

MAROUBRA AVENUE BUSHLAND, BULLSBROOK

Boundary Definition: bushland taken to cadastre/bushland group boundary (Areas of bushland within the boundaries of the Site are not accurately mapped. The boundary has been drawn to include any unmapped bushland.)

SECTION 1: LOCATION INFORMATION

Bush Forever Site no. 89 **Area (ha):** bushland 10.2

Map no. 24, 25

Map sheet series ref. no. 2134-IV SW

Other Names: Pearce 3 and Pearce 5; Location 100 (Keighery, BJ, and Trudgen 1992)

Local Authorities (Suburb): Shire of Swan (Bullsbrook)

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Foothills

Colluvial Deposits (Qc: Msg, S5)

Pinjarra Plain

Guildford Formation (Qpa: Mgs1)

VEGETATION AND FLORA

Vegetation Complexes

Pinjarra Plain

Guildford Complex

Floristic Community Types

Supergroup 1: Foothills/Pinjarra Plain

3c *Eucalyptus calophylla* — *Xanthorrhoea preissii* woodlands and shrublands (most northern representation sampled)

Supergroup 2: Seasonal Wetlands

6 Weed dominated wetlands on heavy soils

WETLANDS

Wetland Types: palusplain

Natural Wetland Groups (undefined areas included in boundary)

Darling Plateau

Walyunga (D.1)

Swan Coastal Plain Rivers

Ellen Brook (R.3)

Wetland Management Objectives: Conservation (1.86ha), Resource Enhancement, Multiple Use

Swan Coastal Plain Lakes EPP: none identified

THREATENED ECOLOGICAL COMMUNITIES

Not assessed, Critically Endangered (floristic community type 3c)

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: vegetated wetland, vegetated uplands

Vegetation and Flora: limited survey (Gibson *et al.* 1994 (Pearce 01-02), Keighery, BJ, and Trudgen 1992)

Structural Units: mapping (Keighery, BJ, and Trudgen, 1992)

Uplands: *Eucalyptus wandoo* Open Woodland

Wetlands: *Eucalyptus wandoo* Open Woodland; *Hakea prostrata*, *Jacksonia sternbergiana*, *Daviesia horrida* and *Xanthorrhoea preissii* Shrubland; *Hypocalymma angustifolium* Open Low Heath; Sedgeland; Herbland

Vegetation Condition: >75% Very Good to Good, <25% Good to Degraded, with areas of severe localised disturbance

Total Flora: 84 native taxa, 19 weed taxa (plot-generated list, Gibson, *et al.* 1994)

Significant Flora: *Acacia lasiocarpa* var. *bracteolata* (1)

Fauna: not known

Linkage: no adjacent bushland; part of Greenway 57 (Tingay, Alan & Associates 1998a); part of a regionally significant fragmented bushland/wetland linkage (Part A, Map 7)

Other Special Attributes: part of the Bullsbrook Bushland area recommended for inclusion in a regional park (Keighery, BJ, and Trudgen 1992); Threatened or Poorly Reserved Plant Community (EPA 1994 GIS); contains plant communities representative of the eastern side of the Swan Coastal Plain

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Subject to protection under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities, Diversity, Rarity, Scientific or evolutionary importance, General criteria for the protection of wetland, streamline and estuarine fringing vegetation and coastal vegetation

Recommendation: Other Government Land Mechanism (see Table 3, Volume 1).

MAROUBRA AVENUE BUSHLAND, BULLSBROOK

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SECTION 1: CADASTRAL INFORMATION

(Lots, locations and derived information to be updated in the public submission period)

Bushplan Site no. 89 **Map no.** 30 **Map sheet series ref. no.** 2134-IV SW

Other Names **Area (ha):** total 16.8; bushland 10.2

Pearce 3 and Pearce 5; Location 100 (Keighery, BJ, and Trudgen 1992)

Local Authorities (Suburb)

Shire of Swan (Bullsbrook)

Zoning

MRS: Urban, Other Major Highways

TPS: Landscape, Residential 1, Residential Development, General Commercial, Recreation

Lot/Location/Reserve numbers (Purpose),

Street name

1, 200, 201 Great Northern Hwy; 81 Chittering Rd; 80 Maroubra Ave; 90 Second Ave

Ownership Categories

Local Government, Commonwealth Government

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Foothills

Colluvial Deposits (Qc: Msg, S5)

Pinjarra Plain

Guildford Formation (Qpa: Mgs1)

VEGETATION AND FLORA

Vegetation Complexes

Pinjarra Plain

Guildford Complex

Floristic Community Types

Supergroup 1: Foothills/Pinjarra Plain

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Natural Wetland Groups (undefined areas included in boundary)

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Walyunga (D.1)

Swan Coastal Plain Rivers

Ellen Brook (R.3)

Wetland Management Objectives: Conservation (5.5ha), Multiple Use

Swan Coastal Plain Lakes EPP: none identified

THREATENED ECOLOGICAL COMMUNITIES

Not assessed, Critically Endangered (floristic community type 3c)

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: vegetated wetland, vegetated uplands

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Total Flora: 84 native taxa, 19 weeds (plot-generated list, Gibson *et al.* 1994)

Significant Flora: *Acacia lasiocarpa* var. *bracteolata* (1)

Fauna: no known information

Linkage: no adjacent bushland; part of proposed Greenway 66 (Tingay, Alan & Associates 1997a); part of a regionally significant fragmented bushland/wetland linkage (Volume 2A, Map 8)

Other Special Attributes: part of the Bullsbrook Bushland area recommended for inclusion in a regional park (Keighery, BJ, and Trudgen 1992); Threatened or Poorly Reserved Plant Community (EPA 1994 GIS); contains plant communities representative of the eastern side of the Swan Coastal Plain

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities, Diversity, Rarity, Scientific or evolutionary importance, General criteria for the protection of wetland, streamline and estuarine fringing and coastal vegetation

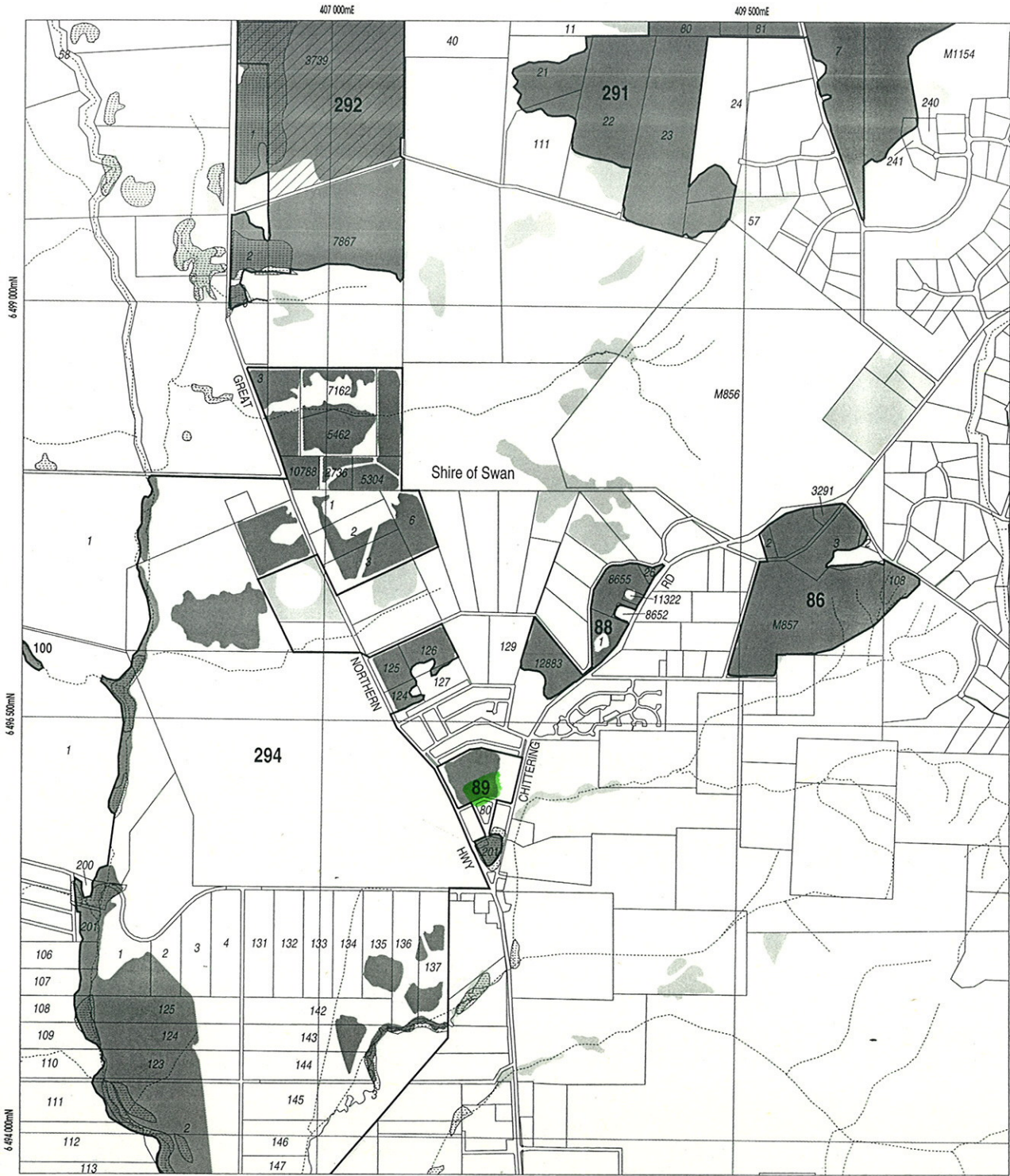
Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site subject to Swan and Canning Rivers EPP; location of conservation category wetland; under TPS Recreation Zoning and Landscape Zoning

Constraints: private land; under MRS Urban Zoning, MRD regional road requirements

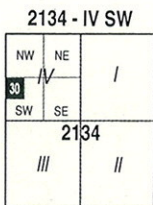
Recommendation: The Bushplan Site be reserved for Parks and Recreation in the Metropolitan Region Scheme and be purchased for Nature Reserve.



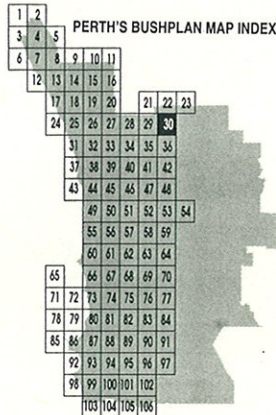


LEGEND

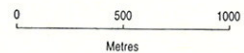
- Bushplan Sites With Regionally Significant Bushland
- Other Native Vegetation
- Conservation Category Wetlands
- Bushplan Sites With Some Existing Protection
- Lot Number, Location Number
- Channel Wetlands
- Local Government Boundary



1 : 25 000 AMG Reference Grid showing Perth's Bushplan Map Sheet Breakdown



SCALE



Produced by Project Mapping Section
 Land Information Branch, Ministry for
 Planning, Perth W.A. November 1998
 ntw-map11\environ\bushplan\bushv2_30.dgn
 Cadastral Data supplied by Department
 of Land Administration, W.A.
 Wetlands Data supplied by
 Water and Rivers Commission
 Native Vegetation Extent for Study Area
 supplied by Agriculture Western Australia

QUADRAT No. Pearce I VEGETATION TYPE Wandoo woodland
 DATE FIRST TRIP 8/10/92 VOLUNTEERS NG/MC/GK
 DATE SECOND TRIP _____ VOLUNTEERS _____
 BOTANIST _____

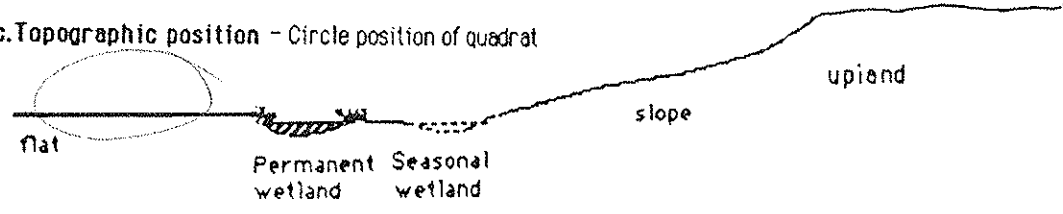
1. LOCATION of the QUADRAT

31 39 57-7 116 01 49.0

a. Mud Map Draw a sketch of the location of the quadrat the back of this sheet →

b. Photograph Photographer's name _____

c. Topographic position - Circle position of quadrat



Keighery and Keighery, 1990
Adapted from Griffin and Keighery, 1989
MOORE RIVER to JURRIEN SANDPLAIN
SURVEY. WILDFLOWER SOCIETY of WA

PEARCE

2. SITE DATA - Circle the correct response

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

% Bare ground 0 Drainage well mod (poor) Wet All year (winter/spring)

Litter (% cover) 20 Surface soil grey clay Sub-surface soil clay

3. VEGETATION STRUCTURE AND COVER. Record appropriate cover class

Cover Class - percentage classes
 0% under 2% 2-10% 10-20% 20-30% 30-50% 50-70% over 70%

LIFE FORM	TREES	<i>E. vlandoc</i>		MALLEES	Height (metres)
		> 15m 5-15m	Under 5m	MALLEE SHRUB less than 8m	
COVER CLASS (%)		20			

LIFE FORM	SHRUBS	<i>Ac. lasiocarpa</i>					Height (metres)
		over 2m	2.0-1.5m	1.5-1.0m	1.0m-.5m	under 5m	
COVER CLASS (%)						80	

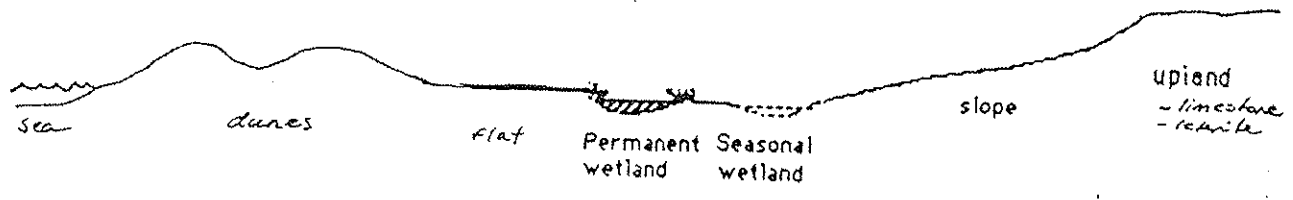
LIFE FORM	BUNCH GRASSES	HERBS	SEDGES	Height (metres)
		<i>Cyperus tenuis</i>		
COVER CLASS (%)		10		

a. Mud Map Draw a sketch of the location of the quadrat:

PEARCE-1

b. Road Location	c. Latitude	Longitude
d. Photograph Photographer's name <u>NG</u>	Photo No	Altitude

e. Topographic position - Circle position of quadrat



2. SITE DATA - Circle the correct response
 Slope flat gentle steep

Aspect

N	NE	E	SE	S	SW	W	NW
---	----	---	----	---	----	---	----

Surface soil _____

Sub-surface soil _____

Drainage well mod poor Wet All year winter/spring

Litter (% cover) _____ % Bare ground _____

4. VEGETATION CONDITION

EXCELLANT		Comments too freq burnt invaded by bulbous weeds
VERY GOOD		
<u>GOOD</u>		
<u>POOR</u>		
VERY POOR		

SPECIES PRESENCE

- work systematically through the vegetation, start with the tallest stratum, i.e. trees
- within each stratum try to record the **most common species first** and the most uncommon last.
- as each species is collected **label** it with a numbered tag and use this number on your recording sheet
- indicate if the species is in flower

Keighery and Keighery, 1990
 Adapted from Griffin and Keighery, 1989
 MOORE RIVER to JURIE SANDPLAIN
 SURVEY. WILDFLOWER SOCIETY of WA

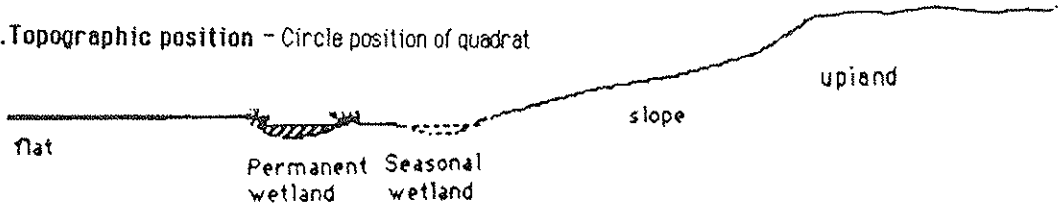
QUADRAT No.
 13000 I

Trees		No	ID	SHRUBS		No	ID	Herbs		No	ID
Eucalyptus wandoo								X Eucalyptus wandoo			
Mallees											
SHRUBS				Bunch Grasses				Sedges			
X Acacia lasiophylla				X Nardochloa dioparandrea				X Lycopodium obscurum			
X Acacia lasiophylla				X Xanthorrhoea corymbosa							
X Hypocalymma lana											
X Dioparandra coronata											
check list 1st 1st											
				Herbs							
				X* Stylidium maximum							
				X* Drosera rotundifolia							
				X* Rorippa nasturtium-aquaticum							
				X* Xanthorrhoea corymbosa							
				X* Dianella caerulea							
				X* Monarda latifolia							
				X* Styphandra australis							
				X* Santalum capitatissimum							
				X* Horridula flaccida							
				X* Trichostema australe							
				X* Cicuta occidentalis							
				X* Trichostema australe		16/	3r	NSP			
				X* Isotria medeoloides							
				X* Galium aparine							
				X* Taraxacum officinale							
				X* Hesperis matronalis							
				X* Hesperis matronalis							

QUADRAT No. Panorama 2 VEGETATION TYPE _____
 DATE FIRST TRIP 11/10/92 VOLUNTEERS _____
 DATE SECOND TRIP 16/11/97 VOLUNTEERS _____
 BOTANIST ML / GK / NG

1. LOCATION of the QUADRAT

- a. Mud Map Draw a sketch of the location of the quadrat the back of this sheet →
- b. Photograph Photographer's name NG
- c. Topographic position - Circle position of quadrat



Keighery and Keighery, 1990
 Adapted from Griffin and Keighery, 1989
 MOORE RIVER to JURIEAN SANDPLAIN
 SURVEY. WILDFLOWER SOCIETY of WA

2. SITE DATA - Circle the correct response

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

% Bare ground 20 Drainage well mod poor Wet All year winter/spring

Litter (% cover) _____ Surface soil grey brown clay Sub-surface soil had pen @ 20cm

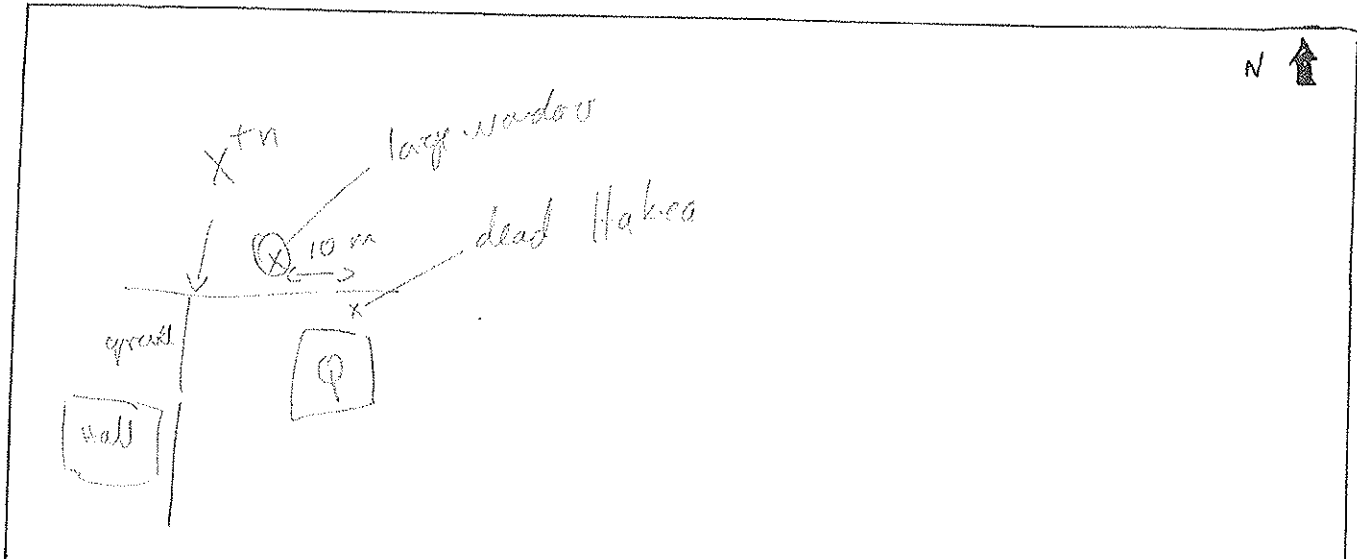
3. VEGETATION STRUCTURE AND COVER Record appropriate cover class

Cover Class - percentage classes	over 70%	TREES		MALLEES				Height (metres)	
	50-70%	LIFE FORM	> 15m 5-15m	Under 5m	MALLEE SHRUBS less than 8m	MALLEE TREE 8m or more			
	30-50%	COVER CLASS (%)	> 15m 5-15m						
	20-30%	SHRUBS		<i>Nakea prostrata / Kunzea stricta (white)</i> <i>Drosera / horrida</i>					
	10-20%	LIFE FORM	over 2m	2.0-1.5m	1.5-1.0m	1.0m - .5m	under 5m		
	2-10%	COVER CLASS (%)			10	10	40		
	0%	BUNCH GRASSES		HERBS		SEDGES			
	LIFE FORM	<i>Neurachne al</i> under .5m	under .5m (except creepers)		over .5m	under .5m			
	COVER CLASS (%)	20							

1. LOCATION OF THE QUADRAT

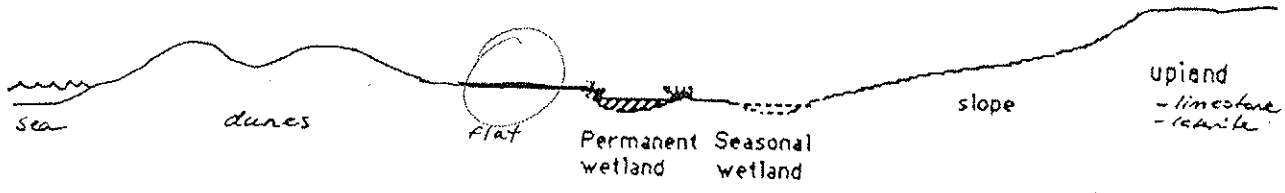
a. Mud Map Draw a sketch of the location of the quadrat:

PEARCE-2



b Road Location	c. Latitude	Longitude
Pearce	31°40'00".1	116 01 45.9
d. Photograph Photographer's name	Photo No	ARR: Kade 20 m

e. Topographic position - Circle position of quadrat



2. SITE DATA - Circle the correct response
Slope flat gentle steep

Aspect

N	NE	E	SE	S	SW	W	NW
---	----	---	----	---	----	---	----

Surface soil _____

Sub-surface soil _____

Drainage well mod poor

Wet All year winter/spring

Litter (% cover) _____

% Bare ground _____

4. VEGETATION CONDITION

EXCELLANT		Comments Some bulbous weed invasion
<u>VERY GOOD</u>		
GOOD		
POOR		
VERY POOR		

89

4.0pm x/c
Dist?

FB
CREATING
x/c

BUSHPLAN SITES CORRECTED

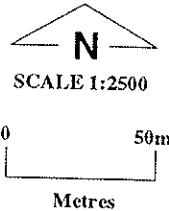


WESTERN
AUSTRALIAN
PLANNING
COMMISSION



CUSTOMER
FOCUS
WESTERN AUSTRALIA

B Bk/176 22/10/98



SCALE 1:2500

0 50m

Metres

U
BOK 2/7

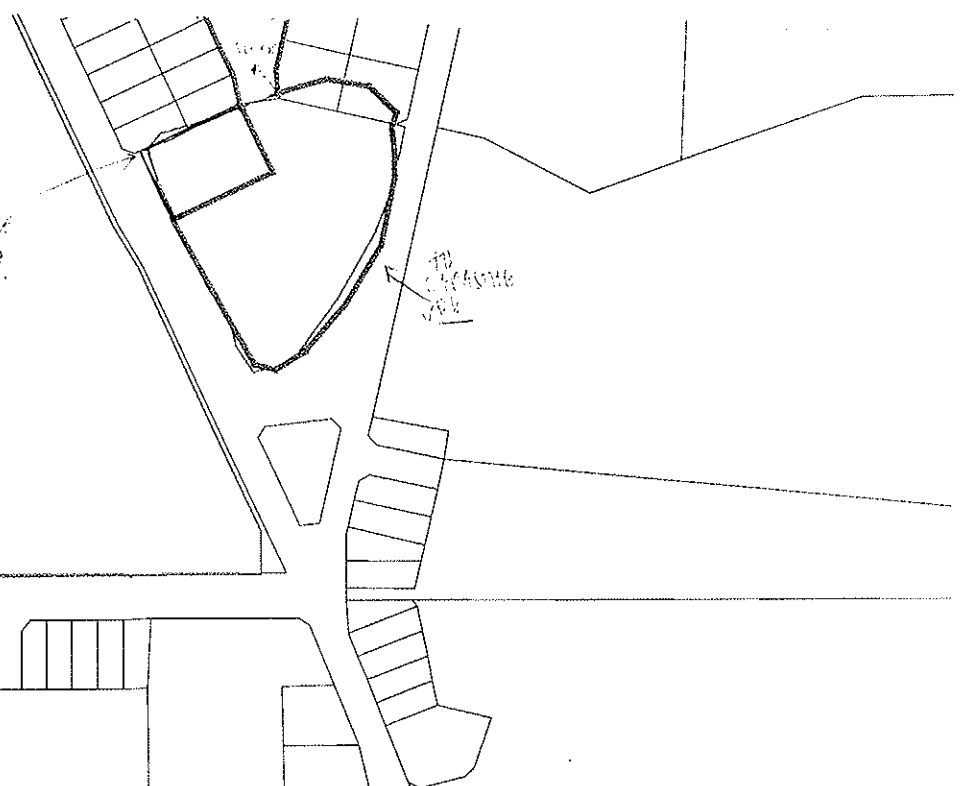
B5 89

Need to modify rev veg, top
block some missed.

89

1.2m x 2.2m
grid?

1.2m x 2.2m
grid



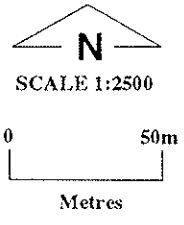
BUSHPLAN SITES CORRECTED



WESTERN
AUSTRALIAN
PLANNING
COMMISSION



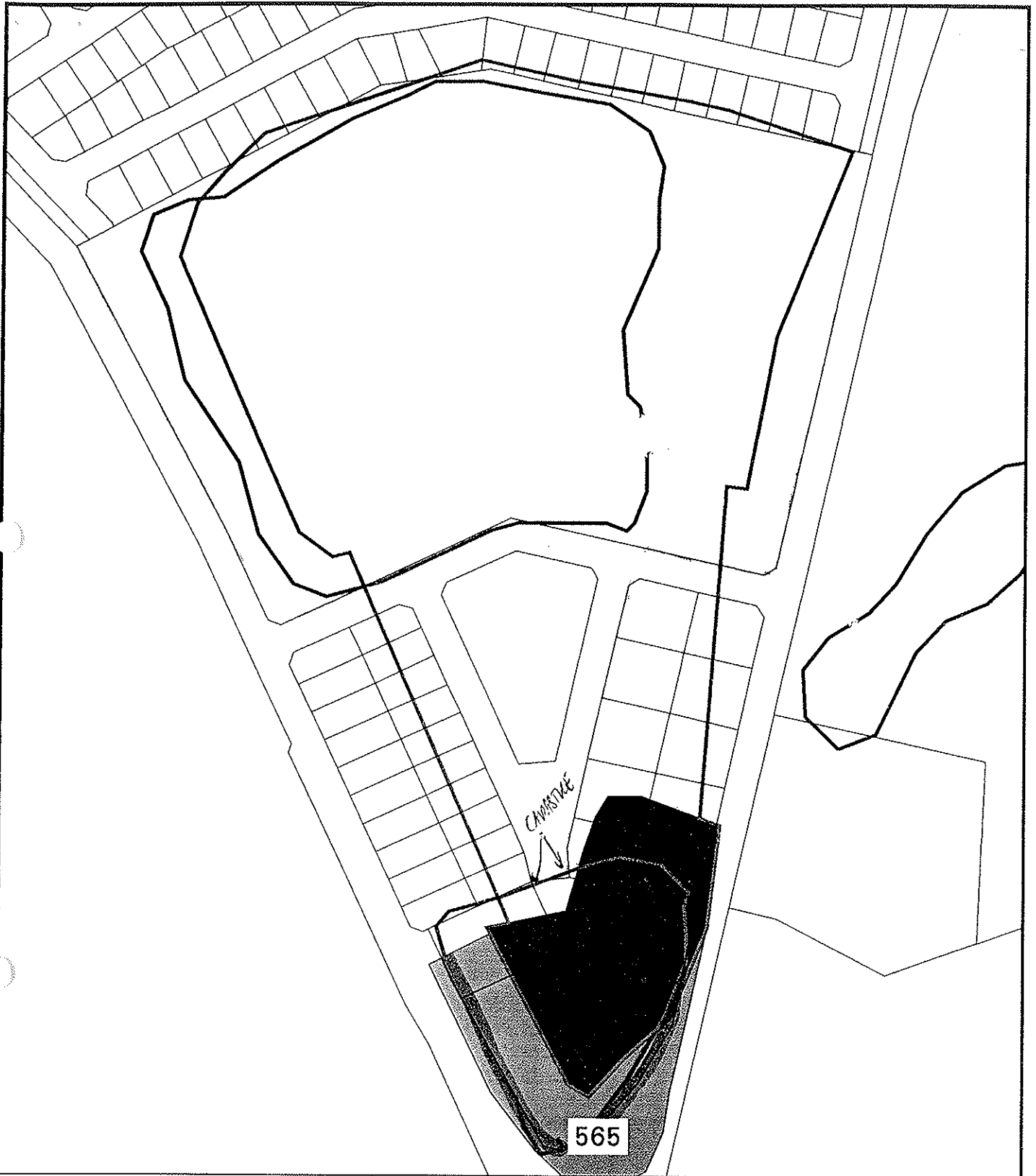
CUSTOMER
FOCUS
WESTERN AUSTRALIA



SCALE 1:2500

0 50m

Metres



bp site 89

AERIAL IMAGE REQUEST N/A?
MAROUBRA AVE

MFP INTERNAL USE ONLY






Prepared By: Andrea Zappacosta

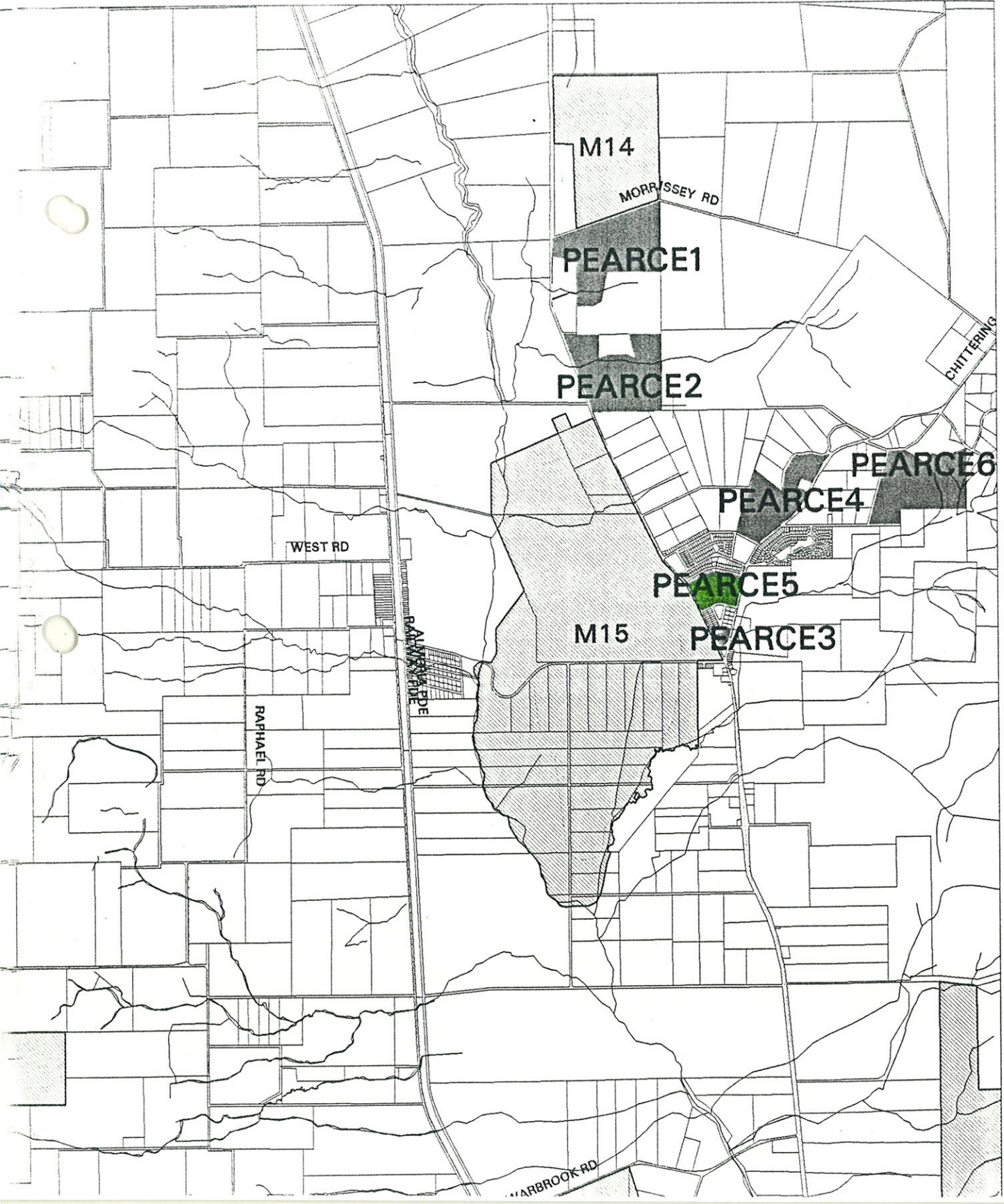
Prepared For:

Map Ident: plot980515_1

Date: 15 May 98

Scale 1:3568









-  AG VEG 1998 BOUNDARY THEME
-  Bushplan sites refno 1-500 SCP BOUNDARY THEME
-  Cadastre
-  cons category wetlands
-  Verified CCWs



VEGETATION COMPLEXES

Bush Forever Site 89: Maroubra Avenue Bushland, Bullsbrook



-  Bush Forever Sites
-  Bush Forever, MRS Ammendments
-  Local Government Authority Boundaries
- Floristic Survey Sites of the Southern Swan Coastal Plain
 -  GJKENV (Keighery 1996)
 -  GRIFFIN (Griffen 1994)
 -  SCP (Gibson et al 1994)
 -  SYS6ENV (DEP 1996 and Trudgen & Keighery 1995)
 -  SYS6ENV2 (DEP 1996 and Trudgen & Keighery 1995)
-  CALM Threatened Ecological Communities 2002
-  Roads - Perth Metropolitan
-  Swan Coastal Plain - Eastern Boundary

70 0 70 140 Meters



1:10000



Projection: GDA94
MGA Zone 50

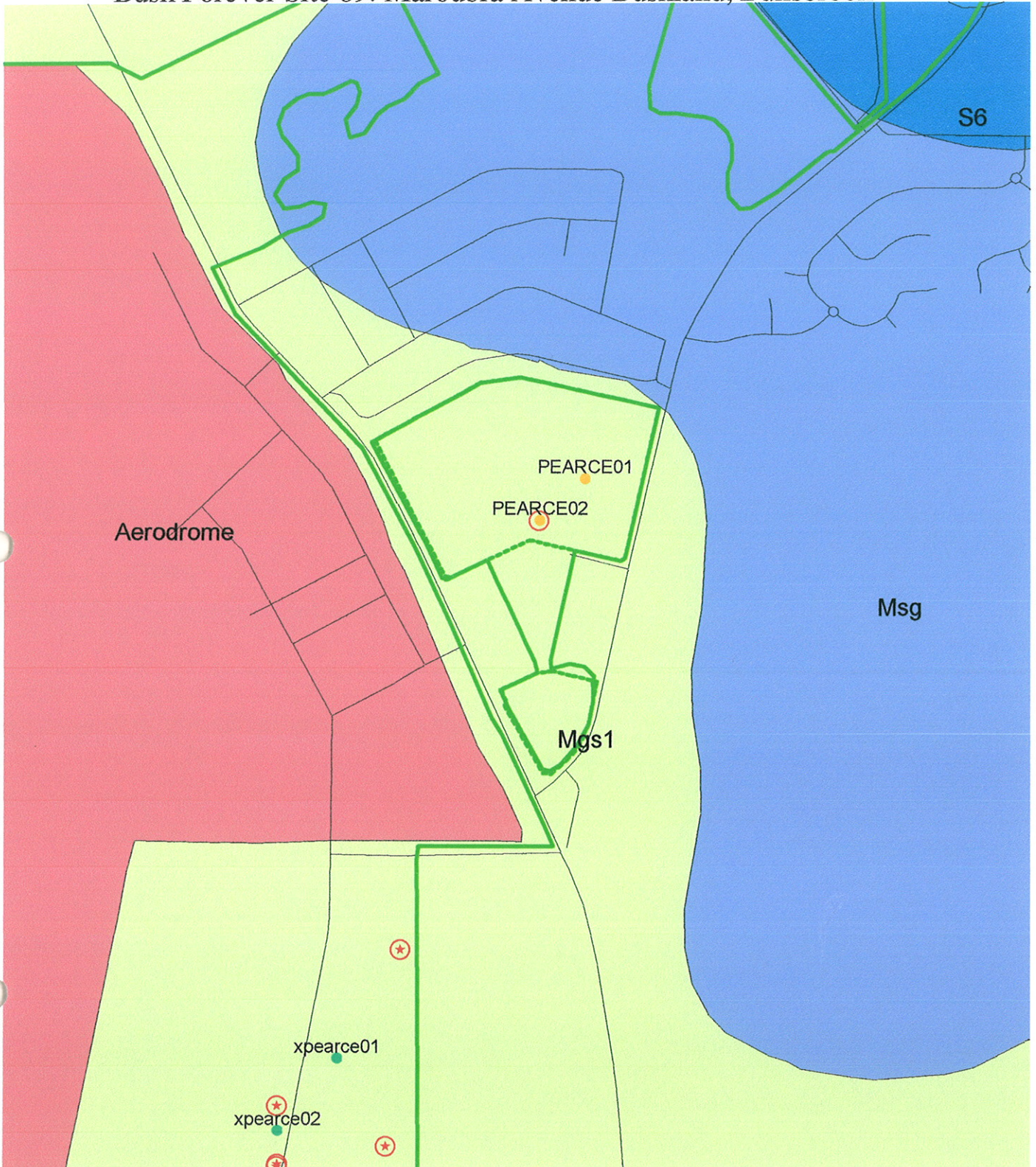
Department of Environment
Western Australia

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No responsibility is accepted for
any error or omission.*

Aerial Photography: Perth Metro Area - North West 2003

ENVIRONMENTAL GEOLOGY

Bush Forever Site 89: Maroubra Avenue Bushland, Bullsbrook



- Bush Forever Sites
- Bush Forever, MRS Ammendments
- Local Government Authority Boundaries
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70 0 70 140 Meters



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Bush Forever Site 89: Maroubra Avenue Bushland, Bullsbrook



- Bush Forever Sites
- Bush Forever, MRS Ammendments
- Local Government Authority Boundaries
- Geomorphic Wetlands Feb04 by Evaluation
- Conservation
- Resource Enhancement
- Multiple Use
- No longer a wetland
- Not Assessed
- Floristic Survey Sites of the Southern Swan Coastal Plain
 - GJKENV (Keighery 1996)
 - GRIFFIN (Griffen 1994)
 - SCP (Gibson et al 1994)
 - SYS6ENV (DEP 1996 and Trudgen & Keighery 1995)
 - SYS6ENV2 (DEP 1996 and Trudgen & Keighery 1995)

40 0 40 80 Meters



1:5000



Projection: GDA94
MGA Zone 50

Department of Environment
Western Australia

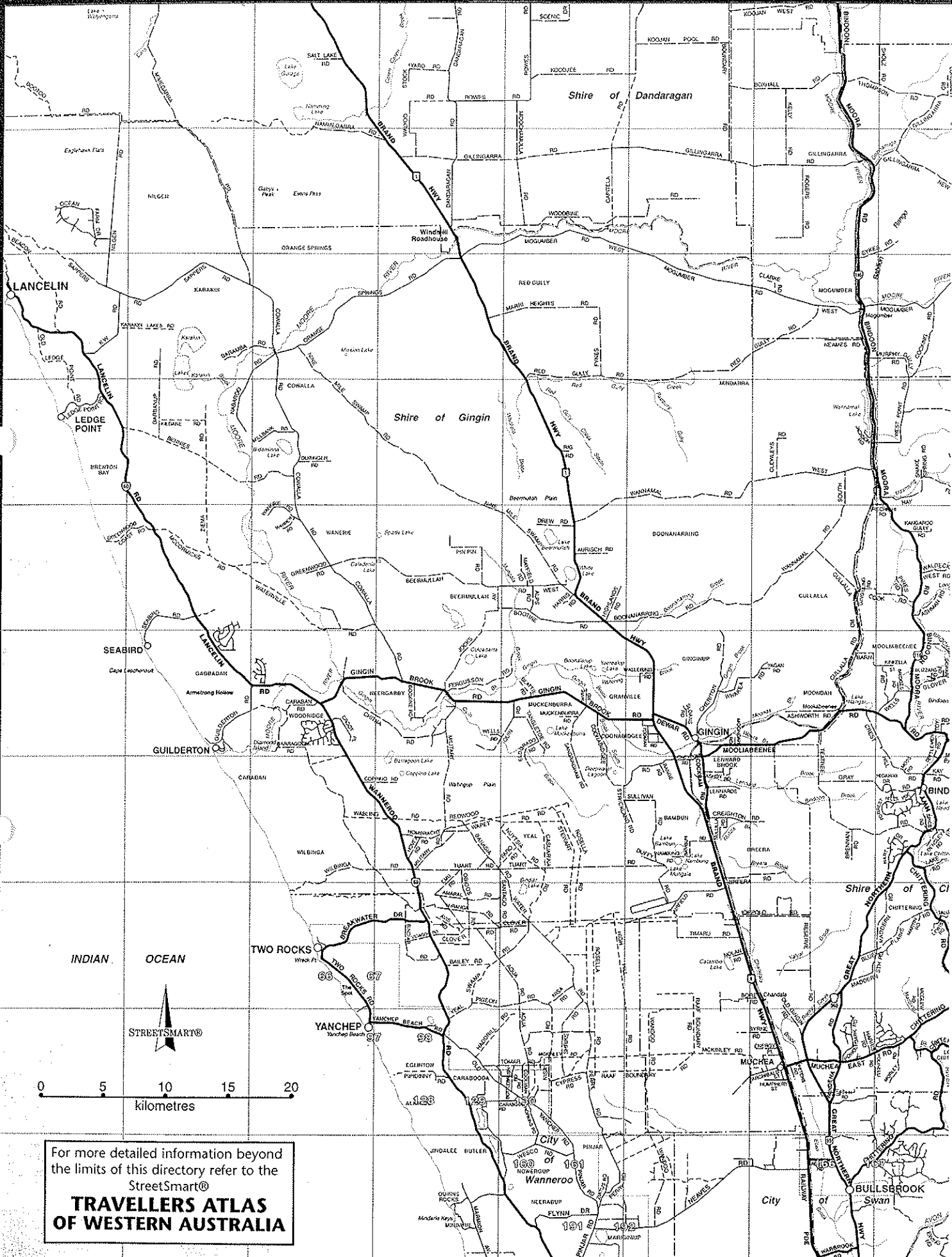
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NORTHERN APPROACH MAP

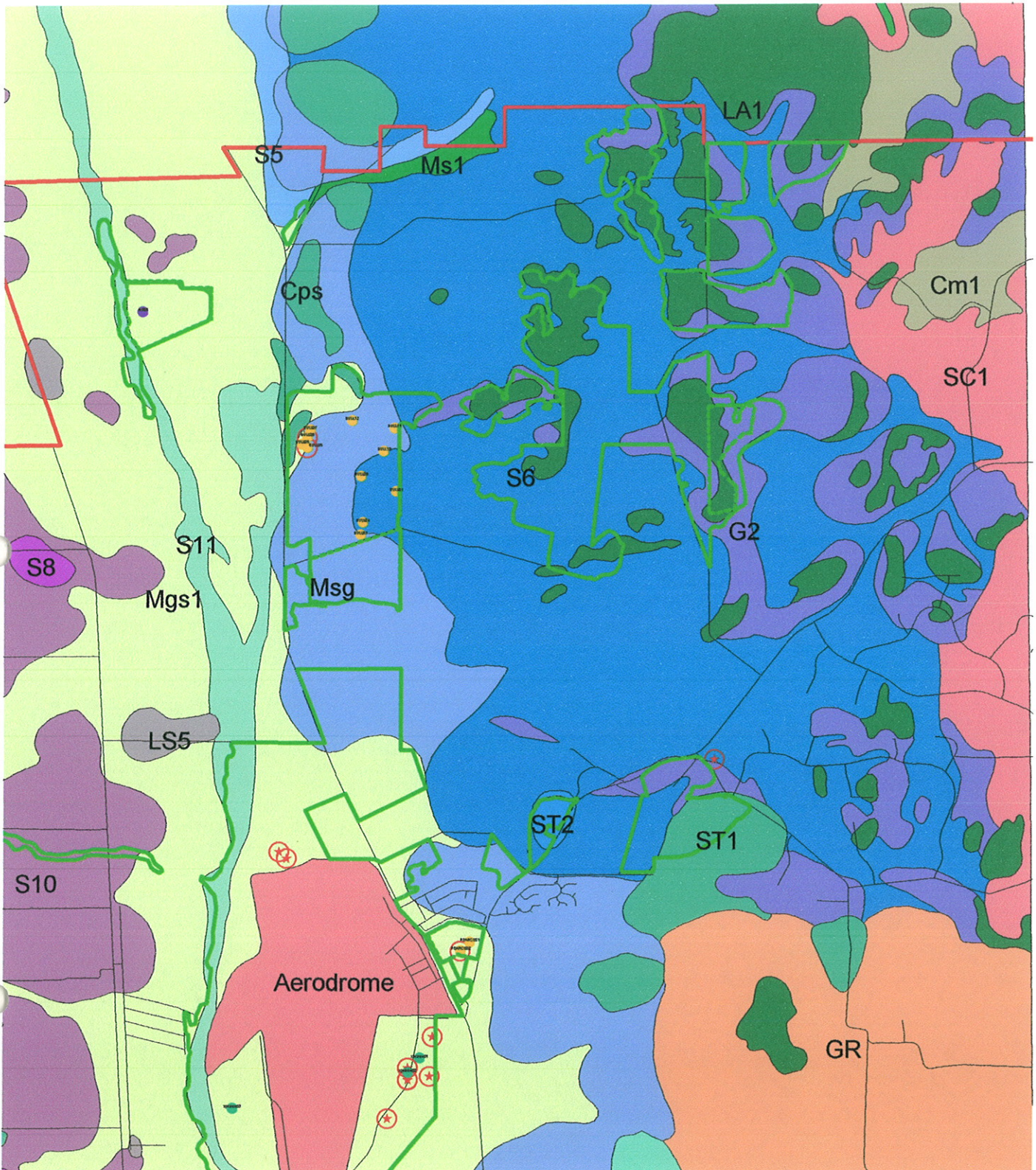
A B C D **Limit of Maps** E F G H

1
2
3
5
6
7
8
9
10



For more detailed information beyond the limits of this directory refer to the StreetSmart®
TRAVELLERS ATLAS OF WESTERN AUSTRALIA

S4 A B C D S5 E F G H



- Bush Forever Sites
- Bush Forever, MRS Ammendments
- Local Government Authority Boundaries
- Floristic Survey Sites of the Southern Swan Coastal Plain
 - GJKENV (Keighery 1996)
 - GRIFFIN (Griffen 1994)
 - SCP (Gibson et al 1994)
 - SYS6ENV (DEP 1996 and Trudgen & Keighery 1995)
 - SYS6ENV2 (DEP 1996 and Trudgen & Keighery 1995)
- ★ CALM Threatened Ecological Communities 2002
- Roads - Perth Metropolitan
- Swan Coastal Plain - Eastern Boundary

600 0 600 1200 Meters 1:50000

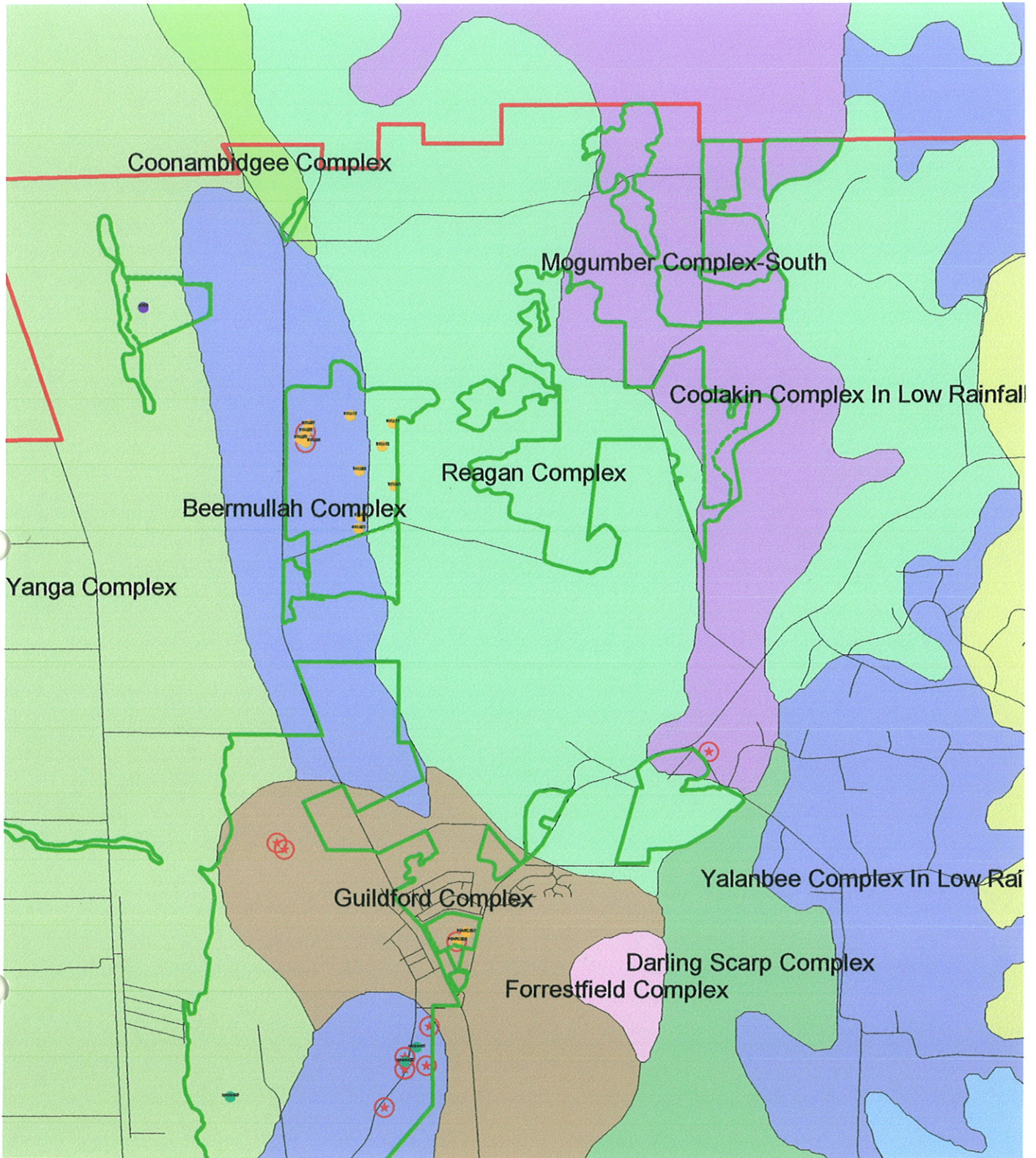



Projection: GDA94
MGA Zone 50

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Aerial Photography: Perth Metro Area - North West 2003





 Bush Forever Sites
 Bush Forever, MRS Ammendments

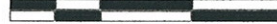
 Local Government Authority Boundaries

Floristic Survey Sites of the Southern Swan Coastal Plain

-  GJKENV (Keighery 1996)
-  GRIFFIN (Griffen 1994)
-  SCP (Gibson et al 1994)
-  SYS6ENV (DEP 1996 and Trudgen & Keighery 1995)
-  SYS6ENV2 (DEP 1996 and Trudgen & Keighery 1995)
-  CALM Threatened Ecological Communities 2002

 Roads - Perth Metropolitan
 Swan Coastal Plain - Eastern Boundary

600 0 600 1200 Meters 1:50000



Projection: GDA94
 MGA Zone 50

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We note that the Recommendation for the whole of Site 88 is for it to be reserved for Parks & Recreation under MRS. The latter is the most likely future use for Lot 12883 but in the interim will be cared for by the school and associated bodies such as the B.D.H.S. Parents & Citizens Association. The main point is that no restrictions on future uses of Lot 12883 should be entertained by Perth's Bushplan.

No. 89. Several decades ago the whole of the area encompassed by Great Northern Highway, Chittering Road and by the northern boundary of planned Site 89 was bushland. Had this remained so until the present day this Association would probably have supported its retention as remnant bushland. It would have been large enough to constitute a significant remnant area. Development of many of our current sporting and community facilities would have had to be established elsewhere.

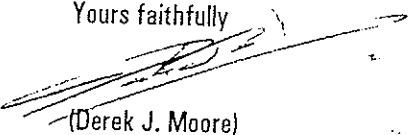
However, some 30 odd years ago Pickett Park was created which takes up the entire east-west width of this land south from Maroubra Avenue except for approximately 2ha. (mostly Lot 201) at the southern point. Pickett Park does exist and now contains many of the present sporting facilities for this community. A lot of public money has been spent on construction and maintenance of the present facilities there. However, this community is growing and there is an increasingly urgent need to expand the present sporting facilities, eg. a second oval. The Bullsbrook community has expressed strong support for this Association's determination to see that the land adjoining Pickett Park to its north and south is set aside for Recreation and Sporting purposes.

Partly as a result of our efforts both these areas have been identified for Parks & Recreation in the Shire of Swan's Bullsbrook Town & Environs Plan 1998. We understand the Shire has applied to the MFP to rezone these areas to Parks & Recreation. While the Bushplan Recommendation endorses that *zoning* in the MRS it also suggests they be purchased for Nature Reserve. We are totally opposed to that outcome and suggest the land not already held by the Shire of Swan (the Shire owns the southern most 2ha. as well as Pickett Park) which is currently awaiting disposal by the Ministry for Defence [Properties Section] be purchased for the Shire of Swan to administer for the development of whatever sporting and recreations purposes are required by the Bullsbrook community.

With the Pickett Park facilities already in situ it does not appear appropriate both economically and pragmatically to locate Bullsbrook's additional sporting facilities some distance away from Pickett Park which would be the result if Site 89 forms part of the Perth Bushplan and so could not be used for those purposes. We would end up with fragmented sporting facilities dotted here and there with the resulting increased cost of infrastructure. We know the Shire and various local organisations have plans for the 2ha. southern portion which would not be possible if Site 89 remains on Perth's Bushplan.

Site 89 contains a variety of shrubs and sedges + weeds! - but these are all apparently common species. This Site does not contain any rare or endangered flora. Only one plant is listed as "significant". The proposal to include Site 89 appears to relate to being where it is rather than what it contains. While that is of interest to botanists within their field of expertise it is not sufficient reason of itself to disrupt the cultural growth (sport and recreation is a part of that) of the Bullsbrook community.

Yours faithfully


(Derek J. Moore)
Secretary

10 March 1999

AREA INFORMATION

System 6 Area (C or M) or Update Area (Update) PEARCE S

Conservation Area
Nature Reserve
Reserve No
National Park
Reserve No
Local Government
Reserve No
Other
Proposed Conservation Areas
Local Government
Reserve No
Other with LTO diagram 10556 lot 0

Conservation Area

Nature Reserve
Reserve No
National Park
Reserve No
Local Government
Reserve No
Other

TOTAL AREA

Bushland Area	hectares
Completely Degraded	

AREA MAPPED FLORISTIC UNITS

Units	Site (Condition)	Code	Bound	Area (ha)
3c	φ2 (2)	G PEARCE		
6	φ1 (35)			

Boundaries determined by use of

aerial photograph
orthophoto
vegetation map
soil map

CONTACT DR N. GIBSON CALM WOODVALE for further information.

Flora list for Pearce5 (extracted from Swan Coastal Plain database, Pearce01,02, 66 taxa, 25/5/1995).

Department of Environmental Protection System 6 Update: Site Based Flora List for Pearce5

(extracted from the CALM Swan Coastal Plain database, Pearce01,02, 66 taxa, 25/5/95)

Amaranthaceae

Ptilotus declinatus

Anthericaceae

Borya sphaerocephala

Chamaescilla versicolor

Laxmannia sessiliflora subsp. *australis*

Sowerbaea laxiflora

Thysanotus manglesianus

Asteraceae

* *Hypochaeris glabra*

Podolepis lessonii

Quinetia urvillei

Siloxerus humifusus

Trichocline spathulata

* *Ursinia anthemoides*

Centrolepidaceae

Centrolepis aristata

Centrolepis inconspicua

Cyperaceae

Cyathochaeta avenacea

* *Cyperus tenellus*

Isolepis cernua

Isolepis hystrix scps det kw 4/5/94

Lepidosperma angustatum

Lepidosperma eastern terete scps (BJK&NG 232)

Mesomelaena tetragona

Tetragonia octandra

Dasypogonaceae

Lomandra suaveolens

Dilleniaceae

Hibbertia hypericoides

Droseraceae

Drosera glanduligera

Drosera menziesii subsp. *menziesii*

Gentianaceae

* *Cicendia filiformis*

Goodeniaceae

Dampiera coronata

Haemodoraceae

Haemodorum simplex

Tribonanthes longipetala

Iridaceae

CONTACT DR N. GIBSON CALM WOODVALE for further information.

Flora list for Pearce5 (extracted from Swan Coastal Plain database, Pearce01,02, 66 taxa, 25/5/1995).

- * *Hesperantha falcata*
- * *Homeria flaccida*
- * *Romulea rosea* var. *australis*

Juncaceae

- * *Juncus capitatus*

Lentibulariaceae

Polypompholyx tenella scps

Mimosaceae

Acacia lasiocarpa

Myrtaceae

Eucalyptus wandoo
Hypocalymma angustifolium
Kunzea littericola "white" scps
Verticordia densiflora

Orchidaceae

Thelymitra flexuosa

Papilionaceae

- Daviesia angulata*
- Daviesia decurrens*
- Daviesia horrida*
- Gompholobium marginatum*
- Templetonia biloba*
- * *Trifolium* sp. scps

Philydraceae

Philydrella pygmaea

Phormiaceae

Dianella revoluta
Stypandra glauca

Poaceae

- * *Briza maxima*
- * *Ehrharta calycina*
- Neurachne alopecuroidea*
- * *Vulpia myuros*

Proteaceae

Dryandra nivea
Hakea lissocarpha
Hakea prostrata
Petrophile seminuda

Restionaceae

Loxocarya flexuosa

Rubiaceae

Opercularia vaginata

Scrophulariaceae

- * *Parentucellia latifolia*

CONTACT DR N. GIBSON CALM WOODVALE for further information.

Flora list for Pearce5 (extracted from Swan Coastal Plain database, Pearce01,02, 66 taxa, 25/5/1995).

* *Parentucellia viscosa*

Stylidiaceae

Stylidium dichotomum

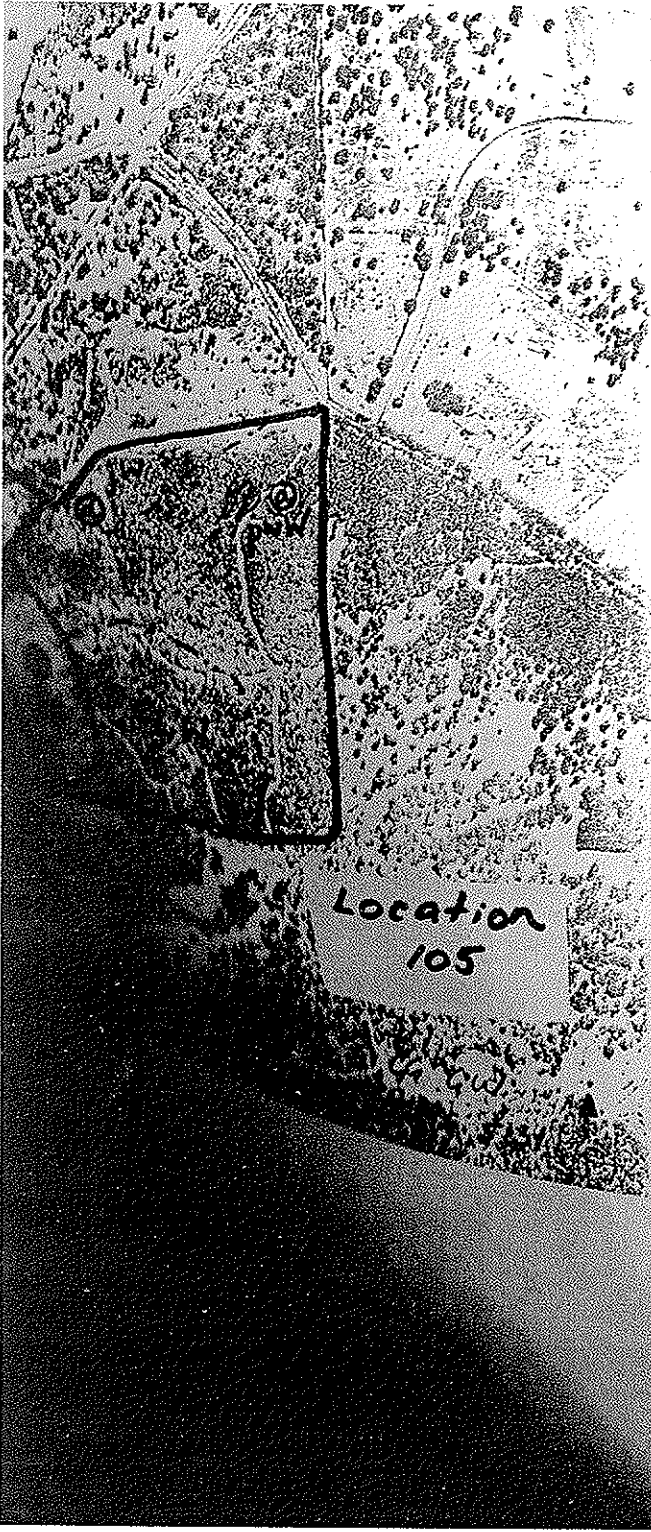
Stylidium petiolare

Thymelaeaceae

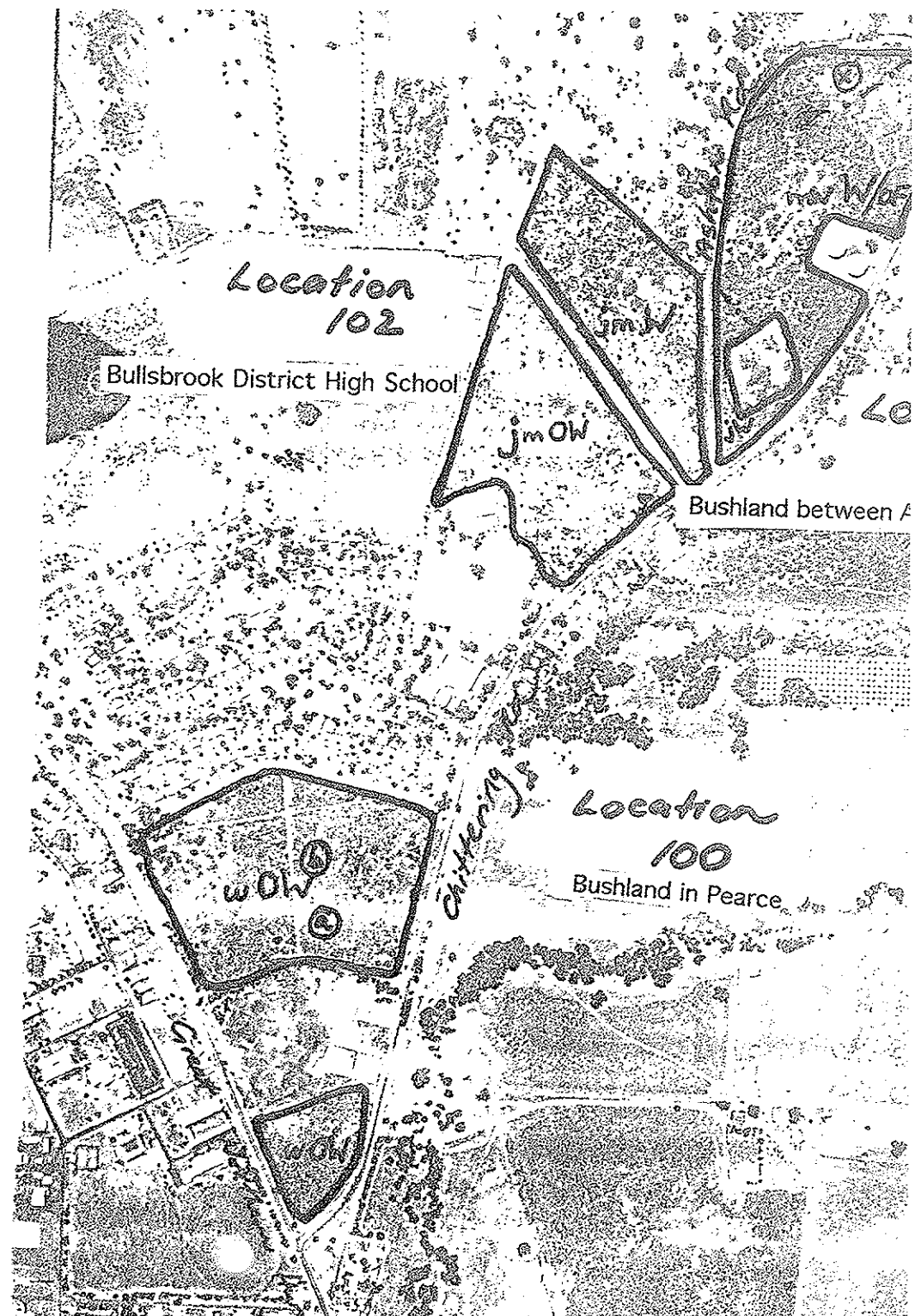
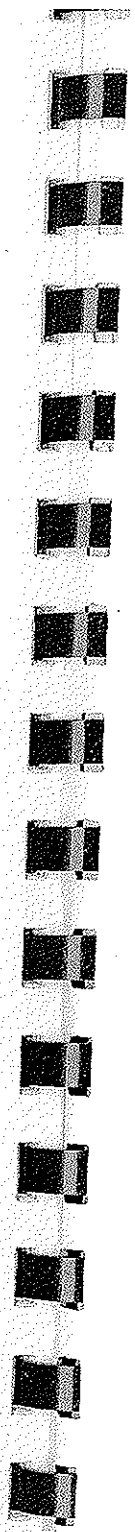
Pimelea imbricata var. *piligera*

Xanthorrhoeaceae

Xanthorrhoea preissii



Location
105



Location
102

Bullsbrook District High School

Location
100

Bushland in Pearce

jmOW

jmW

wOW

cherry

Bushland between A

LO

Pearce

PEARCE3&5 INTERIM PROTECTION AREA

extracted from Keighery, B.J. and Trudgen, M. (1992) Remnant Vegetation on the Alluvial Soils of the Eastern Side of the Swan Coastal Plain

Location 100 - Bushland in Pearce spanning area between Great Northern Hwy and Chittering Rd. Location Map 3&4. Vegetation Map Area 11b, p89.

GENERAL COMMENTS

This Location of 11 ha and the smaller block to the south of 2 ha are the only areas of Wandoo Woodland and associated Shrublands on the Guildford Formation in Good Condition available for survey (see Location 101) in the whole study area. The condition of the Location is remarkably good considering its location in the middle of a town and that it may have been partially cleared and selectively logged in the past. After being surveyed from the east a sign was observed on the west indicating it was Commonwealth land associated with the Airforce Base and trespassing was forbidden. This may account for the reduced disturbance such as rubbish dumping.

Veg: w OW, Sh, LSh

Cond: Very Good to Very Poor

Site 100a

Sh *Hakea prostrata*, *Jacksonia sternbergiana*, *Daviesia horrida* and *Xanthorrhoea preissii* Shrubland over *Hypocalymma angustifolium* and *Hakea lissocarpa* Low Shrubland over *Mesomelaena tetragona* and *Cyathochaeta avenacea* Sedgeland.

Shrubs: *Hakea prostrata*, *Jacksonia sternbergiana*, 4#*Daviesia horrida* *Xanthorrhoea preissii*, *Hypocalymma angustifolium*, 4#*Hakea lissocarpa*, 3#*Daviesia physodes*, *Dryandra nivea*, 4#*Kunzea recurva*, 4#*Petrophile seminuda*, *Hibbertia hypericoides*, *Daviesia sp*, *Hibbertia hypericoides*, 4#*Gompholobium marginatum*, *Phyllanthus calycinus*, 4#*Pimelea imbricata*
Adjacent: *Verticordia densiflora*, 4#*Templetonia biloba*
Similar vegetation association: *Viminaria juncea*, 4#*Calothamnus sanguineus*

Grasses: 4#*Neurachne alopecuroidea*
Adjacent: **Briza maxima*, **Avena fatua*

Herbs: *Borya scirpoidea*, *Haemodorum simplex*, *Haemodorum spicatum*, *Dianella divaricata*, 4#*Ptilotus declinatus*, **Hesperanthera falcata*, 4#*Philydrella drummondii*, 4#*Stylidium divaricatum*, **Romulea rosea*
Adjacent: **Watsonia sp*, *Ptilotus marginata*, *Tribonanthes ?longipetala*

Sedges: 4#*Mesomelaena tetragona*, 5#*Cyathochaeta avenacea*, *Lepidosperma sp*, *Tetraria octandra*

CONDITION

Rating Good

Comments: Substantial invasion by **Hesperanthera falcata* and adjacent areas subject to frequent tracks, and soil disturbance and dumping.

Aerial Photo: GG GW Run 29S 5131

Soil: dark brown clayey sand over clay, Gf 4(King and Wells, 1990)

Drainage: poor

Aspect: flat

Site 100b

w W Wandoo Open Woodland over *Acacia lasiocarpa* and *Hakea lissocarpa* Low Open Heath over **Hesperanthera falcata* and **Romulea rosea* Herbland

Trees: 4#*Eucalyptus wandoo*

Shrubs: *Acacia lasiocarpa*, 4#*Hakea lissocarpa*, 4#*Kunzea recurva*, *Hakea prostrata*,
Xanthorrhoea preissii, *Hypocalymma angustifolium*

Grasses: 4#*Neurachne aleopecuroidea*, **Briza maxima*

Herbs: **Hesperanthera falcata*, **Romulea rosea*, 4#*Dampiera coronata*, *Dianella divaricata*,
**Parentucellia viscosa*, 4#*Trichocline spathulata*

CONDITION

Rating Poor

Comments: The location has apparently been partially cleared, burnt, traversed by numerous tracks and soil movement and dumping has occurred.

Aerial Photo GG GW: Run 29S 5131

Soil: dark brown loam over clay, Gf 4(King and Wells, 1990)

Drainage: poor

Aspect: flat

qryBFS89MourbraAveSppList

Plotorsource	N	Genus	Species	InfraspRank	InfraspName	Informal	ConsvCode
PEARCE-1		Acacia	lasiocarpa	var.	bracteolata long peduncle variant(G.J.Keighery 5026)	PN	P1
PEARCE-1	*	Briza	maxima				
PEARCE-1	*	Cicendia	filiformis				
PEARCE-1		Dampiera	coronata				
PEARCE-1		Desmocladius	fasciculatus				
PEARCE-1		Dianella	revoluta	var.	divaricata		
PEARCE-1	*	Ehrharta	calycina				
PEARCE-1		Eucalyptus	wandoo	subsp.	wandoo		
PEARCE-1		Haemodorum	simplex				
PEARCE-1		Hakea	lissocarpa				
PEARCE-1	*	Hesperantha	falcata				
PEARCE-1		Hypocalymma	angustifolium				
PEARCE-1	*	Hypochaeris	glabra				
PEARCE-1		Isolepis	cernua				
PEARCE-1	*	Juncus	capitatus				
PEARCE-1	*	Moraea	flaccida				
PEARCE-1		Neurachne	alopeкуроidea				
PEARCE-1	*	Parentucellia	latifolia				
PEARCE-1	*	Parentucellia	viscosa				
PEARCE-1		Podolepis	lessonii				
PEARCE-1	*	Romulea	rosea	var.	australis		
PEARCE-1		Stypandra	glauca				
PEARCE-1		Trichocline	spathulata				
PEARCE-1		Utricularia	tenella				

qryBFS89MourbraAveSppList

Plotorsource	N	Genus	Species	InfraspRank	InfraspName	Informal	ConsvCode
PEARCE-2		Borya	sphaerocephala				
PEARCE-2	*	Briza	maxima				
PEARCE-2		Centrolepis	aristata				
PEARCE-2		Centrolepis	inconspicua				
PEARCE-2		Chamaescilla	versicolor				
PEARCE-2		Cyathochaeta	avenacea				
PEARCE-2	*	Cyperus	tenellus				
PEARCE-2		Daviesia	angulata				
PEARCE-2		Daviesia	decurrrens	subsp.	decurrrens		MS
PEARCE-2		Daviesia	horrida				
PEARCE-2		Desmocladius	fasciculatus				
PEARCE-2		Dianella	revoluta	var.	divaricata		
PEARCE-2		Drosera	glanduligera				
PEARCE-2		Drosera	menziesii	subsp.	menziesii		
PEARCE-2		Dryandra	lindleyana				
PEARCE-2		Gompholobium	marginatum				
PEARCE-2		Haemodorum	simplex				
PEARCE-2		Hakea	lissocarpha				
PEARCE-2		Hakea	prostrata				
PEARCE-2	*	Hesperantha	falcata				
PEARCE-2		Hibbertia	hypericoides				
PEARCE-2		Hypocalymma	angustifolium				
PEARCE-2	*	Hypochoeris	glabra				
PEARCE-2	*	Isolepis	hystrix				
PEARCE-2		Kunzea	aff. recurva (GJ Keighery 12828)				
PEARCE-2		Laxmannia	sessiliflora	subsp.	australis		
PEARCE-2		Lepidosperma	sp. (Eastern terete) (BJ Keighery and N Gibson 232)				
PEARCE-2		Lepidosperma	squamatum				
PEARCE-2		Lomandra	suaveolens				
PEARCE-2		Mesomelaena	tetragona				
PEARCE-2		Neurachne	alopecuroidea				
PEARCE-2		Opercularia	vaginata				
PEARCE-2	*	Parentucellia	latifolia				
PEARCE-2	*	Parentucellia	viscosa				
PEARCE-2		Petrophile	seminuda				
PEARCE-2		Philydrella	pygmaea	subsp.	pygmaea		
PEARCE-2		Pimelea	imbricata	var.	pilifera		
PEARCE-2		Ptilotus	declinatus				
PEARCE-2		Quinetia	urvillei				
PEARCE-2	*	Romulea	rosea	var.	australis		
PEARCE-2		Siloxerus	humifusus				
PEARCE-2		Sowerbaea	laxiflora				
PEARCE-2		Stylidium	dichotomum				
PEARCE-2		Stylidium	petiolare				

qryBFS89MourbraAveSppList

Plotorsource	N	Genus	Species	InfrasRank	InfrasName	Informal	ConsvCode
PEARCE-2		Templetonia	biloba				
PEARCE-2		Tetraria	octandra				
PEARCE-2		Thelymitra	flexuosa				
PEARCE-2		Thysanotus	manglesianus				
PEARCE-2		Tribonanthes	longipetala				
PEARCE-2	*	Ursinia	anthemoides				
PEARCE-2		Utricularia	tenella				
PEARCE-2		Verticordia	densiflora				
PEARCE-2	*	Vulpia	myuros				
PEARCE-2		Xanthorrhoea	preissii				

Natural Environment Nomination for the Register of the National Estate
BULLSBROOK BUSHLAND including System 6 areas M14, M15

1. NAME OF PLACE Bullsbrook bushland (including M14, M15)

Computer file name: Bullsbrk

2. LOCATION/BOUNDARIES

The area comprises bushland at a number of locations at and near Bullsbrook to the east of Ellen Brook adjacent to the Great Northern Highway and Chittering Road. All are located on the eastern margins of the northern Pinjarra Plain or on the western margins of the Dandaragan Plateau.

Two remnants of Wandoo Woodland are bordered by the township of Bullsbrook to the north, the Great Northern Highway to the west, Chittering Road to the east and the junction of these two roads to the south.

The bushland of Pearce Airbase (System 6 area M15), lies between Ellen Brook and the Great Northern Highway opposite Bullsbrook township, mostly to the south east and south west of the Airbase. There are also four sections of bushland on Commonwealth land to the east of the Highway opposite the Airbase which are included.

The next location is an area of Marri and Jarrah Woodland on the north east edge of the township adjacent to Bullsbrook District High School on Reserve 31478, and adjacent to the junction of Chittering Road and Ashton Street. Then there is an area of Marri and Wandoo Woodland in a 'D' shaped section bounded by Chittering Road and Ashton Road.

Continuing north east along Chittering Road, on the south side of the road is the next location at and adjacent to Burley Park, a local government reserve.

The next location is an area of Banksia Woodland to the south west of the intersection between Sounness Road and Great Northern Highway. Proceeding east along Sounness Road, on the south side of the road is another large area of bushland with Marri Woodland, a creekline, and an adjoining wetland.

Moving due north of Sounness Road and the Golf Course is the uncleared section of Reserve 27583 which lies south of Morrissey Road. North of this road and extending in part to the Great Northern Highway is the Bullsbrook Nature Reserve C1654 which corresponds to the System 6 area M14.

The narrow strip of road verge along the Great Northern Highway is included from the Nature Reserve south as far as the point due west of the north west corner of the golf course.

Administrative area

State: WA

Local Government area: Shire of Swan

Wandoo Woodland adjacent to Bullsbrook township	2+11 ha
part of Pearce Airbase	~80
Commonwealth land east of Highway	~40
part Bullsbrook District High School Reserve 31478	~10
area between Ashton Rd and Chittering Rd	12
Burley Park and adjacent private land	~58
Sounness Rd/Gt Northern Highway	~5
Bullsbrook Recreation Reserve	~10
Wetland adjacent to above	~10
part Reserve 27583	~50
Bullsbrook Nature Reserve C1654	119.5846
Great Northern Highway Road Reserve	~3
Total area (approx estimates only)	~411 ha

Property details

1. Much of the bushland to the east and to the west of the Great Northern Highway near Bullsbrook is under the control of the Commonwealth, being associated with Pearce Airbase.

2. The 2 ha site of Wandoo Woodlands to the south of Bullsbrook township at the intersection of Great Northern Highway and Chittering Road is under the control of Local Government according to the DPUD database (Perth Environment Project): presumably the Shire of Swan.

3. Pearce Airbase (System 6 area M15) comprises parts of Locations 91, 1336, and 1337 and is owned by the Commonwealth of Australia (DCE 1983).
4. There are 4 blocks opposite Pearce Airbase, one of which has been leased to the Water Authority of WA and includes a Wastewater Treatment plant.
4. Reserve 31478 is the Bullsbrook District High School reserve.
5. The area between Ashton Rd and Chittering Rd is part private land and part under the Commonwealth.
6. Burley Park is under Local Government control and the adjacent bushland is freehold land owned by a commercial organisation. Part has been quarried.
7. The section south of Sounness Rd is part Commonwealth land and part privately owned.
8. Reserve C1654 (System 6 area M14) is vested in the NPNCA and managed by CALM for the purpose of conservation of flora and fauna.
9. Reserve 27583 is a recreation reserve under the Shire of Swan and part only is included. The golf course is excluded.
10. Part of the Road Reserve adjacent to the Great Northern Highway is included.

3. NOMINATOR

Nomination prepared by Mary Gray, Consulting Environmental Scientist.

Organisation: Wildflower Society of WA (Inc.), PO Box 64 Nedlands 6009 WA. Tel 09 383 7979.
 Details of organisation may be released on request.

Signature of nominator Date
 President Wildflower Society of WA (Inc.)

4. PREVIOUS ASSESSMENTS

1. System 6 Report (DCE 1983) recommendations M14 (Bullsbrook Nature Reserve) and M15 (Pearce Aerodrome).
2. The area was identified as Locations 100, 101, 102, 103, 105, 106, 107, 108, and 109 by Keighery and Trudgen (1992) in the Survey of Remnant Vegetation on the Alluvial Soils of the Eastern Side of the Swan Coastal Plain. Their report assessed the areas as having very high conservation value, and recommended Regional Park status for the area.
3. A Floristic Survey of the southern Swan Coastal Plain by Gibson et al 1994 is an unpublished report prepared by CALM and the WA Conservation Council (Inc) for the Australian Heritage Commission, funded by the NEGP. There are 13 permanent monitoring sites established in the Bullsbrook area in this survey.

5. DESCRIPTION

Bullsbrook bushland comprises a series of bushland remnants to the east of Ellen Brook, either side of the Great Northern Highway and adjacent to Chittering Road, close to the settlement of Bullsbrook and adjacent to Pearce Airbase. The bushland areas will be described starting at the township of Bullsbrook and generally moving north.

The first location adjacent to the township consists of a flat area of Wandoo *Eucalyptus wandoo* Woodland and associated shrubland on the Guildford soil formation of the Pinjarra Plain. Common shrubs include *Hakea prostrata*, *Jacksonia sternbergiana*, *Daviesia horrida*, *Xanthorrhoea preissii*, *Hypocalymma angustifolium*, and *H. lissocarpha*. Sedges include *Mesomelaena tetragona*, *Cyathochaeta avenacea*, and *Lepidosperma* spp.

In Pearce Aerodrome (System 6 area M15), soils are derived from fluvial deposits of the Pinjarra Plain and comprise Yanga, Beermullah, and Guildford formations (according to Churchward and McArthur 1980). Vegetation in the south east and south west sectors consists largely of Wandoo Open Woodland with Flooded Gum *Eucalyptus rudis* and Swamp Paperbark *Melaleuca preissiana* along the creeklines. Ellen Brook is the western boundary of this area. There is also an area of *Casuarina obesa* Woodland on flats adjacent to Ellen Brook. On the eastern side of this area there are a number of seasonally wet clayflats and depressions supporting remnants of a rich layer of herbs and annuals, and *Melaleuca viminaria*.

On the south east side of the Airbase, there is another area of Wandoo Open Woodland with a dense low shrub understorey including *Acacia pulchella*, *Xanthorrhoea preissii*, and *Hypocalymma angustifolium*.

Moving north east along Chittering Road, the next sites provide a contrast to the flat plain and are more elevated in the landscape with sandier soils, being on the foothills of the Dandaragan Plateau. In Bullsbrook District High School Reserve 31478, the gentle west facing slopes support vegetation of Marri Open Woodland to Open Forest over a mixed Low Shrubland growing on Reagan Soil Units of pale yellow sand. Common species include *Acacia pulchella*, *Mesomelaena pseudostygia*, *M. tetragona*, and *X. preissii*.

Moving north east, in the adjoining area of bushland stretching to Ashton and Chittering Roads, the landscape slope varies from gentle to steep. Vegetation consists of Wandoo and Marri Woodland to Open Forest with a small section of Jarrah Woodland in the southern corner. In patches there are small areas of pure Wandoo and pure Marri but the understorey is similar, comprising species such as *Gastrolobium spinosum*, *Hakea trifurcata*, *X. preissii*, *Phyllanthus calycinus*, *H. lissocarpha*, *Acacia pulchella*, *Calothamnus sanguineus*, and *Hibbertia commutata*.

Moving further east along Chittering Road and up the Scarp is Burley Park and an adjacent bushland area situated on Reagan soil units of the Dandaragan Plateau. Part of this area is steeply sloped on the east with commanding views over the Coastal Plain. It supports Powderbark Wandoo, Marri and Jarrah Open Forest, the Powderbark Wandoo being replaced by Wandoo towards the base of the slope, and Jarrah becoming more frequent towards the top of the slope. The western side supports Marri and Jarrah Low Woodland to Low Open Forest, and a small area of *Allocasuarina humilis* and *Calytrix angulata* Open Heath over *Hibbertia hypericoides*, *H. spicata* and *Dryandra nivea* lies between the two associations. Understorey shrubs on the eastern side include *Hakea undulata*, *Hakea* aff. *lasianthoides* a new taxon known from only three sites, *X. acanthostachya*, *Dryandra armata*; an unusual form of *Brachysema praemorsum*, *Astroloma microdonta*, and *Daviesia cordata*. The Declared Rare species *Acacia anomala* occurs on gravelly soils here. On the western side, understorey shrubs include *Lepidosperma erubescens*, *Gastrolobium spinosum*, with scattered patches of *Hakea undulata* Open Heath over *X. acanthostachya* and *Hibbertia hypericoides* Low Shrubland. Adjacent to the gravel mine in Jarrah and Powderbark Wandoo Woodland understorey, shrubs include *Acacia pulchella* Heath over *Kennedia coccinea* Closed Herbland.

Moving west to the Great Northern Highway, the area adjacent to Sounness Road comprises Banksia Woodland. Further along Sounness Road adjacent to the tip on Bullsbrook Recreation Reserve is an area of very good Marri Open Woodland and a creekline again on Reagan Soil units of the Plateau. On very gentle slopes with a western aspect, the sandy soils support Woodland with an understorey shrub layer of *Daviesia physoides*, *Allocasuarina humilis*, *Conospermum stoechadis*, *Acacia pulchella* over *Stirlingia latifolia*, *Hibbertia hypericoides* and *Gompholobium aristatum* Low Open Heath. Trees include Marri, *Banksia menziesii*, *B. grandis*, *Nuytsia floribunda*, *B. attenuata*. On the northerly aspect on brown sandy clays which are seasonally waterlogged, the Marri Woodland has an understorey of *Hakea trifurcata*, *Allocasuarina humilis*, *X. preissii*, *Hibbertia hypericoides*, *Gompholobium aristatum* over *Mesomelaena tetragona* Open Sedgeland. Along the creekline on similar heavy soils is a narrow band of scattered *Acacia saligna*, *X. preissii*, and *Viminaria juncea* over *Leptocarpus coangustatus* Closed Sedgeland.

This area is at the junction of the Dandaragan Plateau and Pinjarra Plain. The flat seasonal wetlands which have been mined for gravel to the south of the above area continue south into Commonwealth lands associated with Pearce Airbase, and are mapped as Yanga soils of the Pinjarra Plain. These heavy brown clays support Wetland Mosaics of mixed shrubs, herbs, and sedges. Shrubs include *Jacksonia sternbergiana*, *Melaleuca raphiophylla*, *M. viminea*, *Hypocalymma angustifolium*, *Pericalymma ellipticum*, *Hibbertia stellaris* 'yellow', *Verticordia densiflora*; herbs include *Drosera gigantea*, *D. leucoblata*, *Stylidium dichotomum*, *Goodenia filiformis*, *S. brunonianum*; sedges include *Leptocarpus canus*, *Lyginia barbata*, *Hypolaena exsulca*, *Mesomelaena tetragona*.

Moving further north, the Bullsbrook Nature Reserve (corresponding to System 6 area M14) extends over about 120 ha and straddles landforms of both the Pinjarra Plain and Dandaragan Plateau. The extensive seasonal wetlands to the west on Pinjarra Plain landforms are flat and poorly drained, the sandy clay soils and black humus rich sands of the Yanga unit being waterlogged or inundated in winter. Dandaragan Plateau units rise gently to the east and consist of Reagan soils of various sands. These sandy rises support Jarrah and Marri Woodland, and Banksia Woodland. The seasonal wetlands support Wetland Mosaic vegetation.

The Jarrah and Marri Woodland have an understorey including *X. preissii*, *Hibbertia hypericoides*, *Eriostemon spicatus*, *Acacia pulchella*, *Grevillea pilulifera*, *Leocopogon australis*, *Daviesia nudiflora*, *D. physodes*, *Nemcia capitatum*, *Gompholobium preissii*, *Hibbertia comuntata* over *Mesomelaena pseudostygia* sedgeland. Herbs include *Drosera erythrorhiza*, *Thysanotus patersonii*, *Patersonia*

7. STATEMENT OF SIGNIFICANCE

The Flooded Gum *Eucalyptus rudis*, Paperbark *Melaleuca raphiophylla*, Wandoo *E. wandoo*, *Casuarina obesa* Woodlands, and Wetland Mosaic Associations of the Pinjarra Plain landforms in the area are regionally important as rare plant communities. This is because most of the eastern side of the Swan Coastal Plain has been cleared for agriculture and the Woodlands and Open Forests are almost extinct, with only isolated pockets remaining. Of particular significance are the remnants of Wandoo Woodland to the immediate north and south of the Bullsbrook township and on Pearce Airbase. These provide the only known representation of Wandoo Woodland with the understorey still relatively intact remaining north of Perth on the Coastal Plain.

Bullsbrook bushland provides an important representation of the vegetation of the flats of the Guildford and Yanga formations of the northern Pinjarra Plain through to the Reagan landforms of the foothills and then Mogumber units comprising uplands of the Dandaragan Plateau. The Pinjarra Plain associations include: Flooded Gum *E. rudis* and *Melaleuca raphiophylla* Forest to Woodland, Wandoo Woodland, Wandoo and Marri Woodland, *Casuarina obesa* Woodland, Wetland Mosaic associations, Banksia Low Woodlands, Marri Woodland, and Jarrah Woodland. The Dandaragan Plateau supports Heaths, Wandoo and Powderbark Wandoo Woodlands, Marri and Jarrah Low Woodland to Open Forest, Jarrah Woodland, Jarrah and Powderbark Wandoo Woodland, and Marri Open Woodland.

Thus the area provides an important illustration of vegetation succession from the Pinjarra Plain to the Dandaragan Plateau as the junction of these two major landforms occurs in the area. Of particular botanical interest is the transition from Banksia Woodlands allied floristically to the Bassendean communities to Banksia Woodlands allied to Spearwood communities.

There are groups of plants present in Bullsbrook which are of special scientific significance. Firstly, twelve taxa are at the limit of their range of natural distribution: at the southern limit are *Myriocephalus appendiculatus*, *Persoonia angustiflora*, *Grevillea thelemanniana* ssp. *obtusifolia*, and *G. althoferorum*; and at the northern limit are *Hakea cristata*, *Brachysema praemorsum*, *Brizula drummondii*, *Cyathochaeta avenacea*, *Pultenaea ericifolia*, *Leptomeria preissiana*, *Stylidium caniculatum* and *S. crassifolium*. In addition, the population of *Haemodorum loratum* in the area is well outside its normal range. Secondly there are 4 new records of flora for the Perth region: *Xanthorrhoea drummondii*, *X. acanthostachya*, *Persoonia angustiflora*, and *Hakea cristata*. Thirdly there are 2 endemic taxa present: *Eryngium pinnatifida* ssp. 'palustris', and *Hakea cristata*. Fourthly different forms of each of two species co-occur meaning they are probably separate taxa but are not yet recognised as such: *Hovea trisperma* and *Stylidium brunonianum*. Fifthly, there is one species of Declared Rare Flora present on gravelly soils, *Acacia anomala* which is specially protected under provisions of the Wildlife Conservation Act 1950. In addition there are 11 Priority species listed by CALM for special protection: *Grevillea althoferorum* (P1), *Eryngium pinnatifidum* ssp. 'palustris' (P1); *Hakea* sp. 'Walyungah' (L. Penn s.n.) aff. *lasianthoides* (P2); and *Myriocephalus appendiculatus*, *Haemodorum loratum*, *Synaphea acutiloba*, and *Stylidium utricularioides* (all P3). Bullsbrook bushland provides an important gene pool for all these flora of special scientific interest.

Plant communities of the eastern side of the Swan Coastal Plain exhibit high levels of species richness. In addition, Bullsbrook bushland provides a wide range of plant community types in a relatively small area. In Bullsbrook Nature Reserve, there are 339 plant species recorded so far in an area of 120 ha. Of the various community types present, the *Banksia attenuata*-*B. menziesii* Woodlands found at Bullsbrook are very high in species richness compared with other types of Banksia woodland with 62.8 species per 10x10 metre quadrat.

There are two types of Banksia woodlands found at Bullsbrook, one type is allied to Bassendean soils and the other to Spearwood soils. At Bullsbrook, the presence of the two types reflects the change from Pinjarra Plain soils to the foothills of the Dandaragan Scarp. The transition between these two types is of special interest to botanists. At the base of the Dandaragan Scarp, the Spearwood *Banksia attenuata* / *B. attenuata*-*Eucalyptus* woodlands are of added interest as they are floristically atypical when compared with other sites.

There are 13 permanent monitoring sites established in Bullsbrook as part of the floristic survey of the Swan Coastal Plain of over 500 sites. This will give an important regional comparison over time. To date analysis shows that there are 5 distinct plant community types present: mixed shrub damplands, herb rich saline shrublands in clay pans, wet forests and woodlands, Central *Banksia attenuata*-*B. menziesii* woodlands, and Spearwood *B. attenuata* or *B. attenuata*-*Eucalyptus* woodlands

8. CONDITION

In general, most of the vegetation associations in the Bullsbrook area are in good to very good condition.

The condition of the Flooded Gum and *Melaleuca raphiophylla* forest along Ellen Brook in Pearce Airbase is degraded to good. The *Casuarina obesa* Woodlands are in a completely degraded condition with the understorey largely destroyed. The Wandoo Woodland to the south east is in generally good condition although it is being fragmented by partial clearing for buildings. To the south west the Wandoo Woodland is in variable condition, with a history of grazing and loss of many understorey plants. There are some very large fine examples of Wandoo. Despite disturbance, the dense herb layer is still present in much of this section.

The Wandoo Woodlands adjacent to the township of Bullsbrook are in remarkably good condition considering that they may have been partially cleared or selectively logged in the past.

The Marri Open Woodland in the Bullsbrook District High School Reserve is in good to poor condition with partial clearing, selective logging and weed invasion by Veldt Grass *Ehrharta calycina* and other exotic grasses. In the adjacent area between Ashton Road and Chittering Road, the Marri Wandoo Woodland to Open forest is in variable condition with much in very good condition but there are areas associated with an old gravel mine, water tanks, and numerous tracks with severe localised disturbance. The Jarrah Woodland in this sector is in poor condition probably associated with a communication installation there.

Burley Park is in variable condition, with areas severely degraded by gravel mining, tracks, and partial clearing followed by weed invasion. The triangular local government reserve opposite Burley Park to the north is in very good condition with comparatively little disturbance. The private land adjacent to the south side of Burley Park is in good to very good condition. The composition of the understorey in parts indicates that the area has been burnt regularly and many of the Powderbark Wandoo are low and have multiple trunks. There is also a gravel mine in Burley Park adjacent to the Woodland.

The area adjacent to Sounness Road is in good to very good condition with weed infestations around the margins, predominantly Veldt Grass. The adjacent wetland is in very poor condition as it has been grossly disturbed by gravel mining. The vegetation is regenerating but drainage and soils have been grossly affected by the soil removal.

To the south of this location are lands with similar vegetation associations to the latter and appear to be in good condition but these areas were not assessed closely being Commonwealth land associated with Pearce Airbase with restricted access.

Moving north, Reserve C1654 now known as Bullsbrook Nature Reserve is mostly in very good condition, but there is some disturbance associated with rubbish dumping, dieback, partial clearing in the north east corner, and weed invasion along the road, around the dump and along boundaries with private property.

The road verge along the Great Northern Highway is in very good to good condition with wetlands similar to those in the reserve.

The area of Banksia Woodland immediately south of the Nature Reserve through to the golf course is also predominantly in very good condition with no tracks evident in the middle and only a perimeter firebreak. There is evidence of dieback present in the south west of this section, and the Bullsbrook golf course adjoins the southern edge.

9. RATIONALE FOR PROPOSED BOUNDARIES

Little remnant vegetation remains on the eastern side of the Swan Coastal Plain such that all remnants with their basic structure intact or able to be regenerated are regarded by Gibson et al 1994 and by Keighery and Trudgen 1992 as having important heritage value, and therefore are included as rare remnants. In addition the vegetation is inherently rich in plant biodiversity. Thus all remnants on the eastern side of the Plain have significant National Estate values. The landforms on the Plain include Pearce Airbase; all sections of bushland adjoining the east side of the Great Northern Highway as far

SYSTEM 6 BUSHLAND SUBMISSION FORM
FOR CONSIDERATION IN THE UPDATE PROGRAMME

If you wish to submit more than one area for consideration in the System 6 update, please use a separate form for each area.

Please fill in each section giving as much information as possible.

LOCATION, OWNERSHIP AND ZONING OF THE AREA

1. Location

Please give as accurate and detailed a description as possible of the site location

Please include either a hand drawn or copied map showing the area of the area

a) Bordering Roads: *Chittering Rd & Great Northern Highway*

b) Nearest Corner: *Various*

c) Lot Number: *Various* Street Number: *—*

d) Town/Suburb/Location: *Bullsbrook*

e) Local Council: *Shire of Swan*

f) Site Name (if any): *see list attached*

g) Approximate size of the area (ha): *"*

h) Please locate the area on a map and give us map references if possible:

see map attached

i) Map: *Streetsmart / UBD / Other:*

j) Map no.:

k) Grid Ref: *MK080961 central location*

l) Please give any other information that may help us to find the location:

Bullsbrook townsie & surrounds

m) Are you aware of any development proposals that are likely to affect the area?

Refer to Shire of Swan for the Bullsbrook Rural Strategy. Proposals to extend urban area.

NOTE: Areas that have already been given development APPROVAL should not be nominated

Please fill out those questions that you can answer

2. Who owns the area? (If owned by the person/s making the nomination please indicate) ... Commonwealth (RAAF), Shire of Swan, Education Department (Ballsbrook District High School) & private (see list attached)
3. If you own the area, and may be interested in participating in conservation on private land initiatives please indicate (and leave your name and address at the end of this submission form)
4. What is the area zoned? (please indicate whether zoning is Town Planning Scheme or Metropolitan Region Scheme) ... see list attached

CAN YOU TELL US A LITTLE ABOUT THE PHYSICAL CHARACTERISTICS OF THE AREA

5. Why do you consider this area important? (Refer to Guiding Issues paper).
Restricted & rare species of flora. Wandoo Woodlands is a very poorly reserved vegetation type. Areas nominated to the Aust. Heritage Commission
6. What is/are the soil type/s and colours? Guildford, Yanya, Reagan & Mojumber

Type: Sand/Clay/Gravel/Loam/Silt
Colour: White/Grey/Brown/Orange/Yellow/Red/Black

7. Does the area have any special features such as unusual landforms / landscapes that still retain their natural vegetation? Yes/No

If yes, what are they? Succession from Pijarra Plain to Dandaragan Plateau. Soils of the eastern side of the Swan Coastal Plain.

8. Is the area a wetland or does it include a wetland? Yes

If yes, what kind of a wetlands is it?

- a) lake
- b) river
- c) stream ✓ Ellen Brook
- d) swamp
- e) estuary
- f) seasonally wet ✓
- g) other

9. What percentage of the wetland is open water in summer? *Probably none... Ellen Brook may have water, Early Summer.*

CAN YOU TELL US A LITTLE ABOUT THE VEGETATION /FAUNA ON THE NOMINATED AREA.

10. What percentage of the area is indigenous vegetation? *Most*

11. If the area includes regions cleared of native bushland please indicate reasons for the inclusion. *Small parts of Wandoo Woodlands have been recently parkland cleared. Could be regenerated.*

12. Has any previous flora or fauna survey work been done on the area?
Yes

If yes, please give details of the work *Evaluation of the National Estate Value**

of remnant bushland on the Swan Coastal Plain between Moore River & Mandurah.

Bullsbrook Bushland. Prepared by Mary Gray for the Wildflower Socy, June 1994

also Red Book, works by Gibson, Keighery, B. Keighery, Trudgen 1992 - 1994.

13. How would you rate the condition of the native bushland? (see attached table)

*More detailed information in above report **

a) pristine

b) excellent

c) very good

d) good

e) degraded

f) completely degraded

g) don't know

*} Most
} along Ellen Brook in Pearce*

14. Please indicate the disturbances affecting the area and where appropriate the percentage of the area disturbed.

a) Partial clearing *Unknown. Probably 10%*

b) fragmentation *Yes. Bushland areas split up by development*

c) Selective removal of species: *(timber cutting, wildflower picking, mowing)*
(dieback and other plant diseases) see report *recently parkland cleared area*

d) Fire regime, including intensity, season and frequency *Unknown.*

e) 'Enrichment plantings' that is plantings of species not found in that community *Unknown*

f) Weed invasion *Yes. As much as can be expected in a rural/urban setting.*

g) Animal impact: horses, foxes, rabbits, cats, dogs, camels, goats etc *Unknown. Domestic pets.*

h) Soil movement, both removal and dumping *Gravel pit*

i) Changes in water regimes; flooding, drainage and watering *Unknown*

j) Salinity *Unknown.*

k) Fertiliser drift and along waterways nutrient influx *Along Ellen Brook.*

l) Mining, including that for road works *Gravel Pit, Burley Park*

- m) Grazing: stock, overgrazing by feral or native mammals *mainly west of Pearce & in the past.*
 - n) Proliferation of tracks, fire breaks and walk trails *Some areas yes, others no.*
 - o) Off-road vehicle use *Probably not.*
 - p) Use as service corridors by the SEC, Main Roads, Water Authority. *WAWA leases some of Commonwealth land east of Highway.*
- (Source: B Keighery. Bushland Plant Survey, September 1994)

15. Does the area contain any plant species of special interest that you know of? (eg. declared rare flora, priority taxa, outlier populations) *Yes*

Do you know what they are? *see report* *12 species at limit of range, outlier population of 1 species, taxa that are unclear & need clarification, 1 DRF, 11 Priority species*

16. Do you know of any native animals that use the area? *No easily visible animals, could be many birds & reptiles.*

Can you list those you know of? (birds, mammals, reptiles, amphibians etc) *Unknown,*

17. Is the area used by any native animals of special interest? (eg. endangered species, large/important populations) *Unknown*

If yes, please name them and indicate source of information

.....

.....

CAN YOU TELL US A LITTLE ABOUT THE SURROUNDING AREA

18. Are there any bushland areas (including wetlands) near to this area? *Yes*

If yes, how close are they? *M14, M15 (C1654)*

Are they already conservation reserves? *M14 (Bullsbrook Nature Reserve)*

What is their approximate size? *120 ha*

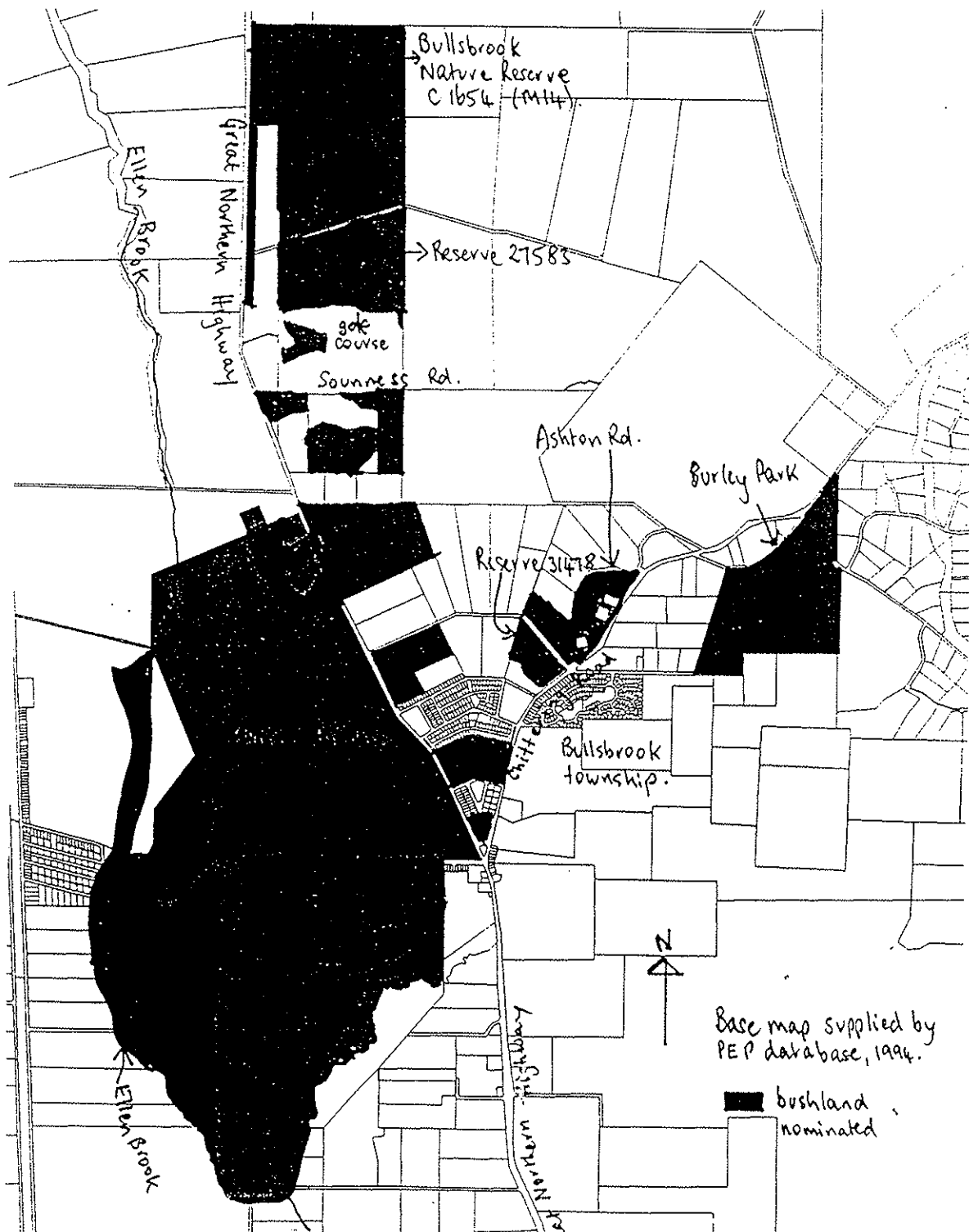
19. Does the submitted area link other bushland areas? *Ellen Brook*

Please attach any additional information about the area which may be of use when assessing it.

See copies from Mary Gray's report attached.

juncea, *Lagenifera huegelii*, *Ptilotus manglesii*, *Scaevola canescens*, *Haemodorum laxum*, *Conostylis aculeata*. The Banksia Woodlands include *Eucalyptus tottiana*, *B. attenuata*, *B. menziesii* over shrubs including *Stirlingia latifolia*, *Allocasuarina humilis*, *Eremaea pauciflora*, *Hibbertia hypericoides*, *Synaphea spinulosa*, *Hovea trisperma* 'large', *Hibbertia acerosa*, *Bossiaea eriocarpa*, *Petrophile linearis*, *Calytrix strigosa*, *Hemiandra pungens*. There are also rich herb and sedge layers. On a poorly developed ridge of lateritic pebbles and sand, there is a dense low heath where *X. drummondii* is a notable species. The northern section of Banksia Woodland has patches of the newly recognised taxon *Grevillea althoferorum*. These Banksia Woodlands extend to the south side of Morrissey Road into the Shire Reserve 27583 as far as the golf course. Moving to the wetland mosaics (in the Nature Reserve) of the Pinjarra Plain, there is *Melaleuca raphiophylla*, *M. viminea*, *M. uncinata*, *Astartea fascicularis*, *Hypocalymma angustifolium* shrublands over *Restio stenostachys* sedgeland. Heathlands include *M. uncinata*, *Actinostrobos pyramidalis*, *Eriostemon spicatus*, over *Restio stenostachys* sedgeland. Other associations consist of mixed Sedgelands and Herblands.

BULLSBROOK BUSHLAND LOCATION MAP



23 001 100

3

SYSTEM 6 BUSHLAND SUBMISSION FORM FOR CONSIDERATION IN THE UPDATE PROGRAMME

If you wish to submit more than one area for consideration in the System 6 update, please use a separate form for each area.

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1. Location

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Please include either a hand drawn or copied map showing the area of the area

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c) Lot Number: *Various* Street Number: *—*

d) Town/Suburb/Location: *Bullsbrook*

e) Local Council: *Shire of Swan*

f) Site Name (if any): *see list attached*

g) Approximate size of the area (ha): *"*

h) Please locate the area on a map and give us map references if possible:

see maps attached

i) Map: Streetsmart /UBD/Other:

j) Map no.:

k) Grid Ref: *MK080961 central location*

l) Please give any other information that may help us to find the location:

Bullsbrook townsie & surrounds

m) Are you aware of any development proposals that are likely to affect the area?

Refer to Shire of Swan for the Bullsbrook Rural Strategy. Proposals to extend urban area.

NOTE: Areas that have already been given development APPROVAL should not be nominated

Please fill out those questions that you can answer

2. Who owns the area? (If owned by the person/s making the nomination please indicate) ... Commonwealth (RAAF), Shire of Swan, Education Department (Ballsbrook District High School) & private (see list attached)
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5. Why do you consider this area important? (Refer to Guiding Issues paper). Restricted & rare species of flora. Wandoo Woodlands is a very poorly reserved vegetation type. Areas nominated to the Aust. Heritage Commission
6. What is/are the soil type/s and colours? Guildford, Yanya, Reagan & Moyumber

Type: Sand/Clay/Gravel/Loam/Silt
Colour: White/Grey/Brown/Orange/Yellow/Red/Black

7. Does the area have any special features such as unusual landforms / landscapes that still retain their natural vegetation? Yes No

If yes, what are they? Succession from Pijarra Plain to Dandaragan Plateau. Soils of the eastern side of the Swan Coastal Plain.

8. Is the area a wetland or does it include a wetland? Yes

If yes, what kind of a wetlands is it?

- a) lake
- b) river
- c) stream ✓ Ellen Brook
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- g) other

9. What percentage of the wetland is open water in summer? *Probably none. Ellen Brook may have water, yearly summer.*

CAN YOU TELL US A LITTLE ABOUT THE VEGETATION /FAUNA ON THE NOMINATED AREA.

10. What percentage of the area is indigenous vegetation? *Most*

11. If the area includes regions cleared of native bushland please indicate reasons for the inclusion. *Small parts of Wandoo Woodlands have been recently parkland cleared. Could be regenerated.*

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13. How would you rate the condition of the native bushland? (see attached table) *More detailed information in above report **

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14. Please indicate the disturbances affecting the area and where appropriate the percentage of the area disturbed.

- a) Partial clearing *Unknown. Probably 10%*
- b) fragmentation *Yes. Bushland areas split up by development*
- c) Selective removal of species: *(timber cutting, wildflower picking, mowing, dieback and other plant diseases) see report* *recently parkland cleared area*
- d) Fire regime, including intensity, season and frequency *Unknown.*
- e) 'Enrichment plantings' that is plantings of species not found in that community *Unknown*
- f) Weed invasion *Yes. As much as can be expected in a rural/urban setting.*
- g) Animal impact: horses, foxes, rabbits, cats, dogs, camels, goats etc *Unknown. Domestic pets.*
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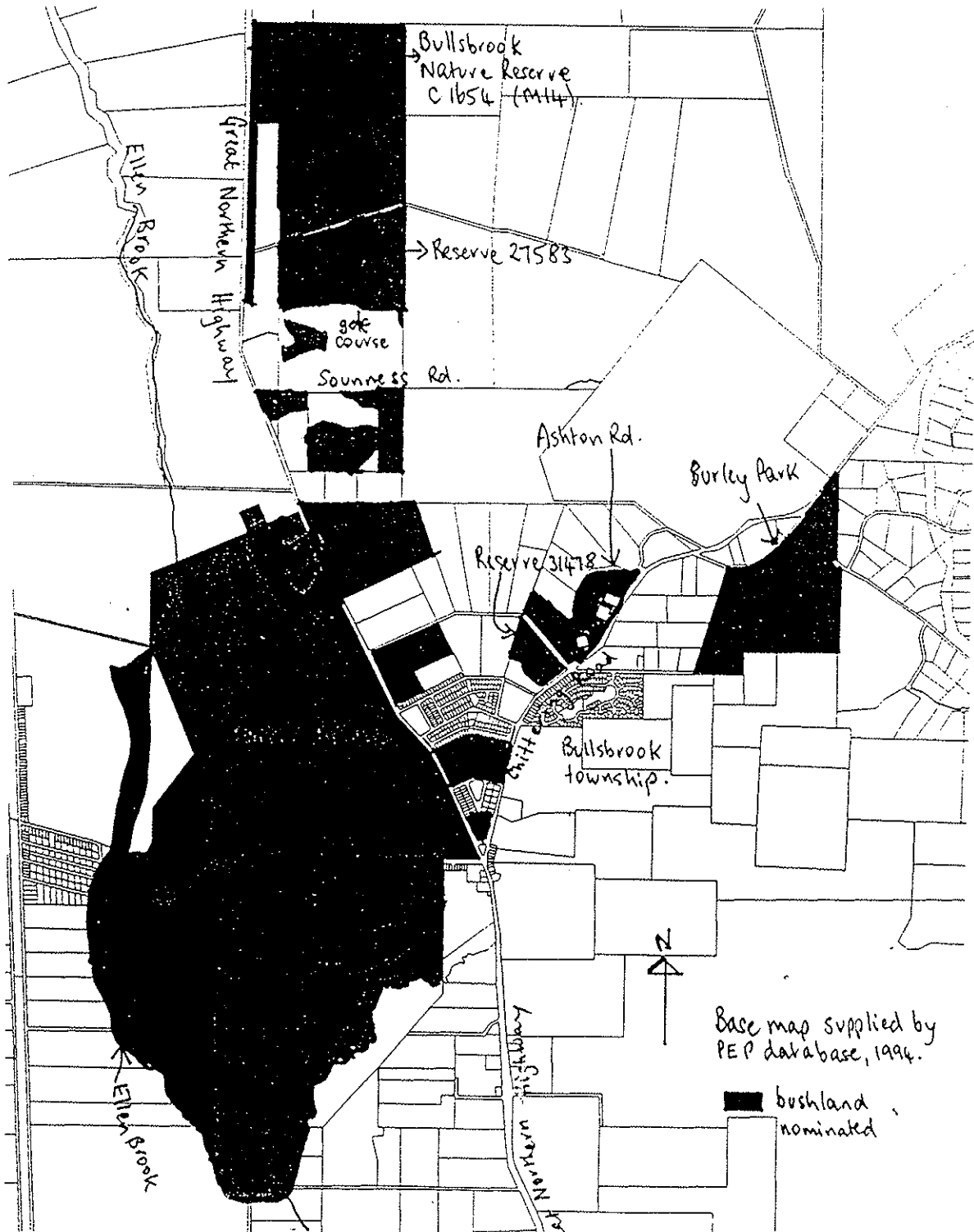
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BULLSBROOK BUSHLAND LOCATION MAP





Pearce 4 'Interim Protection Area'
- School Reserve
4/7/95

RIGHT 065 011 4.----



Pearce 4 'Interim Protection Area'
- School Reserve
4/7/95

RIGHT BES B11 G.-----

REMNANT VEGETATION on the ALLUVIAL SOILS of the EASTERN SIDE of the SWAN COASTAL PLAIN

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Prepared by
Bronwen Keighery and Malcolm Trudgen

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