BIOPLAN
GWALIA / KEMERTON NATURE RESERVE & SURROUNDING AREAS
QUADRATS/RELEVES/AREAS
21st MAY 2009

1.1 Summary of quadrats/relevées/areas

This module of work has involved the following quadrats/relevées/areas. Some attributes of the quadrats/relevées/areas are listed below.

Name	Mapping Unit	Quadrat/ Relevee/ Area	Latitude		Longitude		UTM			Datum	GPS Used	Vouchers
			De g	Min	Deg	Min	Northin g mN	Eastin g mE	Zone			
1GWAL01	GwaCL	Relevee	33	6.786	115	47.6823	6335528	387547	1	WGS84		Yes
1GWAL02	to be completed	Relevee										No
1GWAL05	to be completed	Relevee										No
1GWAL07	to be completed	Relevee										No
1GWAL08	to be completed	Relevee										No
1GWAL09	to be completed	Relevee										No
1GWAL10	to be completed	Relevee										No
1GWAL12	to be completed	Relevee										No
1GWAL13	GwaCLM	Relevee										No
1GWAL14	GwaCLM	Relevee										No
2GWAL01	to be completed	Quadrat										No
3GWAL01	GwaDW	Quadrat	33	8.225	115	47.45	6332866	387216	1	WGS84	Yes	Yes
3GWAL02	GwaDW	Quadrat	33	8.11	115	47.49	6333074	387276	1	WGS84	Yes	Yes
3GWAL03	GwaCLM	Quadrat	33	8.22	115	47.45	6332875	387216	1	WGS84	Yes	Yes
3GWAL04	GwaCLM	Quadrat	33	8.22	115	47.44	6332875	387201	1	WGS84	Yes	Yes
3GWAL05	GwaDW	Quadrat	33	8.2	115	47.47	6332911	387247	1	WGS84	Yes	Yes
3GWAL06	GwaCLM	Quadrat	33	8.12	115	47.49	6333060	387276	1	WGS84		Yes
3GWAL07	GwaCLM	Quadrat	33	8.12	115	47.36	6333058	387071	1	WGS84		Yes
GwaCL		Area	33	6.786	115	47.6823	6335528	387547	1	WGS84		No
GwaCLM		Area	33	8.22	115	47.45	6332875	387216	1	WGS84		Yes
GwaDW		Area	33	8.2	115	47.47	6332911	387247	1	WGS84		Yes

Note that the voucher *Alyogyne angustiloba* ms was collected in GwaCLM co-ordinates:

Deg	Min	Deg	Min	Northing	Easting	Zone	Datum
33	8.11 8	115	47.4 9	6333063	387276	1	WGS84

1.2 Description of the mapping units

These are taken from SWANBIOPLANETC.mdb tblMapUnit.

Mapping Unit Code	Mapping Unit Description
GwaCL	Gwalia northern clay flats in the Kemerton Nature Reserve
GwaCLM	Gwalia southern clay flats (Muchea limestone area) in the Kemerton Nature Reserve
GwaDW	Gwalia <i>Eucalyptus decipiens</i> woodland (Muchea limestone area) in the Kemerton Nature Reserve

1.3 Data disc

The disc contents are listed below.

File	Description	File Type	Table in Database/Worksheet in Excel File
090521AliceSummary.mdb	Data cover sheets - database	Table in MS Access database	tblGwaDataCoverSheets
FinalGwaDataCoverSheets.xls	Data cover sheets - spreadsheet	MS Excel	Sheet1
090521AliceSummary.mdb	Dominant taxa per quadrat/relevee/area	Table in MS Access database	tblGwaDominants
FinalGwaDominants.xls	Dominant taxa per quadrat/relevee/area - spreadsheet	MS Excel	Sheet1

File	Description	File Type	Table in Database/Worksheet in Excel File
GwaPlotsVegDescriptions.doc	Vegetation description for each quadrat/relevee/area	MS Word	
090521AliceSummary.mdb	Species records -database	Table in MS Access database	tblGwaFullListing
FinalGwaFullListing.xls	Species list - spreadsheet	MS Excel	Sheet1
090521AliceSummary.mdb	Species list cross-tab - database	Table in MS Access database	tblGwaXTab
FinalGwaXTab.xls	Species list cross-tab - spreadsheet	MS Excel	Sheet1
AOC GwaliaCollectingBook2009.mdb & AOC ExtraCollectingBook2009.mdb	Voucher collecting books	Max collecting book database	Note that AOCEXtraGwaliaCollectingBook2009.mdb contains vouchers from FAIR01, MURR01 & MURR02 (not Gwalia)
090521Voucher listb.xls	Voucher list	MS Excel	VOUCHERS
090521AliceDetailed.mdb	Database with ALL tables above & ALL queries	MS Access database	Many.
Voucher submission information090522.doc	Voucher information provided to Sue Carroll (WAHERB)	MS Word	
090521Readme.doc	This file	MS Word	

1.4

Summary

Number of quadrats	8
Number of relevees	10
Number of areas	3
Number of vouchers - Gwalia	86
Number of vouchers - others (FAIR & MURR)	7
Number of taxa - all Gwalia *	220

* For number of taxa per quadrat/relevee/area, see below.

Quadrat/Relevee/Area	Taxa
1GWAL01	37
1GWAL02	2
1GWAL05	2
1GWAL07	1
1GWAL08	1
1GWAL09	2
1GWAL10	1
1GWAL12	19
1GWAL13	24
1GWAL14	13
2GWAL01	29
3GWAL01	40
3GWAL02	23
3GWAL03	59
3GWAL04	34
3GWAL05	31
3GWAL06	46
3GWAL07	60
GwaCL	1
GwaCLM	33
GwaDW	9

AOC EXTRACOLLECTINGBOOK 2009

Name	Coll Number	Date	ADJ	Location
Synaphea gracillima	2903	9/12/2008		FAIR01
Grevillea manglesii subsp. ornithopoda	2909	9/12/2008		MURR01
Lepidosperma leptostachyum	2910	9/12/2008		MURR01
Lepidosperma squamatum	2911	9/12/2008		MURR01
Hibbertia acerosa	2912	9/12/2008	Y	MURR01
Haemodorum discolor	2913	9/12/2008		MURR02
Haemodorum sparsiflorum	2914	9/12/2008		MURR01

AOC GWALCOLLECTINGBOOK2009

3GWAL01

Name	Coll Number	Date	ADJ
Austrostipa sp. Kemerton (B.J. Keighery 2904)	2904		
Austrostipa sp. Kemerton (B.J. Keighery 2904)	2905		
Austrostipa sp. Kemerton (B.J. Keighery 2904)	2906		
Stylidium spathulatum	2908	23/10/2003	Y
Microtis media ssp. media	2915	23/10/2003	Y
Cassytha racemosa forma pilosa	2916	23/10/2003	
Pimelea hispida	2917	23/10/2003	
Leucopogon interstans	2918	23/10/2003	
Thysanotus manglesianus	2919	23/10/2003	
Hemiandra pungens	2920	23/10/2003	Y
Pterostylis vittata	2921	23/10/2003	
Caladenia paludosa	2922	23/10/2003	Y

3GWAL02

Name	Coll Number	Date	ADJ
Cyathochaeta avenacea (fine)	2923	23/10/2003	
Lepidosperma sp. Coastal Dunes	2924	23/10/2003	
Scaevola calliptera	2925	23/10/2003	
Sphaerolobium medium	2926	23/10/2003	
Opercularia hispidula	2927	23/10/2003	

3GWAL03

Name	Coll Number	Date	ADJ
Angianthus preissianus (green)	2928	23/10/2003	
Gnephosis drummondii	2929	23/10/2003	
Quinetia urvillei	2930	23/10/2003	
Aphelia nutans	2931	23/10/2003	
Centrolepis aristata	2932	23/10/2003	
Centrolepis polygyna	2933	23/10/2003	
Cyperus tenellus	2934	23/10/2003	
Isolepis cernua var. setiformis	2935	23/10/2003	
Schoenus plumosus	2936	23/10/2003	
Schoenus variicellae	2937	23/10/2003	
Drosera macrantha subsp. macrantha	2938	23/10/2003	
Goodenia micrantha	2939	23/10/2003	
Goodenia pulchella	2940	23/10/2003	
Tribonanthes violacea	2941	23/10/2003	
Triglochin muelleri	2942	23/10/2003	
Isotoma scapigera	2943	23/10/2003	
Kunzea micrantha subsp. micrantha	2944	23/10/2003	
Melaleuca viminea	2945	23/10/2003	Y
Philydrella pygmaea subsp. pygmaea	2946	23/10/2003	
Lepyrodia glauca	2947	23/10/2003	
Stylidium calcaratum	2948	23/10/2003	
Utricularia multifida	2949	23/10/2003	Y

3GWAL04

Name	Coll Number	Date	ADJ
<i>Centrolepis mutica</i>	2950	24/10/2003	
<i>Baumea juncea</i>	2951	24/10/2003	
<i>Schoenus tenellus</i>	2952	13/11/2003	
<i>Triglochin muelleri</i>	2953	24/10/2003	
<i>Utricularia inaequalis</i>	2954	24/10/2003	
<i>Microtis media</i> subsp. <i>media</i>	2955	24/10/2003	

3GWAL05

Name	Coll Number	Date	ADJ
<i>Pelargonium littorale</i> subsp. <i>littorale</i>	2956	24/10/2003	
<i>Trifolium campestre</i> var. <i>campestre</i>	2957	24/10/2003	
<i>Brachypodium distachyon</i>	2958	24/10/2003	
<i>Melaleuca</i> sp. <i>Kemerton</i> (B.J. Keighery 2907)	2959	13/11/2003	

3GWAL06

Name	Coll Number	Date	ADJ
<i>Leontodon saxatilis</i>	2960	13/11/2003	
<i>Aphelia cyperoides</i>	2961	13/11/2003	
<i>Baumea juncea</i>	2962	13/11/2003	
<i>Isolepis cernua</i> var. <i>setiformis</i>	2963	13/11/2003	
<i>Schoenus plumosus</i>	2964	13/11/2003	
<i>Schoenus tenellus</i>	2965	13/11/2003	
* <i>Lolium multiflorum</i>	2966	13/11/2003	
<i>Stylidium inundatum</i>	2967	24/10/2003	

3GWAL07

Name	Coll Number	Date	ADJ
<i>Hydrocotyle alata</i>	2968	24/10/2003	
<i>Angianthus drummondii</i>	2969	13/11/2003	
<i>Centrolepis alepyroides</i>	2970	13/11/2003	
<i>Centrolepis polygyna</i>	2971	13/11/2003	
<i>Schoenus discifer</i>	2972	24/10/2003	
<i>Schoenus tenellus</i>	2973	13/11/2003	
<i>Dampiera trigona</i>	2974	24/10/2003	
<i>Caladenia radiata</i>	2975	13/11/2003	
<i>Lotus subbiflorus</i>	2976	13/11/2003	
<i>Stylidium calcaratum</i>	2977	13/11/2003	
<i>Stylidium divaricatum</i>	2978	13/11/2003	

GwaCLM

Name	Coll Number	Date	ADJ
<i>Siloxerus humifusus</i>	2979	13/11/2003	
<i>Aphelia cyperoides</i>	2980	13/11/2003	
<i>Centrolepis mutica</i>	2981	13/11/2003	
<i>Isolepis cyperoides</i>	2982	13/11/2003	
<i>Phyllangium paradoxum</i>	2983	13/11/2003	
* <i>Cynosurus echinatus</i>	2984	13/11/2003	
<i>Stylidium pulchellum</i>	2985	13/11/2003	
<i>Astartea affinis</i>	2986	8/12/2008	
<i>Lachnagrostis filiformis</i>	2992	8/12/2008	
<i>Lachnagrostis filiformis</i>	2993	8/12/2008	
<i>Myriophyllum echinatum</i>	2994	8/12/2008	
<i>Verticordia densiflora</i> var. <i>densiflora</i>	2995	8/12/2008	
<i>Alogyne hakeifolia</i>	2991	8/12/2008	

1GWAL01

Name	Coll Number	Date	ADJ
<i>Schoenus tenellus</i>	2989	16/10/2007	
<i>Centrolepis glabra</i>	2990	16/10/2007	

GwaDW

Name	Coll Number	Date	ADJ
<i>Melaleuca</i> sp. <i>Kemerton</i> (B.J. Keighery 2907)	2907	8/12/2008	
<i>Lepidosperma</i> sp.	2987	8/12/2008	
<i>Pimelea lanata</i>	2988	8/12/2008	

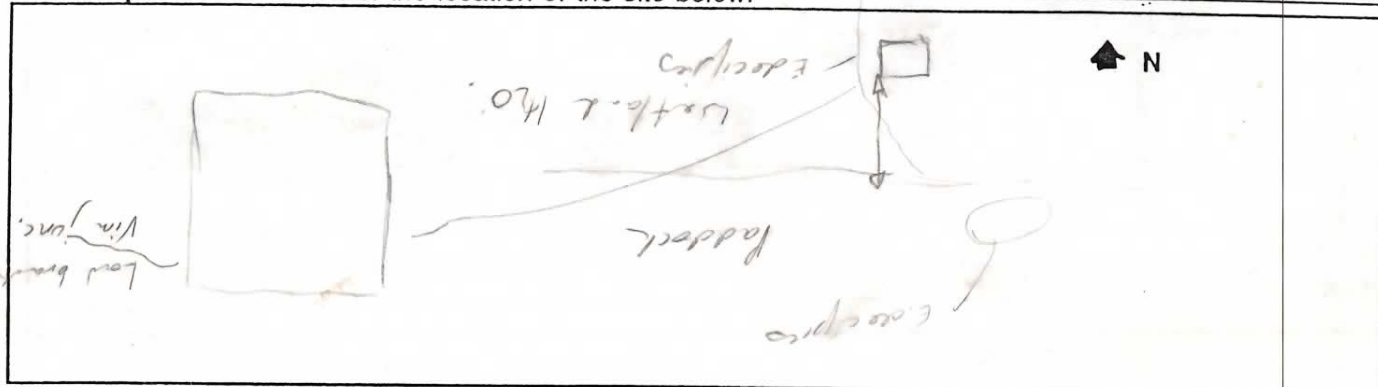
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA Gwalia Nature Reserve SITE NUMBER 3GUAL 01
 DATE TRIP 23/10/03 RECORDERS B. Keighery, B. Hyder, C. Hills, J. Pryde
 DATE TRIP 13/11/03 RECORDERS BK, BH-G, Bec Ryan (as on remainder)
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

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.



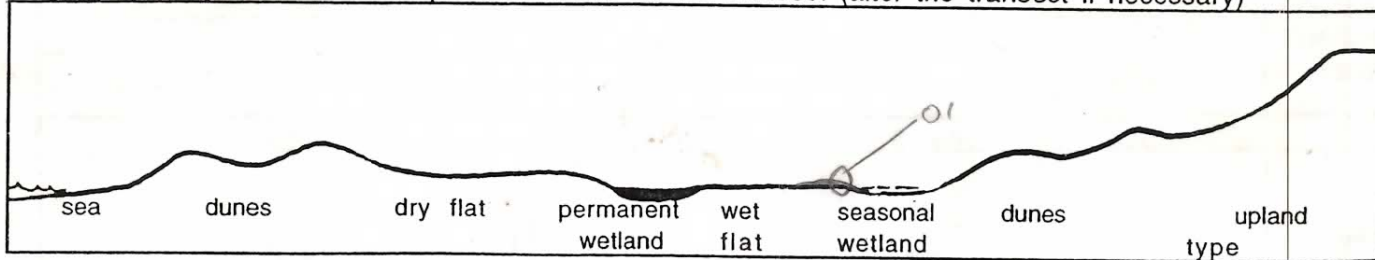
Road Location

Geographic Location Latitude 33°08'22.5" S Longitude 115°47'45" E Altitude _____

Reference Map

Photograph Photographer's Name J. Pryde Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep **Aspect** N NE E SE S SW W NW

Surface Soil sandy clay **Colour** grey/brown
Exposed rock type % surface

nodules of limestone, limestone rocks with moss covers
Sub-surface Soil as above **Colour** _____
Rock type depth to rock

Drainage well mod poor depth water cm **Wet** all year winter/spring

Litter 95 % cover **Bare Ground** 0 % cover
 Depth / cm

	BUSHLAND PLANT SURVEY RECORDING SHEET 2 - use pencil only
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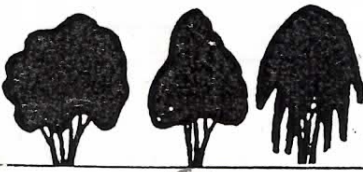
3. VEGETATION STRUCTURE AND COVER

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 life form, cover class (see below) and dominant species in each layer.

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

		TREES			MALLEES	
		over 30m	10 - 30m	under 10m	over 8m	under 8m
LIFE FORM			OF $\approx 12\frac{1}{2}m$ $\frac{15}{15}$ 	 	TM 	
COVER CLASS (%)			30-70%		30-70%	
DOMINANT SPECIES			<i>A. flexuosa</i>		<i>E. decipiens</i>	

		SHRUBS		SHRUBS	
		over 2m	2m - 1m	under 1m	
LIFE FORM		DSC 	OS 		
COVER CLASS (%)		30-70%	2-10%		
DOMINANT SPECIES		<i>Melaleuca sp. Gorda</i>	<i>Xanthorrhoea preissii</i>		
		<i>Kemerton</i>			

		GRASSES	HERBS	SEDGES	OTHER
LIFE FORM					
COVER CLASS (%)					
DOMINANT SPECIES					<i>Thy. sp. = dies for id. = T. m...</i>

4. VEGETATION CONDITION

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

5. SPECIES PRESCENCE

Label each plant
Record on Sheet

SITE No 36 WAI ①
Date 23/10/03
13/11/03

number, site code, date and	plant's name or working name if required
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- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time
- Column 4 identification

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

[illegible]

Wurmbea sp. (see note on 39-Jul-03) Kc 10/10/04

2

5. SPECIES PRESCENCE

SITE No

1

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

[illegible]

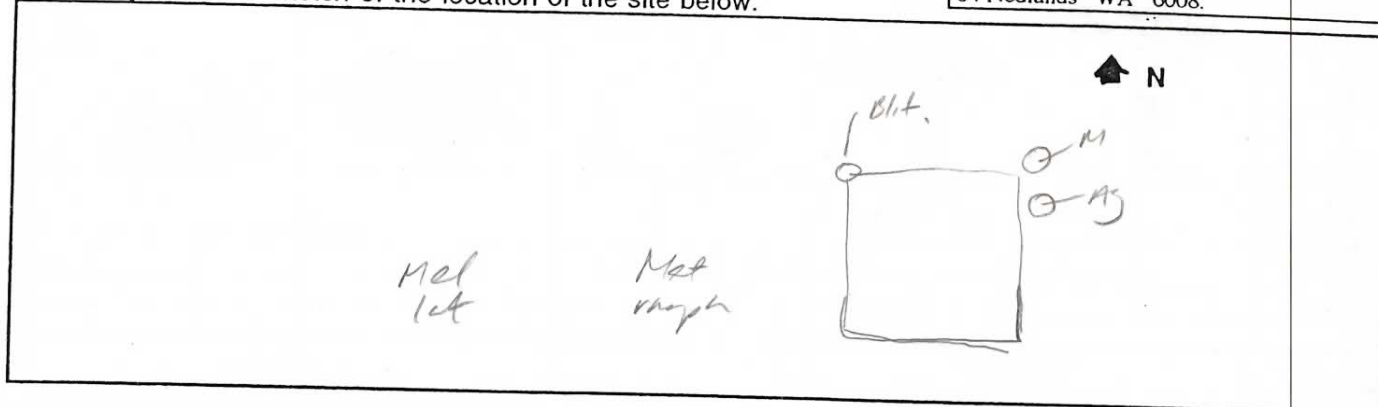
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA Gwalia NR SITE NUMBER 35WALP2
 DATE TRIP 23/10/03 RECORDERS BJK, BH-G, JP
 DATE TRIP 13/11/03 RECORDERS BJK, BH-G, Bee Ryan
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

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

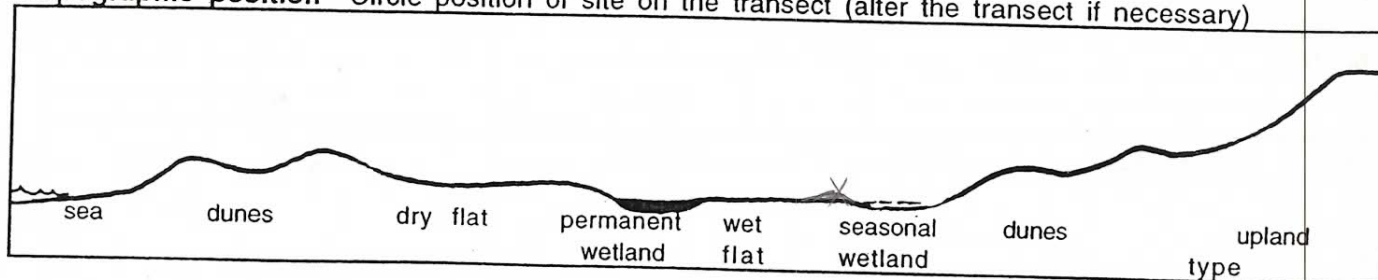
Geographic Location Latitude 33° 08' 11" S Longitude 115° 47' 49" E Altitude _____

Reference Map

Photograph Photographer's Name _____

Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep Aspect N NE E SE S SW W NW

Surface Soil Humus rich sand Colour grey (dark)
 Exposed rock type _____ % surface _____

Sub-surface Soil as above Colour _____
 Rock type _____ depth to rock _____

Drainage well mod poor depth water _____ cm Wet all year winter/spring

Litter Depth 100% % cover 2 cm Bare Ground 0% % cover

BUSHLAND PLANT SURVEY RECORDING SHEET 2 - 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 life form, cover class (see below) and dominant species in each layer.

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

		TREES			MALLEES	
		over 30m	10 - 30m	under 10m	over 8m	under 8m
LIFE FORM			OF 	OLF 		
			215m			30m
COVER CLASS (%)			30-70%	30-70%		10m
DOMINANT SPECIES			<i>Euc. calophylla</i>	<i>Banks. littoralis</i>		
			<i>Ag. flexuosa</i>			
			<i>Euc. decipiens</i>			
		SHRUBS		SHRUBS		
		over 2m	2m - 1m	under 1m		
LIFE FORM			S 			
				2m		
COVER CLASS (%)			10-30%			
DOMINANT SPECIES			<i>Xanth. preissii</i>			
		GRASSES	HERBS	SEDGES	OTHER	
LIFE FORM				SG 		
					1m	
COVER CLASS (%)				30-70%		
DOMINANT SPECIES				<i>Lepid. squamatum</i>	<i>Lepid. sp. Coastal</i>	
				<i>Cyath. sp. Good</i>		
				<i>= avenaceae fine</i>		

4. VEGETATION CONDITION

		COMMENTS
1	'PRISTINE'	Adj. area to E grazed but no obvious changes
2	EXCELLENT	
3	VERY GOOD	
4	GOOD	
5	DEGRADED	

Note: *Lepid. longistylis* listed most likely
Lepid. Squam - changed on data sheet (3/4/09)

5. SPECIES PRESCENCE

**Label each plant
Record on Sheet**

SITE No 3GWA202

Date 23/10/23

13/11/03

plant's name or working name if required

- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time
- Column 4 identification

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

[illegible]

5. SPECIES PRESCENCE

Label each plant with plants number, site code, date and plant's name or working name if required

SITE No

Record on Sheet

Date _____

- 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.

[illegible]

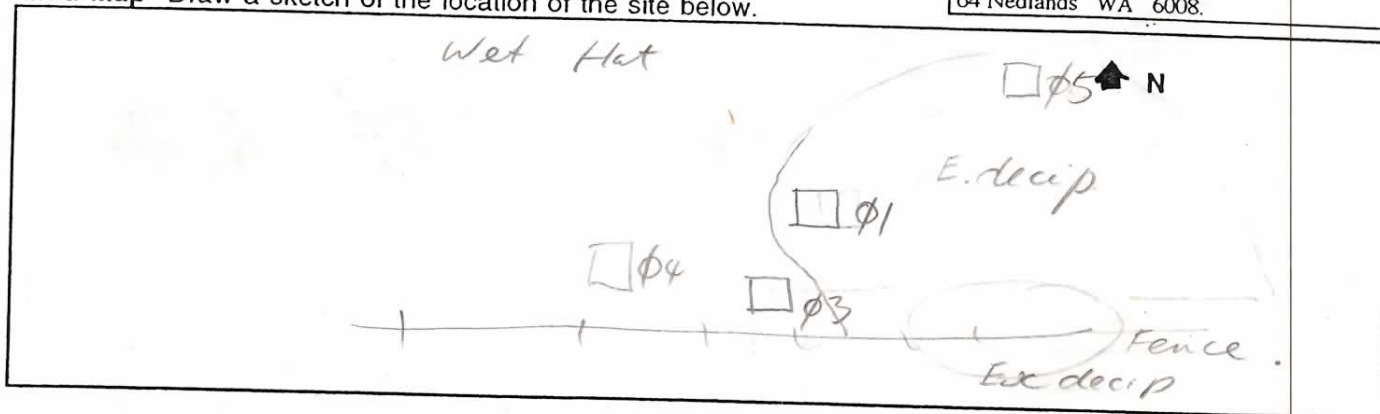
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA GWALLA NR SITE NUMBER 396WAL03
 DATE TRIP 23/10/03 RECORDERS BTK, BHC, JP
 DATE TRIP 13/11/03 RECORDERS BTK, BHC, BR
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

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

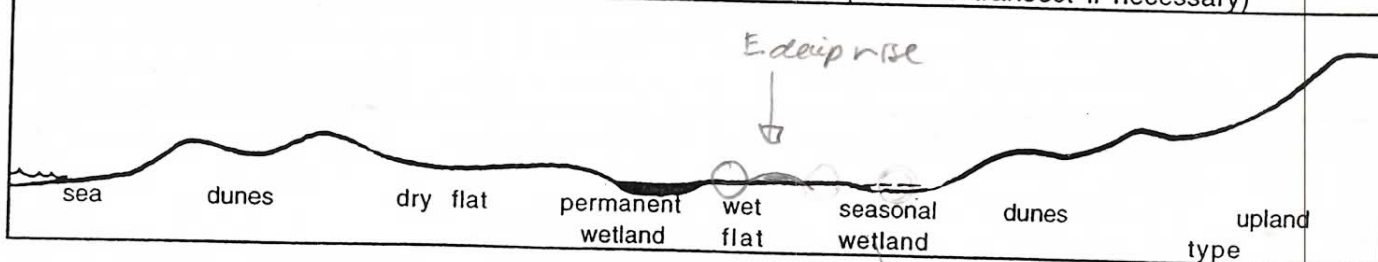


Road Location

Geographic Location Latitude 33° 08' 22" S Longitude 115° 47' 45" E Altitude _____
 Reference Map _____

Photograph Photographer's Name J Pryde Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep Aspect N NE E SE S SW W NW

Surface Soil s. sandy sandy clay Colour brown clay
 Exposed rock type _____ % surface white sand

Sub-surface Soil clay Colour _____
 Rock type _____ depth to rock _____

Drainage well mod poor depth water cm Wet all year winter/spring

Litter Depth 2-10 % cover 1 twigs cm Bare Ground <2 % cover

BUSHLAND PLANT SURVEY RECORDING SHEET 2 - 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.

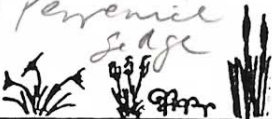
3. VEGETATION STRUCTURE AND COVER

For each layer record - appropriate life form, cover class (see below) and dominant species in each layer.

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

	TREES			MALLEES	
	over 30m	10-30m	under 10m	over 8m	under 8m
LIFE FORM					
COVER CLASS (%)					
DOMINANT SPECIES					

	SHRUBS		SHRUBS	
	over 2m	2m - 1m	under 1m	
LIFE FORM				
COVER CLASS (%)		~ 20%	30-70%	
DOMINANT SPECIES		Mel vim	Kunzea prostrata Micrantha ssp. micrantha	

	GRASSES	HERBS	SEDGES	OTHER
	OHG		OSG	SG
LIFE FORM				
COVER CLASS (%)	10-30%		10-30%	30-70%
DOMINANT SPECIES	Annual Hbs		Baumea juncea Scaevola Godwinii trifida	Centropus aristatus

4. VEGETATION CONDITION

		COMMENTS
1	'PRISTINE'	
2	EXCELLENT	
3	VERY GOOD	X - 3/02/07
4	GOOD	
5	DEGRADED	

5. SPECIES PRESCENCE

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 -

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

SITE No
Date

Record on Sheet

- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time- T1C 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.

[illegible]

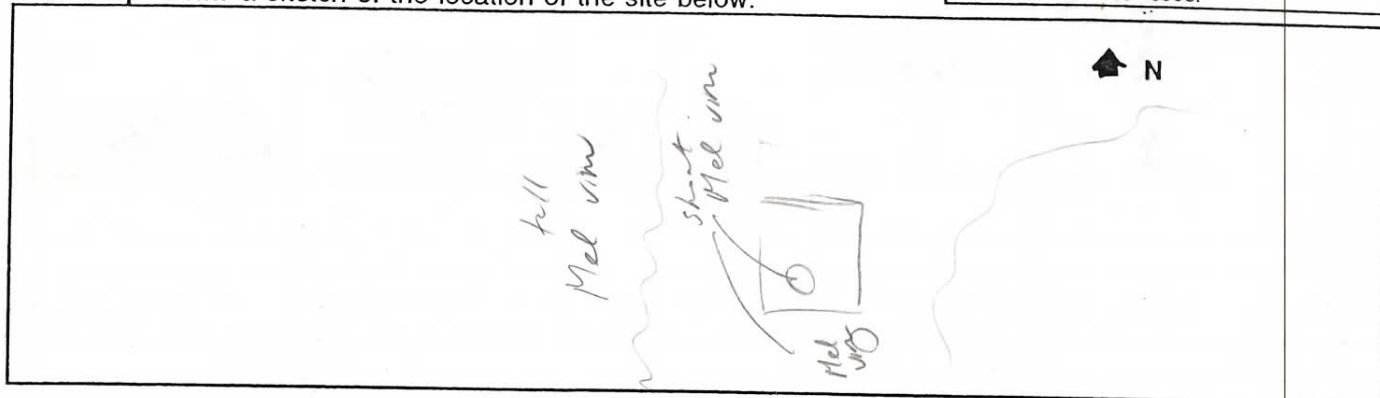
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA GWARIA NR SITE NUMBER 39WAL 04
 DATE TRIP 24/10/03 RECORDERS BJK CHS JP
 DATE TRIP 13/11/03 RECORDERS BJK, CHS, BR
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

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.

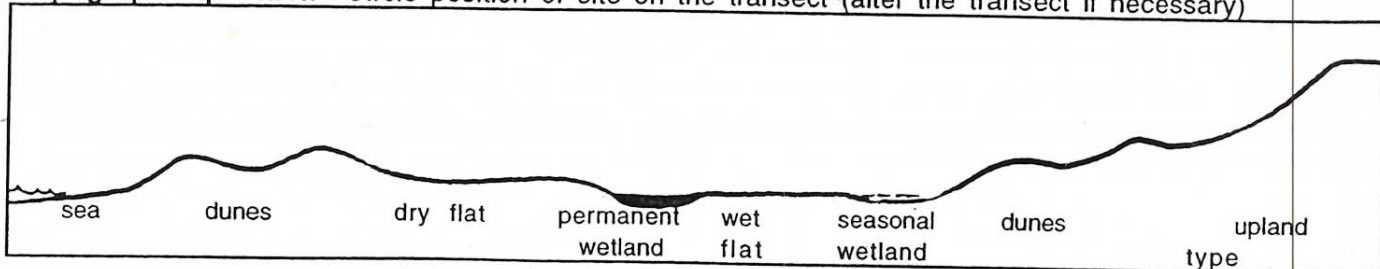


Road Location

Geographic Location Latitude 33° 08' 22" S Longitude 115° 47' 44" E Altitude _____
 Reference Map _____

Photograph Photographer's Name BJK / JP Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep Aspect N NE E SE S SW W NW

Surface Soil sandy clay Colour black
 Exposed rock type _____ % surface _____

Sub-surface Soil as above Colour _____
 Rock type _____ depth to rock _____

Drainage well mod poor depth water cm Wet all year winter/spring
Patches of H₂O to 1cm

Litter	% cover	Bare Ground	% cover
Depth	cm		

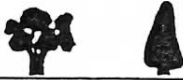
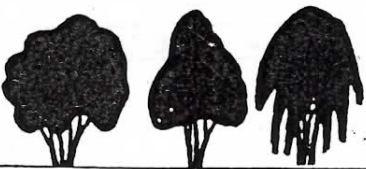
BUSHLAND PLANT SURVEY RECORDING SHEET 2 - use pencil only

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 life form, cover class (see below) and dominant species in each layer.

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

		TREES			MALLEES	
		over 30m	10-30m	under 10m	over 8m	under 8m
LIFE FORM						
COVER CLASS (%)						
DOMINANT SPECIES						
		SHRUBS			SHRUBS	
		over 2m	2m-1m	under 1m		
LIFE FORM						
COVER CLASS (%)						
DOMINANT SPECIES						
		GRASSES	HERBS	SEDGES	OTHER	
LIFE FORM						
COVER CLASS (%)						
DOMINANT SPECIES						

4. VEGETATION CONDITION

1	'PRISTINE'	COMMENTS Hummocks with some weeds
2	EXCELLENT	
3	VERY GOOD	
4	GOOD	
5	DEGRADED	

5. SPECIES PRESCENCE

Label each plant
Record on Sheet

SITE No 36 WAR 04

Date 24/10/83

- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time
- Column 4 identification

flowering time- TICK if species flowering

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.

[illegible]

In ϕ_3 is Icornua var setiformis

5. SPECIES PRESCENCE

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-
Record 'Duckland'

SITE No
Date

Date _____

- 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	FI	ID	SHRUBS (cont.)	No	FI	ID	HERBS (cont.)	No	FI	ID
MALLEES				GRASSES							
SHRUBS								SEDGES			
				HERBS							

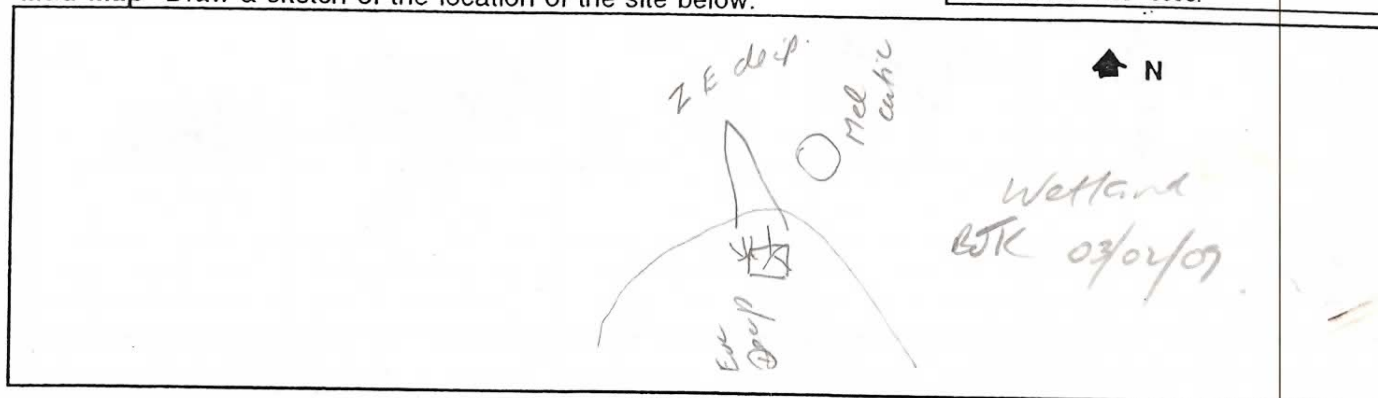
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA GWALIA NR SITE NUMBER 3GUAL 05
 DATE TRIP 24/10/03 RECORDERS BJK, B.H.G., JP
 DATE TRIP 13/11/03 RECORDERS BJK
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

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.

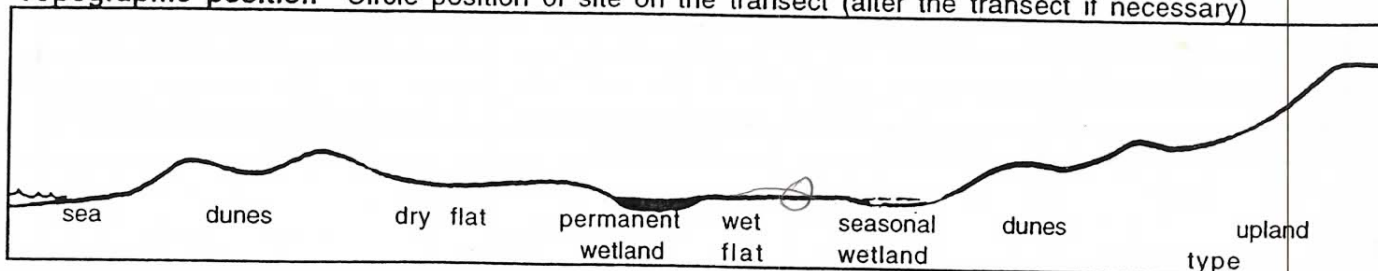


Road Location

Geographic Location Latitude 33° 06' 20" S Longitude 115° 47' 47" E Altitude _____
 Reference Map _____

Photograph Photographer's Name _____ Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat ☒ gentle steep Aspect ☒ N NE E SE S SW W NW

Surface Soil sandy clay Colour brown
 Exposed rock type scattered lumps on surface % surface 5%

Sub-surface Soil limestone Colour _____
 Rock type _____ depth to rock _____

Drainage well ☒ mod poor depth water cm Wet all year 3/02/09 winter/spring

Litter Depth 99 % cover _____ Bare Ground 0 % cover _____
4 cm to 10cm

BUSHLAND PLANT SURVEY RECORDING SHEET 2 - 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 life form, cover class (see below) and dominant species in each layer.

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

		TREES			MALLEES	
		over 30m	10-30m	under 10m	over 8m	under 8m
LIFE FORM						
					CTM	
COVER CLASS (%)					> 70%	
DOMINANT SPECIES					Euc. decip.	
		SHRUBS		SHRUBS		
		over 2m	2m-1m	under 1m		
LIFE FORM						
		Variable ht > 2m 1st dead & < 2m		OLS		
COVER CLASS (%)		30-70%		2-10%		
DOMINANT SPECIES		Mel. sp Kemerton (2907 BJR) Hakea trifurcata 'Small Flowers'		Xanth. preissii		
		GRASSES	HERBS	SEDGES	OTHER	
LIFE FORM						
		vog				
COVER CLASS (%)		2-10%				
DOMINANT SPECIES		*Vulpia* = *Brockypodium distachyon				

4. VEGETATION CONDITION

1	'PRISTINE'		COMMENTS Entire E. decipiens area evidence 'grazing' / 'roosting' by animals, pigs rather than Kangaroos
2	EXCELLENT		
3	VERY GOOD	X	
4	GOOD		
5	DEGRADED		

5. SPECIES PRESCENCE

Label each plant
Record on Sheet

SITE No 36 WAR 05

Date 24/10/03

- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time-
- Column 4 identification

TICK if species flowering

check

SHRUBS (cont.)

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

[illegible]

5. SPECIES PRESCENCE

Label each plant with Record on Sheet	plants number, Column 1	site code, date and plant name-	plant's name or working name if required
			From 'Ruehland'

SITE No

Date _____

- 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.

[illegible]

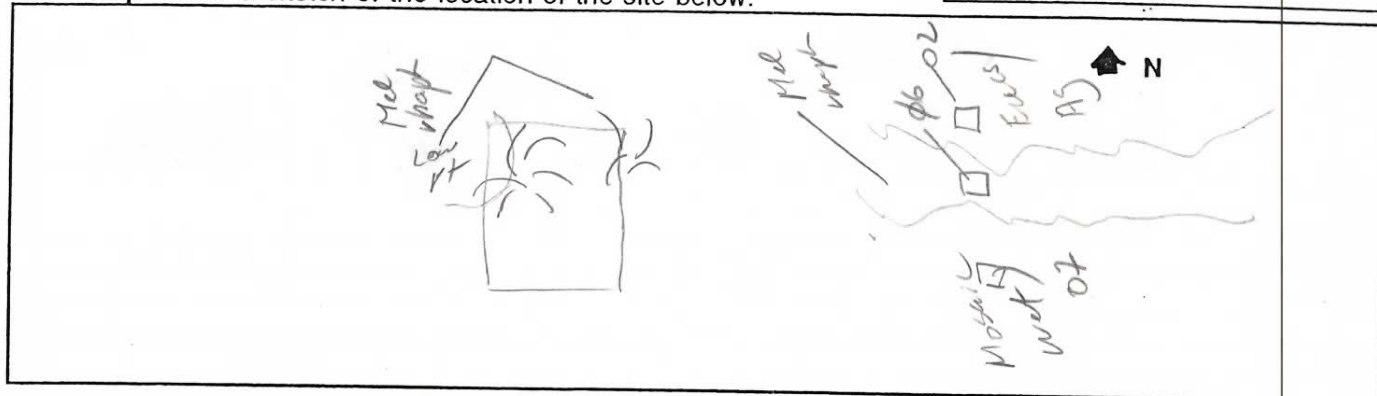
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA SWANIA NR SITE NUMBER 39WAL 06
 DATE TRIP 24/10/03 RECORDERS BJK, BH-S, JP
 DATE TRIP 13/11/03 RECORDERS BJK, BH-S, BR
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

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.

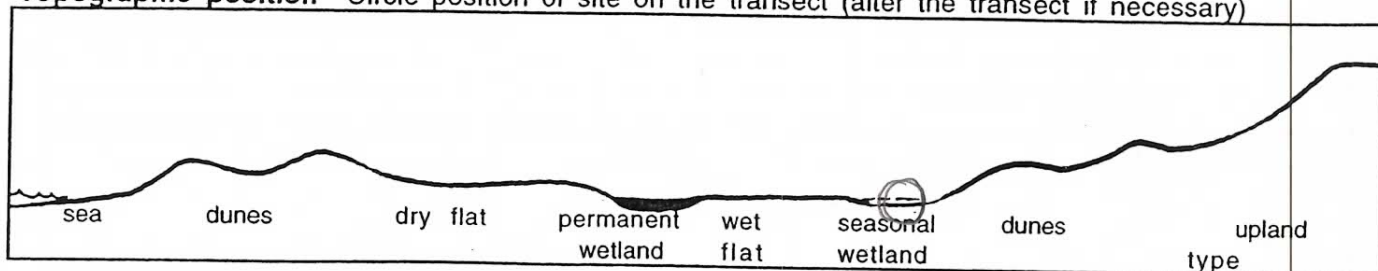


Road Location

Geographic Location Latitude 33° 08'12" S Longitude 115° 47'45" E Altitude _____
 Reference Map _____

Photograph Photographer's Name J. Pryde Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope	<u>flat</u> gentle steep	Aspect	N NE E SE S SW W NW
Surface Soil	<u>clayey sand</u>	Colour	<u>black</u>
Exposed rock	type _____ % surface _____		
Sub-surface Soil	<u>as above</u>	Colour	_____
Rock	type _____ depth to rock _____		
Drainage	well mod <u>poor</u> depth water _____ cm	Wet all year	<u>winter/spring</u>
Litter	Depth _____ % cover _____	Bare Ground	%cover _____

twigs

	BUSHLAND PLANT SURVEY RECORDING SHEET 2 - use pencil only
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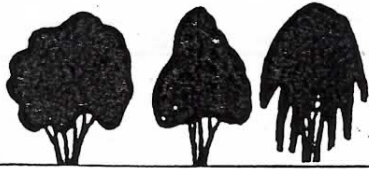
From '*Bushland Plant Survey*' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

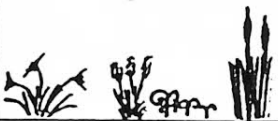
3. VEGETATION STRUCTURE AND COVER

For each layer **record** - appropriate **life form**, **cover class** (see below) and **dominant species** in each layer.

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

		TREES			MALLEES	
		over 30m	10 - 30m	under 10m	over 8m	under 8m
LIFE FORM				OLF 		
COVER CLASS (%)				30 - 70%		
DOMINANT SPECIES				Mel rhaph Mel vinn		

		SHRUBS		SHRUBS	
		over 2m	2m - 1m	under 1m	
LIFE FORM					
COVER CLASS (%)					
DOMINANT SPECIES					

		GRASSES	HERBS	SEDGES	OTHER
LIFE FORM				OSG 	Annual sedges / Naglocha
COVER CLASS (%)				10 - 30%	
DOMINANT SPECIES				Lopyrod = 04 = glauca Lepia long Gahnia frutida	

4. VEGETATION CONDITION

		COMMENTS
1	'PRISTINE'	
2	EXCELLENT	
3	VERY GOOD	X ?past. grazing, current kangaroos + pigs, brica, lobus
4	GOOD	
5	DEGRADED	

22 All other
VSP = both myd + Grass

BUSHLAND PLANT SURVEY RECORDING SHEET 3 - use pencil only

5. SPECIES PRESCENCE

Label each plant with plants number, site code, date and plant's name or working name if required

Record on Sheet

SITE No 36mm 06

Date 24/10/03

- 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	FI	ID	SHRUBS (cont.)	No	FI	ID	HERBS (cont.)	No	FI	ID
Mel. <i>leptophylla</i>								<i>Tillandsia vibrata</i>	✓		
Mel. <i>virinea</i>								<i>Stylidium insubricum</i>	✓		
								<i>Celastrum 'mar 103'</i>			
								= 07 = <i>marginalia</i>	✓		
								11/103			
								<i>Goodenaea pulchella</i>			
								<i>Asteraceae sp. Argemone</i>			
								<i>Swan Plant (Seedling)</i>			
								<i>Aphelia cymoides</i>	✓		
								<i>Pennis. sp. = 07 = <i>leontopodium</i></i>	✓		
								<i>Micranthus media</i>	✓		
								<i>Myriophyllum echinatum</i>	✓		
								SEDGES			
								<i>Carex betula</i>	✓		
								<i>Lepidosperma = 06 glauca</i>	✓		
								<i>Lepidosperma inylkand</i>	✓		
								<i>Stenopus pteropoides</i>	✓		
								<i>Centrolepis, Gasteria</i>	✓		
								<i>Schoenus, Kennelk</i>	✓		
								<i>Chloranthus anistho</i>	✓		
								<i>Centrolepis anistata</i>	✓		
								13/11/03			
								<i>Cyperus tenax</i>	✓		
								<i>Rumex juncea</i>	✓		
								<i>Plant. a. pulegium</i>	✓		
								<i>Centrolepis mutica</i>	✓		
								<i>Isoplepis cernua var setiformis</i>	✓		
								11/103			
								<i>Centrolepis alepyroides</i>	✓		

TREES

Mel. *leptophylla*

Mel. *virinea*

MALLEES

SHRUBS

Mel. *leptostachya parrishii*

Asteraceae = 04 affinis

Boerhaavia = 00 01 dichotoma

Rumex = 00 01 *microcarpa*

Probatia = 00 01

13/11/03

Haken Wana

15 just sp in 04/03/07

5. SPECIES PRESCENCE

Label each plant with plants number, site code, date and plant's name or working name if required	Column 1	plant name-	From 'Ruehland'
Record on Sheet	•		

SITE No

Date _____

- | 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.

[illegible]

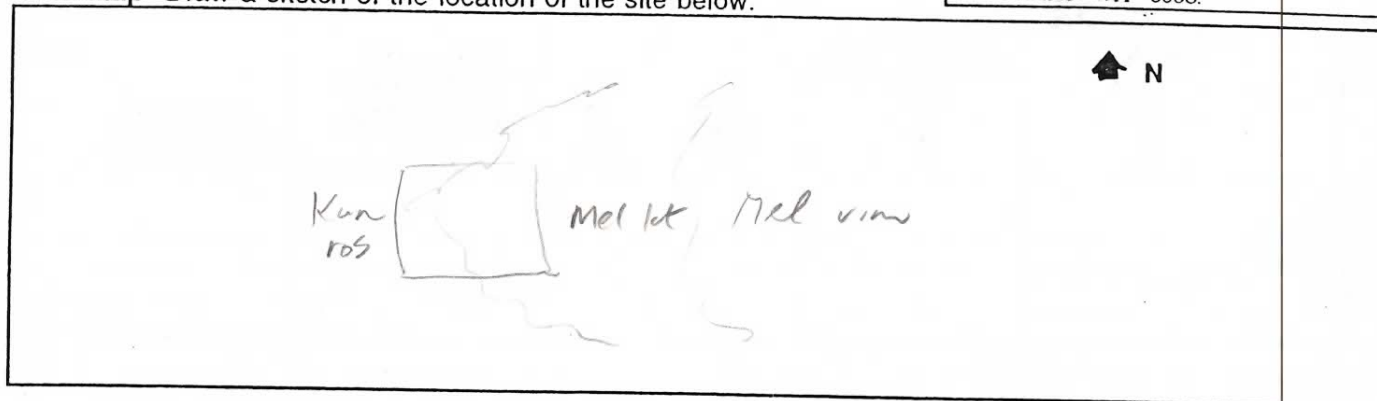
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA GWALIA NR SITE NUMBER 34WAL 07
 DATE TRIP 24/10/03 RECORDERS BOK, BH-G, JP
 DATE TRIP 13/11/03 RECORDERS BOK, BH-G, BR
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

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

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

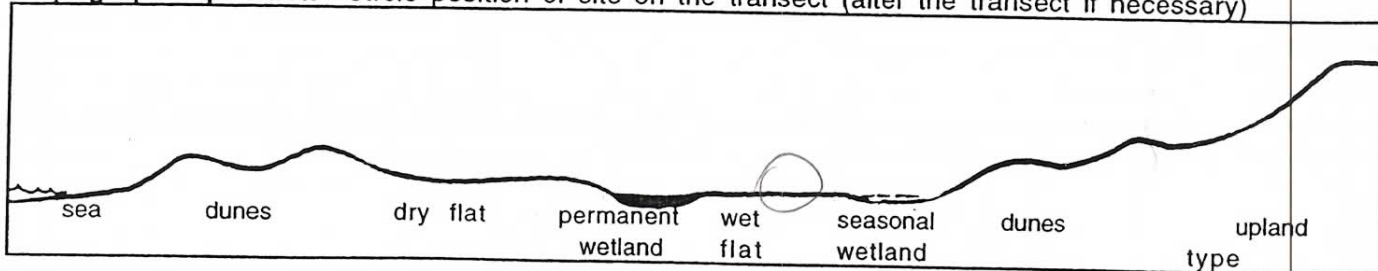


Road Location

Geographic Location Latitude _____ S Longitude _____ E Altitude _____
 Reference Map

Photograph Photographer's Name _____ Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep **Aspect** N NE E SE S SW W NW

Surface Soil sandy sandy clay **Colour** dk grey
Exposed rock type _____ % surface _____

Sub-surface Soil as above **Colour** _____
Rock type _____ depth to rock _____

Drainage well mod poor depth water _____ cm **Wet** all year winter/spring

Litter 10-30 % cover _____ **Bare Ground** 10 % cover _____
 Depth _____ cm

low hays/seagulls

BUSHLAND PLANT SURVEY RECORDING SHEET 2 - 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 life form, cover class (see below) and dominant species in each layer.

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

	TREES			MALLEES	
	over 30m	10-30m	under 10m	over 8m	under 8m
LIFE FORM			 		
COVER CLASS (%)					
DOMINANT SPECIES					

	SHRUBS		SHRUBS
	over 2m	2m-1m	under 1m
LIFE FORM	  	  	  
COVER CLASS (%)		> 70%	
DOMINANT SPECIES		Me lateritia Ast spatialis Kun. best mic sup mic	

	GRASSES	HERBS	SEDGES	OTHER
	LIFE FORM	 	  	  
COVER CLASS (%)		2-10%	10-30%	30-70%
DOMINANT SPECIES		Mixed	Lopyrodia = fl Lepid long	Annual Sedges. Central. arist glouen

4. VEGETATION CONDITION

		COMMENTS
1	'PRISTINE'	Scattered woods, patchy at times Briza / Parakeetella / Lotus / Anagallis most common
2	EXCELLENT	
3	VERY GOOD	
4	GOOD	
5	DEGRADED	

Wk 10/03/07
combined as
one sedge layer
in Delburne

BUSHLAND PLANT SURVEY RECORDING SHEET 3 - use pencil only

5. SPECIES PRESCENCE

Label each plant with plants number, site code, date and plant's name or working name if required

Record on Sheet

DATE 24/10/03

13/11/03

- 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 FI ID

SHRUBS (cont.)

No FI ID

HERBS (cont.)

No FI ID

85K

2978

✓ Styidium divaricatum

→

Hebs 13/11/03. 10/11/03

Stydia subuloides

Caladonia emarginata

✓

85K

2976

✓ Chlorus subulifolius

✓

Styidium robustum

✓

MALLEES

✓

Microchloa media

✓

Microchloa media

✓

* Monopsis debilis

✓

Grasses 13/11/03

Agrostis

Agrostis

✓

SHRUBS

✓

Hebs 13/11/03

Agrostis

Agrostis

✓

SHRUBS

✓

Hebs 13/11/03

Agrostis

Agrostis

✓

SHRUBS

✓

Hebs 13/11/03

Agrostis

Agrostis

✓

Agrostis

✓

Agrostis

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Agrostis

Agrostis

Agrostis

✓

P710

occidentalis ssp. occidentalis

8/11/03

Centropus po'lym. VSP

2971

centropus

2970

5. SPECIES PRESCENCE

5. SPECIES PRESCENCE	Label each plant
SITE No	Record on Sheet

Label each plant with plants number, site code, date and plant's name or working name if required

- Column 1 plant name.
- Column 2 plant number
- Column 3 flowering time.
- Column 4 identification

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

[illegible]

BUSHLAND PLANT SURVEY RECORDING SHEET 3 - use pencil only

5. SPECIES PRESCENCE

SITE NO	214
---------	-----

Date 24/10/03

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-
From 'Ruekland			

- 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.

[illegible]

5. SPECIES PRESCENCE

BUSHLAND PLANT SURVEY RECORDING SHEET 3 - use pencil only

Label each plant with plants number, site code, date and plant's name or working name if required

SITE No

Date _____

24/0/87

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.

[illegible]

5. SPECIES PRESCENCE

Label each plant with plants number, site code, date and plant's name or working name if required

SITE NO

LAKE

Date 23/10/03

- 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.

[illegible]

3 GWAL Cley Fkt add. hands

5. SPECIES PRESCENCE

5. SPECIES PRESENCE	Label each plant
SITE No <i>NA</i>	Record on Sheet

Date 24/10/03

~~20/11/2020~~

13/11/03

~~20/11/2020~~

- Column 1 plant name-
- Column 2 plant number
- Column 3 flowering time
- Column 4 identification

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

[illegible]