

LANDSDALE ROAD BUSHLAND, LANDSDALE

Boundary Definition: protected area boundary

SECTION 1: LOCATION INFORMATION

Bush Forever Site no. 199

Area (ha): bushland 15.78

Map no. 35

Map sheet series ref. no. 2034-II NW

Other Names: Landsdale Road Conservation Park

Local Authorities (Suburb): Shire of Wanneroo (Darch)

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Spearwood Dunes

Sands derived from Tamala Limestone (Qts: S7)

VEGETATION AND FLORA

Vegetation Complexes

Spearwood Dunes

Karrakatta Complex — Central and South

Floristic Community Types

Supergroup 3: Uplands centred on Bassendean Dunes and Dandaragan Plateau

20a *Banksia attenuata* woodlands over species-rich dense shrublands

WETLANDS

No wetlands mapped

THREATENED ECOLOGICAL COMMUNITIES

Endangered (floristic community type 20a)

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: vegetated uplands

Vegetation and Flora: limited survey (Gibson *et al.* 1994 (Land01), Landsdale Farm School 1995)

Structural Units

Uplands: *Banksia attenuata* and *B. menziesii* Low Woodland with scattered emergent *Eucalyptus marginata* over species-rich Mixed Low Open Heath

Vegetation Condition: >90% Excellent, <10% Very Good

Total Flora: 95 native taxa, 4 weed taxa (compiled from Gibson *et al.* 1994 D, Landsdale Farm School 1995) (estimated >50% expected flora)

Significant Flora: *Cyathochaeta equitans* (uncommon on west of the Plain in the PMR)

Fauna: structured survey for birds (25 species), native mammals (2 species), reptiles (19 species) and amphibians (2 species) (How *et al.* 1996). Significant bird species: category 1 (1) and category 4 (1). Significant mammal species: Quenda and Western Brush Wallaby. Significant reptile species: Black-striped Snake (*Simoselaps calonotos*). Rich reptile assemblage including Western Blue Tongue (*Tiliqua occipitalis*), Black Monitor (*Varanus tristis*) and a skink (*Morethia lineocellata*)

Linkage: adjacent bushland to the north and south; part of Greenway 10 (Tingay, Alan & Associates 1998a)

Other Special Attributes: recommended to be declared as an A-class Nature Reserve for the protection of flora and fauna in Gibson *et al.* 1994; recommended for protection in study of City of Wanneroo bushland (Trudgen 1996); National Trust of Australia (WA) Classification

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, Criteria not relevant to determination of regional significance, but which may be applied when evaluating areas having similar values

Recommendation: Site with Some Existing Protection; the existing care, control and management intent of the reserve is endorsed. The purpose of the reserve should be amended to include conservation and appropriate mechanisms applied in consultation with the management body (see Table 3, Volume 1).

LANDSDALE ROAD BUSHLAND, LANDSDALE

Boundary Definition: protected area boundary

SECTION 1: CADASTRAL INFORMATION

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

Bushplan Site no. 199 **Map no.** 45 **Map sheet series ref. no.** 2034-II NW

Other Names: Landsdale Road Conservation Park

Area (ha): total 16.23; bushland 15.78

Local Authorities (Suburb)

Zoning

Shire of Wanneroo (Darch)

MRS: Urban, Parks and Recreation

TPS: Rural, Landscape

Ownership Categories

Lot/Location/Reserve numbers (Purpose),

State Government

Street name

10143 Landsdale Rd

Crown Reserve

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WETLANDS

No wetlands mapped

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Endangered (floristic community type 20a)

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Vegetation and Flora: limited survey (Gibson *et al.* 1994 (Land01), Landsdale Farm School 1995)

Structural Units

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Vegetation Condition: >90% Excellent, <10% Very Good

Total Flora: 95 native taxa, 4 weeds (compiled from Gibson *et al.* 1994 D, Landsdale Farm School 1995) (estimated >50% expected flora)

Significant Flora: *Cyathochaeta clandestina* (uncommon on west of the Plain in the PMR)

Fauna: multiple and structured surveys by Western Australian Museum of Natural Science for birds (25), native mammals (2), reptiles (19) and amphibians (2) (How *et al.* 1996). Significant bird species: category 1 (1) and category 4 (1). Significant mammal species: Quenda and Western Brush Wallaby. Significant reptile species: Black-striped Snake (*Simoselaps calonotos*). Rich reptile assemblage including Western Blue Tongue (*Tiliqua occipitalis*), Black Monitor (*Varanus tristis*) and a skink (*Morethia lineocellata*)

Linkage: adjacent bushland to the north, south and west; part of proposed Greenway 11 (Tingay, Alan & Associates 1997a)

Other Special Attributes: recommended to be declared as an A-class Nature Reserve for the protection of flora and fauna in Gibson *et al.* 1994; recommended for protection in study of City of Wanneroo bushland (Trudgen 1996); National Trust of Australia (WA) Classification

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, Criteria not relevant to determination of conservation value, but which may be applied when evaluating areas having similar values

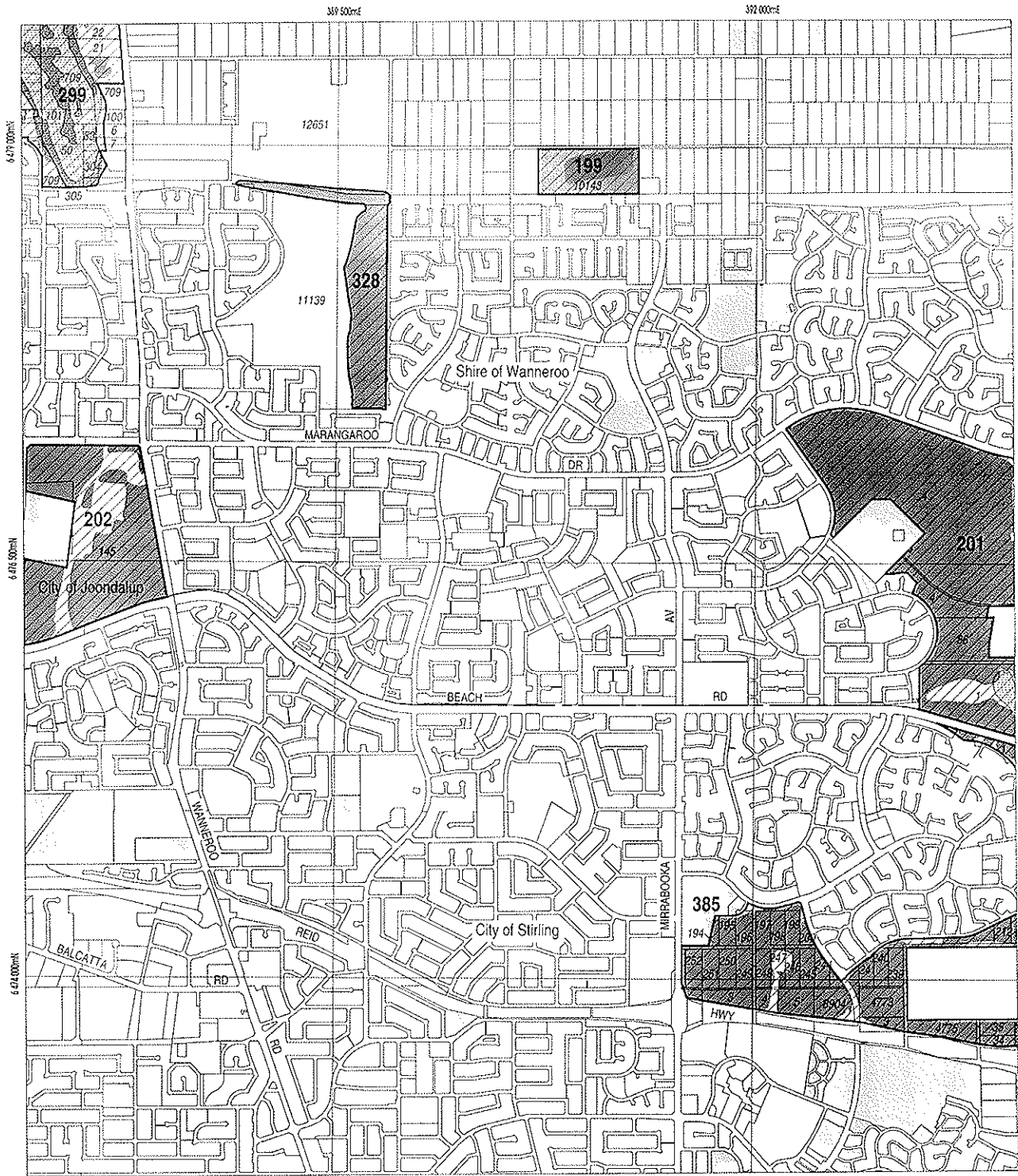
Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site location of Scheduled Fauna; under MRS Parks and Recreation Reservation and TPS Landscape Zoning, Crown Reserve








Constraints: under MRS Urban Zoning

Recommendation: The existing care, control and management intent of the reserve is endorsed. Long-term security and support for conservation management of the Bushplan Site to be enhanced by: amending the purpose of the reserve to include conservation; and applying appropriate mechanisms in consultation with the reserve management body.





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

2034 - II NW

IV	I				
III	<table border="1" style="border-collapse: collapse; width: 20px; height: 20px;"> <tr> <td style="text-align: center;">NW</td> <td style="text-align: center;">NE</td> </tr> <tr> <td style="text-align: center;">SW</td> <td style="text-align: center;">SE</td> </tr> </table>	NW	NE	SW	SE
NW	NE				
SW	SE				

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

PERTH'S BUSHPLAN MAP INDEX

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SCALE

0 500 1000

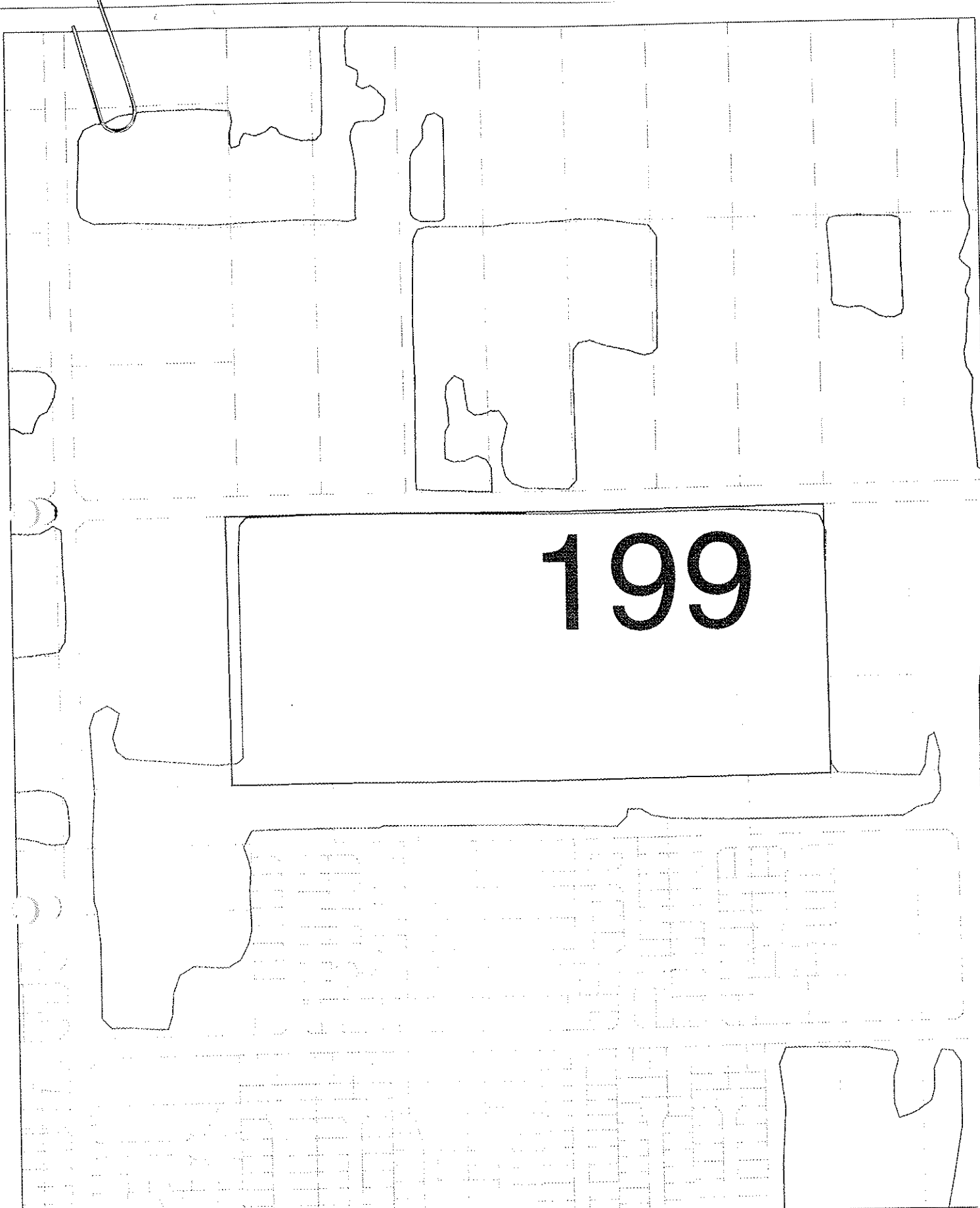
Metres

Produced by Project Mapping Section
Land Information Branch, Ministry for
Planning, Perth W.A. November 1998
nfw-map11/environ/bushplan/bushv2_45.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



199

BUSHPLAN SITES CORRECTED



WESTERN
AUSTRALIAN
PLANNING
COMMISSION



CUSTOMER
FOCUS
WESTERN AUSTRALIA

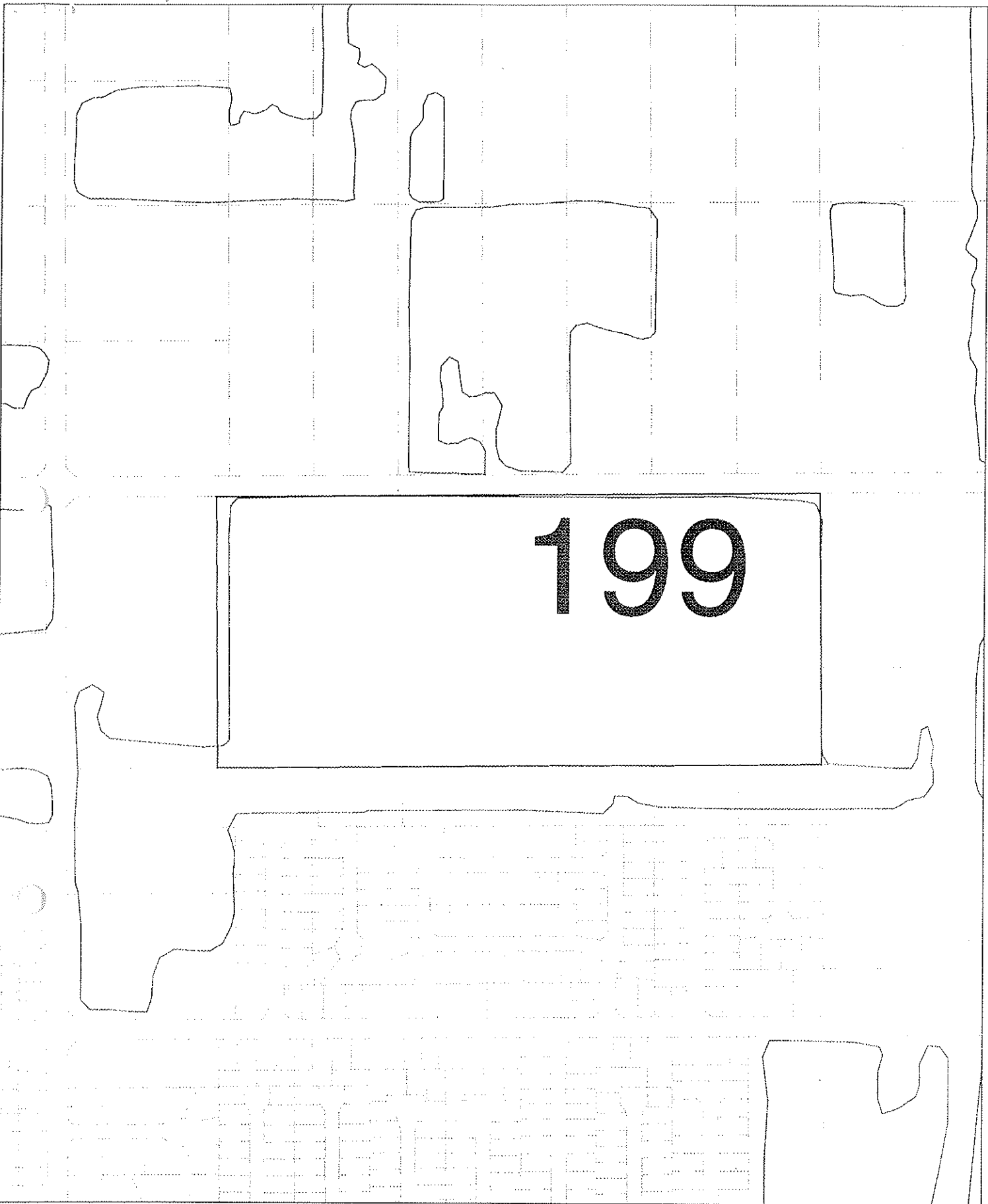
B BK/R 21/10/96



SCALE 1:2500



Metres



199

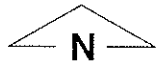
BUSHPLAN SITES CORRECTED



WESTERN
AUSTRALIAN
PLANNING
COMMISSION



CUSTOMER
FOCUS
WESTERN AUSTRALIA



SCALE 1:2500



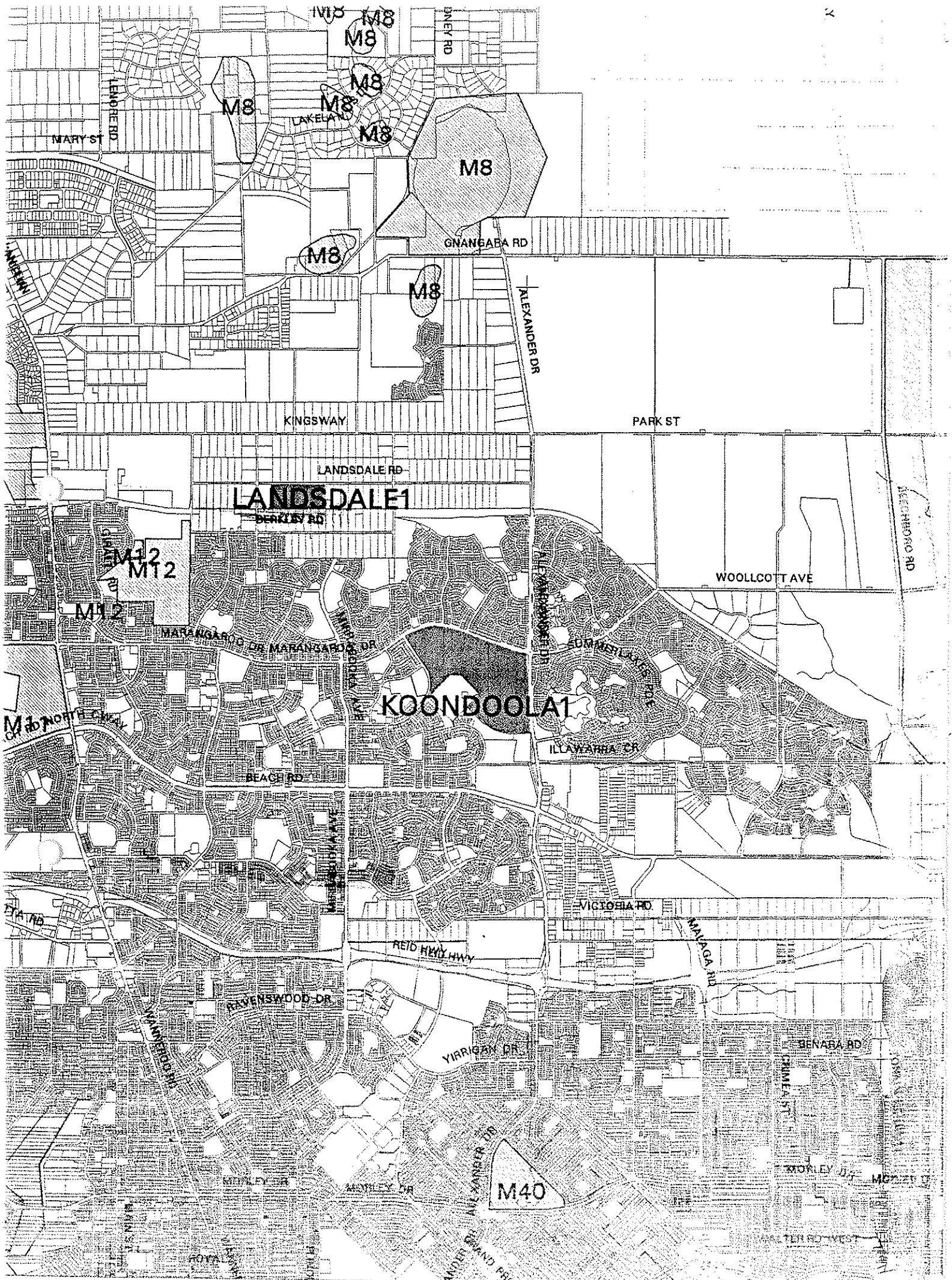
Metres

bp site 199

- AG VEG 1998 BOUNDARY THEME
- Cadastre
- Bushplan sites refno 1-500 SCP BOUNDARY



MFP INTERNAL USE ONLY
Prepared By: Andrea Zappacosta
Prepared For:
Map Ident: plot980526_1
Date: 28 May 98
Scale 1: 4323



AREA INFORMATION

System 6 Area (C or M) or Update Area (Update) LANDSDALE

Conservation Area	
Nature Reserve	
Reserve No	
National Park	
Reserve No	
Local Government	
Reserve No	
Other	
Proposed Conservation Areas	
Local Government	City of Wanneroo
Reserve No	
Other	

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)
20a	Ø1 (15)	G : LAND		

Boundaries determined by use of

aerial photograph
orthophoto
vegetation map
soil map

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 Reserve 24794 in Landsdale

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: Landsdale Road + Heppburn Avenue

b) Nearest Corner: Landsdale + Evandale Rds. (proposed)

c) Lot Number: 24794 Street Number: —

d) Town/Suburb/Location: WANNEROO CITY COUNCIL

e) Local Council: ''

f) Site Name (if any): Reserve 24794, Landsdale Road

g) Approximate size of the area (ha): 16 ha. Conservation Park

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

i) Map: UBD 1994 Streetsmart / UBD / Other: ✓ 1994

j) Map no.: 102

k) Grid Ref: J.8

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

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

It is vested in the W.C.C as a Reserve.

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)

The State

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) *Reserve*

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)

Unique, almost pristine Banksia woodlands.

6. What is/are the soil type/s and colours? *Bassendean Sands.*

Type: Sand/Clay/Gravel/Loam/Silt *at junction to Spearwood.*
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? *Pristine Banksia menziesii*

..... *Banksia attenuata and Banksia ilicifolia.*

..... *A rich and diverse flora.*

8. Is the area a wetland or does it include a wetland? *No.*

If yes, what kind of a wetlands is it?

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

9. What percentage of the wetland is open water in summer?

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

10. What percentage of the area is indigenous vegetation? ~~100%~~ 98%

11. If the area includes regions cleared of native bushland please indicate reasons for the inclusion.

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

..... Yes.

If yes, please give details of the work A quadrant from this Reserve was included in the Swan Coastal Plains survey of 1994 by Neil Gibson et al. Also an amateur survey of over 100 species.

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

- a) pristine
- b) excellent) ✓
- c) very good
- d) good
- e) degraded
- f) completely degraded
- g) don't know

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

- a) Partial clearing x
- b) fragmentation x
- c) Selective removal of species: timber cutting, wildflower picking, mowing dieback and other plant diseases x
- d) Fire regime, including intensity, season and frequency — Mostly burnt in 1986.
- e) 'Enrichment plantings' that is plantings of species not found in that community x
- f) Weed invasion — minor (wild gladiolus, minor weeds).
- g) Animal impact: horses, foxes, rabbits, cats, dogs, camels, goats etc — minor
- h) Soil movement, both removal and dumping x
- i) Changes in water regimes; flooding, drainage and watering x
- j) Salinity x
- k) Fertiliser drift and along waterways nutrient influx x
- l) Mining, including that for road works x

- m) Grazing: stock, overgrazing by feral or native mammals X
 - n) Proliferation of tracks, fire breaks and walk trails — minor
 - o) Off-road vehicle use — minor (now fenced).
 - p) Use as service corridors by the SEC, Main Roads, Water Authority. X
- (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)

Do you know what they are? *Yes. - some endangered species according to Mr Greg Keighery*

16. Do you know of any native animals that use the area? *Yes.*

Can you list those you know of? (birds, mammals, reptiles, amphibians etc)
Wallabies (black gloved), Bandicoots, Kangaroos, etc, etc.

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

If yes, please name them and indicate source of information
*Black gloved wallabies; Bandicoots or Quenda.
 White Tailed black Cockatoo. Visual Sightings*

CAN YOU TELL US A LITTLE ABOUT THE SURROUNDING AREA

18. Are there any bushland areas (including wetlands) near to this area?
 *No.*

If yes, how close are they? *All the surrounding bush is being cleared and urbanised for roads, houses, etc*
 *O.T.C. Tracking Station Reserve - 3kms*

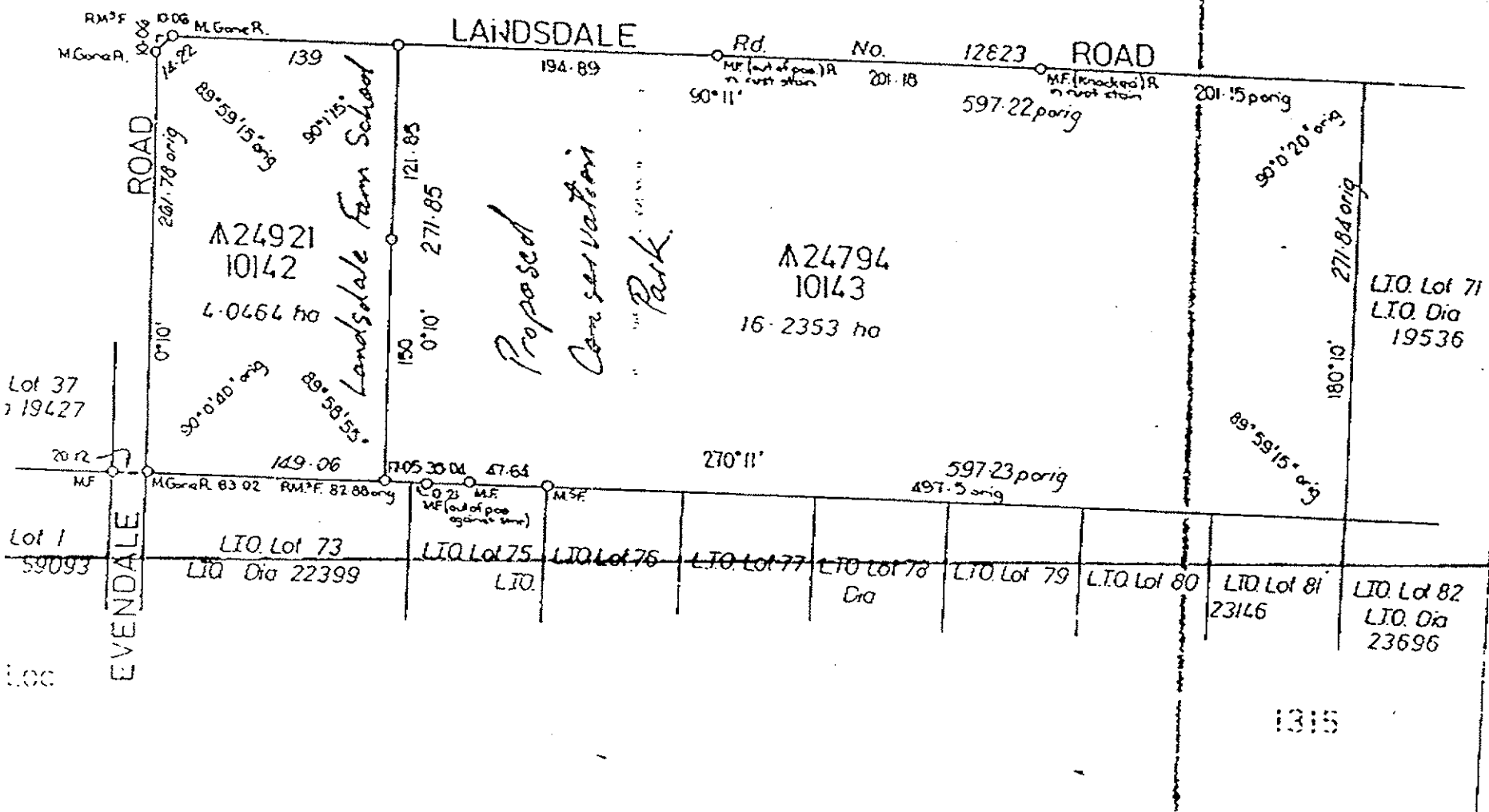
Are they already conservation reserves? *Whiteman Park - 7kms.*

What is their approximate size? *Yellagonga Regional Park - 3kms.*

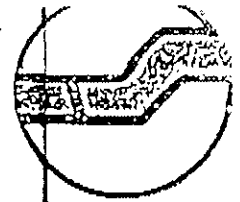
19. Does the submitted area link other bushland areas? *Whiteman Park, Gnangara pine plantation*

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

North



Please address all enquiries to WESTERN AUSTRALIAN WILDLIFE
RESEARCH CENTRE
OCEAN REEF ROAD
WOODVALE
Telephone (09) 405 5100



Your Ref
Our Ref
Enquiries

Mr T. Siggers
Principal
Landsdale Farm School
Evendale Road
LANDSDALE WA 6065

Postal Address
P.O. Box 51
WANNEROO W.A. 6065
Facsimile (09) 306 1641
Telex AA94016

Dear Mr Siggers

The area of remnant *Banksia* woodland present adjacent to your school is in excellent condition, approaching an untouched area. There are currently few tracks, little other disturbance evident, and very few weeds.

Our brief inspection revealed a very healthy understory of up to 100 species of flowering plants. If correctly managed this area would provide an ideal educational resource to introduce children to the Australian Environment.

Yours sincerely

G.J. KEIGHERY
SENIOR RESEARCH SCIENTIST
C.A.L.M.

July 10, 1992

LJK 20/5/97

FOR INTERNAL USE ONLY from Gibson *et.al* 1994

CONTACT DR N. GIBSON CALM WOODVALE for further information.

Flora list for Landsdale Bushland (extracted from Swan Coastal Plain database, Land01, 29/1/96).

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

(extracted from the CALM Swan Coastal Plain database, Land01, 29/1/96)

✓ Anthericaceae # *Dioscorea* *lexillata* ✓ Landsdale list - both
 # *Todaria* *pubescens* # " " = add home
 Laxmannia sessiliflora subsp. australis
 ✓ Thysanotus triandrus
 ✓ Tricoryne elatior
 # *Chamaecrista* *conybosia*
 Apiaceae

Trachymene pilosa
Xanthosia huegelii

Asteraceae

* Hypochaeris glabra # *Helichrysum* *cordatum*
 Podotrochea chrysantha # *Walteria* *swainsonii*
 * Ursinia anthemoides # *Pod.* *angustifolia*

Centrolepidaceae

Centrolepis drummondiana

Colchicaceae

✓ Burchardia umbellata

Cyperaceae

Cyathochaeta clandestina
Mesomelaena pseudostygia
Schoenus curvifolius

Dasypogonaceae

✓ Calectasia cyanea
 ✓ Dasypogon bromeliifolius
 Lomandra caespitosa
 Lomandra hermaphrodita
 Lomandra suaveolens

Dilleniaceae

Hibbertia huegelii
Hibbertia hypericoides

Droseraceae

✓ Drosera erythrorhiza

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Flora list for Landsdale Bushland (extracted from Swan Coastal Plain database, Land01, 29/1/96).

- ✓ Drosera menziesii
- Drosera paleacea scps subsp. paleacea

Drosera menziesii

Epacridaceae

- Astroloma pallidum
- Conostephium pendulum
- Leucopogon polymorphus
- Lysinema ciliatum

Euphorbiaceae

- Monotaxis grandiflora

Haemodoraceae

Arrog mang
Arrog humilis

- Conostylis aurea
- Conostylis setigera
- Haemodorum laxum
- Phlebocarya ciliata

Haem. paniculatum

Haloragaceae

- Gonocarpus pithyoides

Iridaceae

- * Gladiolus caryophyllaceus
- Patersonia occidentalis

Orthocentrus multiflorus

Loganiaceae

- Mitrasacme paradoxa

MIMOSACEAE

Myrtaceae

Acacia pulchella
A. costata
A. sp

- Calothamnus sanguineus
- Calytrix flavescens
- Eremaea pauciflora subsp. pauciflora scps

- 50 Eucalyptus marginata
- Hypocalymma robustum
- Leptospermum spinescens

Orchidaceae

Pteris recurva

- Thelymitra campanulata

Pteris vittata

Col. Hova

Papilionaceae

Col. ?georgiana

Bossiaea eriocarpa

- Bossiaea eriocarpa
- Daviesia divaricata
- Daviesia nudiflora

FOR INTERNAL USE ONLY from Gibson et.al 1994

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Flora list for Landsdale Bushland (extracted from Swan Coastal Plain database, Land01, 29/1/96).

Daviesia physodes
Daviesia triflora
Gompholobium tomentosum
Hovea trisperma var. trisperma
Nemcia reticulata

Jack stem
Jack flori
Vad. comp
Kan. prost

Poaceae

* Aira caryophyllea
Amphipogon turbinatus
Danthonia occidentalis

Hovea trisperma
Templetonia retusa
Daviesia decurva

Polygalaceae

Comesperma calymega

#

Proteaceae

Banksia attenuata
Banksia menziesii
Conospermum stoechadis
Hakea ruscifolia
Petrophile linearis
Stirlingia latifolia

Restionaceae

Alexgeorgea nitens
Hypolaena exsulca
Loxocarya fasciculata
Loxocarya flexuosa
Lyginia barbata

Rutaceae

Eriostemon spicatus

Stylidiaceae

Stylidium brunonianum
Stylidium bulbiferum
Stylidium calcaratum
Stylidium piliferum
Stylidium schoenoides

Xanthorrhoeaceae

Xanthorrhoea preissii

Zonitaceae

Planorbium riedlii

95 native

4 weeds

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Flora list for Landsdale (extracted from Swan Coastal Plain database, Land01, 73 taxa, 25/5/1995).

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

(extracted from the CALM Swan Coastal Plain database, Land01, 73 taxa, 25/5/95)

Anthericaceae

- Laxmannia sessiliflora subsp. australis
- Thysanotus triandrus
- Tricoryne elatior

Apiaceae

- Trachymene pilosa
- Xanthosia huegelii

Asteraceae

- * Hypochaeris glabra
- Podotheca chrysantha
- * Ursinia anthemoides

Centrolepidaceae

- Centrolepis drummondiana

Colchicaceae

- Burchardia umbellata

Cyperaceae

- Cyathochaeta clandestina
- Mesomelaena pseudostygia
- Schoenus curvifolius

Dasypogonaceae

- Calectasia cyanea
- Dasypogon bromeliifolius
- Lomandra caespitosa
- Lomandra hermaphrodita
- Lomandra suaveolens

Dilleniaceae

- Hibbertia huegelii
- Hibbertia hypericoides

Droseraceae

- Drosera erythrorhiza
- Drosera menziesii
- Drosera paleacea scps subsp. paleacea

Epacridaceae

- Astroloma pallidum
- Conostephium pendulum
- Leucopogon polymorphus
- Lysinema ciliatum

Euphorbiaceae

- Monotaxis grandiflora

Haemodoraceae

- Conostylis aurea
- Conostylis setigera

Haemodorum laxum
Phlebocarya ciliata

Haloragaceae
Gonocarpus pithyoides

Iridaceae
* Gladiolus caryophyllaceus
Patersonia occidentalis

Loganiaceae
Mitrasacme paradoxa

Myrtaceae
Calothamnus sanguineus
Calytrix flavescens
Eremaea pauciflora subsp. pauciflora seps
Eucalyptus marginata
Hypocalymma robustum
Leptospermum spinescens

Orchidaceae
Thelymitra campanulata

Papilionaceae
Bossiaea eriocarpa
Daviesia divaricata
Daviesia nudiflora
Daviesia physodes
Daviesia triflora
Gompholobium tomentosum
Hovea trisperma var. trisperma
Nemcia reticulata

Poaceae
* Aira caryophyllea
Amphipogon turbinatus
Danthonia occidentalis

Polygalaceae
Comesperma calymega

Proteaceae
Banksia attenuata
Banksia menziesii
Conospermum stoechadis
Hakea ruscifolia
Petrophile linearis
Stirlingia latifolia

Restionaceae
Alexgeorgea nitens
Hypolaena exsulca
Loxocarya fasciculata
Loxocarya flexuosa
Lyginia barbata

FOR INTERNAL USE ONLY from Gibson *et.al* 1994

3

CONTACT DR N. GIBSON CALM WOODVALE for further information.

Flora list for Landsdale (extracted from Swan Coastal Plain database, Land01, 73 taxa, 25/5/1995).

Rutaceae

Eriostemon spicatus

Stylidiaceae

Stylidium brunonianum

Stylidium bulbiferum

Stylidium calcaratum

Stylidium piliferum

Stylidium schoenoides

Xanthorrhoeaceae

Xanthorrhoea preissii

**THE JOHN TONKIN
GREENING WESTERN AUSTRALIA
AWARDS, 1996**

BUSHLAND CONSERVATION AWARD

**CONSERVATION PARK
LANDSDALE**

Submitted by
Conservation Park Sub-Committee, Landsdale Farm School Inc.

CONSERVATION PARK, LANDSDALE

Our application to The John Tonkin Greening Western Australia Awards is for the conservation and management of an area of bushland, adjacent to Landsdale Farm School, 80 Landsdale Road, Landsdale, 6065. The bushland is called Conservation Park. Through consultation, co-operation and commitment commencing in 1992 the Principal of Landsdale Farm School Mr Tim Siggers, the relieving Principal Mr Steve Kitching, the Conservation Park Committee and the Landsdale Farm School Inc. Management Committee have established Conservation Park. We have worked in co-operation with the City of Wanneroo, Ministers of State and Local Government and Government departments such as CALM.

DESCRIPTION OF ACTIVITIES

Provide details of how and when the conservation or revegetation project got started.

Landsdale Farm School was founded in 1979 and developed as a community initiative and a joint venture with the Education Department. It is sponsored by a large number of community groups, charities and individuals. The 4 hectare model demonstration farm contains all the common farm animals, a diverse orchard and organic vegetable garden and the environment is complimented by native gardens and lawns. With a kitchen and hall, a bunkhouse and three self contained cottages with 50 beds, Landsdale Farm School is able to provide camp facilities and weekend and holiday respite care.

Landsdale Farm School has been especially developed for children with disabilities, but the farm is visited regularly by many diverse groups, such as the Spastic Welfare Centre, Rocky Bay Village, Catholic Care, the Authority for the Intellectual Handicapped, daycare and playgroup groups, the Organic Gardening Co-operative, many primary school groups and several high school groups. In 1995, approximately 7800 school children visited the Farm.

In 1992, Tim Siggers, the Principal of Landsdale Farm School, commenced working towards the conservation of the bushland directly adjoining the eastern side of the Farm School. The 16 hectares of bushland is Crown Land, currently vested in the City of Wanneroo. The bushland had been "set aside as public open space to meet the future recreational needs of residents". In August, 1993, the City of Wanneroo Council advised Mr. Siggers and the Conservation Park Committee, that they would be permitted to use 7 hectares of the bushland as a Conservation Park until required by the City. In addition the Conservation Park Committee was required to fence the whole 16 hectares to the satisfaction of the City of Wanneroo Parks Manager. In March 1996, after discussions between The City of Wanneroo, Landsdale Farm School and The Honorable Peter Foss, Minister for the Environment, the bushland was rezoned for "passive recreation" with Landsdale Farm School playing a major role in its management.

State the aims of the project

The draft management plan of Landsdale Farm School Conservation Park is modelled on the Kings Park and Botanic Garden Management Plan 1993 and contains goals for conservation, education and information and recreation. Some of the aims of the Conservation Park Management Plan are itemised below.

Conservation goals

- To conserve Conservation Park in its pristine condition.
- To conserve the indigenous plants and animals.
- To manage Conservation Park effectively.
- To work in a non confrontational manner to secure the long term preservation of the bushland.

Recreational goals

- To maintain the accessibility to Conservation Park at all times to the public, to users of the Farm School and to interested groups.
- To maintain wheelchair accessibility via the limestone path.
- To provide free guided walks to the public and to advertise these walks.
- To continue to provide an interactive brochure to accompany walkers.

Educational and information goals

- To continue developing a herbarium and photographic record of flora and fauna.
- To encourage scientific study of the bushland.
- To provide services which will enable all age groups to enjoy a better understanding of the bushland and its values.
- To highlight the inter-relationship between bushland and farmland and the benefits of bushland in the city and the country.

Outline the actions undertaken

During 1994, LEAP scheme participants cleared the bush of all rubbish which was collected by the City of Wanneroo Parks and Gardens section. A temporary fence was erected to stop rubbish dumping and use by horse riders and trail bikes. The group marked out a walking trail and filled it with limestone which was rolled and compacted. This walk trail meant that people with disabilities could experience the bush at close hand. Firebreaks were constructed and the perimeters were sprayed to stop weed infestation. The group prepared and installed station marker posts and placed guidance tiles depicting the bush walk logo, into the limestone path.

In conjunction with the LEAP scheme, a grant from City Landcare enabled a teacher to be contracted to develop three self-guided education walks and to develop and organise the accompanying brochures, posters, maps and information. The three City Landcare walks are Farm Animals with a pig logo, Garden Tour with a sunflower logo and Bushwalk with a Port Lincoln Ringneck logo.

The Bushwalk brochure with its emphasis on conservation, illustrates the beauty of the bush and helps walkers identify trees, plants, small creatures and larger animals which live there. The style of writing of the brochure is aimed at upper primary school aged children and is designed to promote active participation. For example, at station 10, entitled "Small creatures and insectivorous plants", the text reads "Sundews often grow in poor soil and so they need to trap insects to provide them with food. Look carefully and you may see some small insects trapped on the sticky hairy leaves. Gently touch the leaves". The brochure also includes "My Bushland Code" with points such as "I care for the bush and want to save it for tomorrow".

A second LEAP Scheme with a budget of \$97735 was successfully run from July 1995. The participants erected a vermin proof fence based on John Wamsley's design. Gates, allowing access to the public, are completed but are yet to be installed.

During this period The Conservation Park Committee was working with the Wanneroo City Council to secure the future of the bushland and to that end was fostering community and scientific interest.

Describe what actions have been made to raise awareness of the project throughout the community

Temporary signs erected around the outskirts of Conservation Park let the local and passing community know the nature of Conservation Park. Colourful posters describing the three educational walks (Farm Animals, Bush Walk and Garden Tour) have been distributed to all primary schools in the northern districts and to community groups which use Landsdale Farm School facilities.

Free guided walks guided by naturalists are conducted every month throughout the year. These walks are advertised in "The West Australian", in community newspapers and in bushland interest group flyers.

The Mayor and Councillors from the City of Wanneroo have visited Landsdale Farm School and Conservation Park. Other visitors at the end of 1995 have been the Hon. Peter Foss, Attorney General; Minister for Justice; the Environment; the Arts, the Hon. Paul Omodei, Minister for Local Government, the Hon. Iain MacLean, MLC for the North Metropolitan Region and the Premier, The Hon. Richard Court. In a letter from Mr Peter Foss after his visit he said "My visit was very informative and I thoroughly enjoyed my stroll through the Conservation Park. It is an extremely impressive example of unsullied bush and all involved should be very pleased with their efforts.....Positive comment from the CALM Herbarium would indicate that this piece of bushland is very important and on this basis I have requested that the Department of Environmental Protection undertake an assessment of the area." (6.12.95)

The scientific community is well aware of the value of Conservation Park. Greg Keighery, a senior research scientist with CALM visited in 1992 and

reported....*"The area of remnant bushland present adjacent to your school is in excellent condition, approaching an untouched area. There are currently few tracks, little other disturbance evident and very few weeds. Our brief inspection revealed a very healthy understorey of up to 100 flowering plants. If correctly managed this area would provide an ideal educational resource to introduce children to the Australian environment"*

Other excursions and studies in Conservation Park have been carried out by the WA Museum, The Conservation Council, The Gould League, The Naturalist Club, The Insect Study Group and The Wildflower Society.

The Principal, Mr Steve Kitching, has made available to teachers in-service courses to provide relevant and realistic support for students' learning. The School is offering teachers suggestions on how students can develop outcomes from a range of learning areas.

Conservation Park has been registered with The National Trust.

INVOLVEMENT OF OTHERS

Provide details of who is involved with the project

The Conservation Park Committee currently meet once a month and make recommendations to The Landsdale Farm School Inc. Management Committee. Chairperson of the Conservation Park Committee is Phylis Robertson, a primary school teacher with extensive experience in the natural world and a member of The Science Teachers Association. Committee members are Chris Newell, a horticulturalist and research scientist, David Pike, naturalist, vice president of The Northern Districts Wildflower Society and involved in many conservation projects, Joy Unno, Friends of Yellagonga representative and with an interest in conservation and Margaret Owen, teacher, interests in natural history and conservation.

Steve Kitching, Landsdale Farm School Principal, is currently not on the committee but is supportive and involved as requested.

Demonstrate the level of community/management support

The Conservation Park Committee is made up of people from the community and the Landsdale Farm School Inc Management Committee is supportive of its recommendations. The Conservation Park Committee has been assisted by various community members and groups, for example, David Waite, Wanneroo Coalition for the Environment, Robin Bigwood, Teacher, Glengarry Primary School, Dr. Boyd Wykes, Enviro-Ed Services and Mary Gray, Chairperson of the Landscape and Conservation Sub Committee of the National Trust of WA.

The project has the full support of The Education Department.

Community support is evidenced by the numbers of groups using the Conservation Park walk with the brochures and the interest from the scientific and natural history groups.

In 1995, 7800 children visited Landsdale Farm School despite industrial action in schools. To date in 1996, thirty four teachers have attended the in-service courses. A number of these teachers are working with their classes on projects in Conservation Park. 4600 children visited Landsdale Farm School in semester one 1996 and the total number of visitors for 1996 is estimated to be between 11500 and 12000. In addition, 1550 children and adults stayed in the cottages during 1995/96 and used the Conservation Park for recreation purposes.

Conservation Park is accessible to the public at any time.

Support from 21 residents resulted in a petition to the City of Wanneroo, requesting that the management of the bush be vested in Landsdale Farm School.

The bushland was rezoned for "passive recreation" in March 1996. One resident told a committee member "Before it was fenced it was a vacant block, now it is a conservation park".

The Friends of Yellagonga are represented on The Conservation Park Committee and on Landsdale Farm School Inc Management Committee. The Friends use the propagation facilities of the farm and have erected an igloo for native plant development. Friends of Yellagonga and Landsdale Farm School work together for mutual benefit. One joint project will be to propagate plants using seed collected from Conservation Park for planting on and around Landsdale Farm School.

The establishment of Conservation Park was agreed to by the City of Wanneroo and it was officially opened on December 4th 1994 by the Mayor of Wanneroo, Mrs Rita Watters. The City of Wanneroo also approved the vermin proof fence.

Identify how the project is funded - include in-kind and sponsorship contributions

\$37800 { First LEAP Scheme, May 1994.

{ City Landcare grant.

\$15000 Landsdale Farm School Inc.

\$97735 LEAP Scheme 1995

\$ 5000 donation

Rotary donated benches and it is estimated that in-kind contributions to the value of \$20000 have been made. Examples of this kind of contribution are having access to office space, paper work, accounting fees, farm equipment use, community and committee members time, photography, records and the development of the herbarium.

OUTCOMES

Describe what has been achieved to date against your overall aim

Conservation Park exists. The 16 hectares is fenced with a vermin proof fence. A 657 metre limestone path winds through the western 7 hectares and 12 numbered marker posts have been installed. An accompanying brochure is available with an interactive text, a map and "The Bushland Code". A poster attracts people to do the walk. At various points in the walk, benches are placed for resting, looking and listening. At the start of the walk, a pergola type display centre has been built (on the Landsdale Farm School land, not in the bushland). A draft management plan has been written and a herbarium and photographic record of flora, fauna and invertebrates has been developed.

Teacher in-servicing has continued to be provided in 1996 with the accompanying flow on to students. The bushland is accessible to people with disabilities and some have been able to go into the bush for the first time.

Bush walks are conducted monthly and the bushland is open to the public at any time. Vertebrate and invertebrate studies are being conducted in the bushland by The WA Museum and floristic studies are continuing. CALM has investigated and reported to the Conservation Park Committee and to the Government on the viability of introducing native fauna to Conservation Park.

The City of Wanneroo and The Conservation Park Committee work co-operatively.

Provide evidence of how the project is contributing to conservation of vegetation

Permission has been granted by The City of Wanneroo to establish Conservation Park. The bushland was only to be used as a Conservation Park until it was required by The Wanneroo City Council for "public open space". This meant that it would probably have become grassed playing fields. By the rezoning to "passive recreation", Conservation Park's conservation is more certain. Visitors from Government have congratulated the Conservation Park Committee and expressed an interest in the preservation of Conservation Park. Because the whole complex is visited by so many people who know of the three interconnected walks, the message of conservation is being promoted. The scientific data which is accumulating is adding to the value of the area as an almost pristine piece of bush. In the bushland are black gloved wallabies, grey kangaroos and short nosed bandicoots. Also western jewel butterflies and a crowned snake have been seen and photographed. Two species of monitor lizards exist in the bush.

In a report, "A Floristic Survey of the Southern Swan Coastal Plain", prepared by CALM and the W.A. Conservation Council for the Australian Heritage Commission, 509 sites on the Swan Coastal Plain were studied. One of the sites was in what has become known as Conservation Park. In the report the authors wrote that "*the eastern Banksia attenuata woodlands over species rich dense*

shrublands from Koondoola open space, Landsdale Road.....is one of the three most threatened community types needing urgent reservation.....The area should be declared as A Class Nature Reserve for the protection of flora and fauna." In December 1995, Mr Peter Foss requested CALM to investigate the possibility of native animals being released into Conservation Park. This work was carried out by Mr Robert Powell, Conservation - Estate Officer. Mr Foss also requested that the Department of Environmental Protection undertake an assessment of the area.

The work being undertaken by The Friends of Yellagonga such as seed collection and plant propagation contributes to conservation of vegetation.

Through education children can learn the value of conserving the bushland ecosystem for nature conservation, species survival and the values of conservation in both urban and rural environments.

Explain why the achievements are significant and include any relevant statistical information, ie numbers of people involved and the impact of the project

Without the intervention of an increasing number of interested people Conservation Park would not exist and the bushland may not have been preserved. Through education and children having the opportunity of getting into the bush, support for future conservation is a significant aspect. Booked school day visits are as follows:

- 1994 - 9500 children
- 1995 - 7800 children
- 1996 - 4600 children, semester one.

Monthly donations indicate approximately 300 visitors per month.

Gaining funding for two LEAP schemes was significant as were the benefits to the twenty two long term unemployed young participants.

We have been encouraged by the interest shown in Conservation Park by politicians and scientists and because of the mutual interaction, we have contributed to an understanding of broader issues. Conservation will depend on an approach which involves the whole community and integrates nature conservation with conservation of the land.

FUTURE ACTIONS

Provide evidence of a long term commitment to the project

Landsdale Farm School is permanent and the establishment of Conservation Park further enriches the attractions of Landsdale Farm School.

The Conservation Park Committee has been meeting at least once a month during school terms since 1992 and the physical structures, resource material and management philosophy as written in this application are evidence of the commitment to the project.

Explain future plans for the project

The Conservation Park Committee plan to manage Conservation Park to keep the bush in excellent condition. This involves weed and pest control, maintaining access for fire vehicles, having fire hose points close to the Park and encouraging studies of flora, fauna and invertebrates by scientists and students.

An exciting aspect of future plans is in the education of teachers and their use of this knowledge for the benefit to children.

We plan to make a bush garden on Landsdale Farm School land, close to the start of the bushland walk. By labelling bush plants in the garden, students, teachers and the public will be able to put a name to some plants. We will be assisted in the endeavour by The Friends of Yellagonga.

Residential use of the cottages at Landsdale Farm School is fully booked for weekends until February 1997. Many groups using this weekend accommodation use Conservation Park for varying purposes. Overnight accommodation during the week days for diverse groups is an area of proposed growth, through advertising of the availability of the cottages and their convenience to the Farm Animals, Garden Tour and Bush Walks.

We plan to raise the profile of Conservation Park to the scientific, school and lay communities for the benefit of the bush and its inhabitants and for the future conservation of native vegetation.

* * * * *

See Appendix List

Landsdale Road Conservation Park

A PRELIMINARY LIST OF PLANTS FOUND ON THE RESERVE

FAMILY	Genus	species	common name
LILYACEAE	Xanthorhoea	preissii	blackboy
	Burchardia	umbellata	milkmaids
	Thysanotus	triandrus	fringed lily
	Tticoryne	elatior	yellow autumn lily
	Sowerbaea	laxiflora	vanilla lily
	Calectasia	cyanea	Blue tinsel lily
	Chamaescilla	corymbosa	Blue squill
	Johnsonia	pubescens	pipe lily
	Dasypogon	bromeliifolius	Pinneapple bush
	ZAMIACEAE	Macrozamia	riedlei
HAEMODORACEAE	Anigozanthos	menglesii	W.A. emblem
	Anigozanthos	humilus	catspaw
	Conostylis	setosa	coneflower
	Conostylis	setosa	coneflower
	Haemadorum	paniculatum	
IRIDACEAE	Orthrosanthus	multiflorus	
	Patersonia	occidentalis	purple flags
ORCHIDACEAE	Pterostylis	recurva	jug orchid
	Pterostylis	vittata	banded greenhood
	Caladenia	flava	cowslip orchid
	Caladenia	heugelii	spider orchid

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DROSERACEAE	Drosera	menziesii	rainbows
	Drosera	macrantha	
	Drosera	bulbosa	
	Drosera	erythroriza	
MIMOSACEAE	Acacia	pulchella	prickly moses
	Acacia	cochlearis	rigid wattle
	Acacia	?	
PAPILIONACEAE	Isotropis	cuneifolia	granny's bonnets
	Jacksonia	sternbergiana	stinkwood
	Jacksonia	floribunda	
	Hardenbergia	comptoniana	native wisteria
	Kennedia	prostrata	running postman
	Nemcia	capitatum	
	Hovea	trisperma	hovea
	Templetonia	retusa	
	Gastrolobium	?	
	Daviesia	epiphylla	staghorns
	Daviesia	incrassata	
	Daviesia	decurrens	prickly bitter pea
	Daviesia	nudiflora	
	Daviesia	triflora	
	Daviesia	divaricata	
	Bossisea	eriocarpa	
Gompholobium	?		
RUTACEAE	Eriostemon	spicatus	pepper and salt

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APIACEAE	Trachymene	pilosa	native parsnip
	Xanthosia	Huegii	
ASTERACEAE	Helychrysum	cordatum	tangle daisy
	Waitzia	suaveolens	
	Podotheca	angustifolia	sticky long heads
	Siloxerus	humifusus	
ANTHERICACEAE	Laxmannia	squarrosa	
POACEAE	Amphipogon	turbinatus	
PITTOSPORACEAE	Pronaya	fraseri	elegant pronaya

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LABIATEAE	Hemiandra	pungens	snake bush
LOBELIA	Isotoma	hypocrateriformis	woodbridge poison
GOODENIACEAE	Dampiera	linearis	common dampiera
	Scaevola	paludosa	
STYLIDEACEAE	Stylidium	calcaratum	book trigger plant
	Stylidium	brunonianum	
	Stylidium	piliferum	common butterfly t.p.
	Stylidium	Schoenoides	cow kicks
COMPOSITEAE	Brachycombe	?	daisy
	Helipterum	?	everlasting
CASUARINACEAE			
	Casuarina	humilis	scrub sheok
	Casuarina	fraseriana	sheok
EUPHORBIACEAE	Ricinocarpus	glaucus	wedding bush
	Monotaxis	grandiflora	
RESTIONACEAE	Leptocarpus	canus	hoary twine rush
	Loxocarya	flexuosa	
CYPERACEAE	Mesomelaena	stygia	semaphore sedge
	Schoenus	curvifolius	

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TREMADRACEAE

Platetheca verticillata
Tetratheca

VIOLACEAE

Hybanthus calycinus wild violet

DILLENIACEAE

Hibbertia hypericifolia
Hibbertia racemosa
Hibbertia Hueglij

THYMELAEACEAE

Pimelia sulphurea
Pimelia leucantha

MYRTACEAE

Eucalyptus marginata jarrah
Eucalyptus gomphocephala tuart
Erameaea pauciflora
Calothamnus sanguineus
Verticordia nitens
Hypocalymna robustum swan river myrtle
Calytrix flavescens

EPACRIDACEAE

Conostephium pendulum pearl flower
Andersonia ?
Astroloma ?
Lysinema ciliatum curry flower
Leucapogon pulchellus beard heath
Leucapogon propinquus

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Thelymitra	crinata	blue lady orchid
Elythranthera	brunosis	purple enamelled orchid
Diuris	longifolia	donkey orchid
Prasophyllum	?	leek orchid
Microtis	unifolia	common mignonette orchid

PROTEACEAE

Banksia	menziesii	firewood banksia
Banksia	attenuata	coast banksia
Banksia	ilicifolia	holly leaved banksia
Banksia	grandis	bull banksia
Dryandra	nivia	honey pot
Dryandra	?	
Isopogon	?	
Petrophile	macrostachya	
Petrophile	linearis	
Conospermum	stoechadis	smoke bush
Adenanthos	?	basket flower
Stirlingia	latifolia	blueboys
Hakea	prostrata	
Hakea	ruscifolia	
Hakea	?	

LORANTHACEAE

Nuytsia	floribunda	christmas tree
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AMARANTHACEAE

Ptilotus	pollistachya	mulla mulla
Ptilotus	manglesii	

Table 2. Herpetofauna of locations and sites sampled in 1995-1996. Numbers of individuals pitfall trapped. * indicates sightings or capture in invertebrate pitfall traps. Locations are as for Table 1

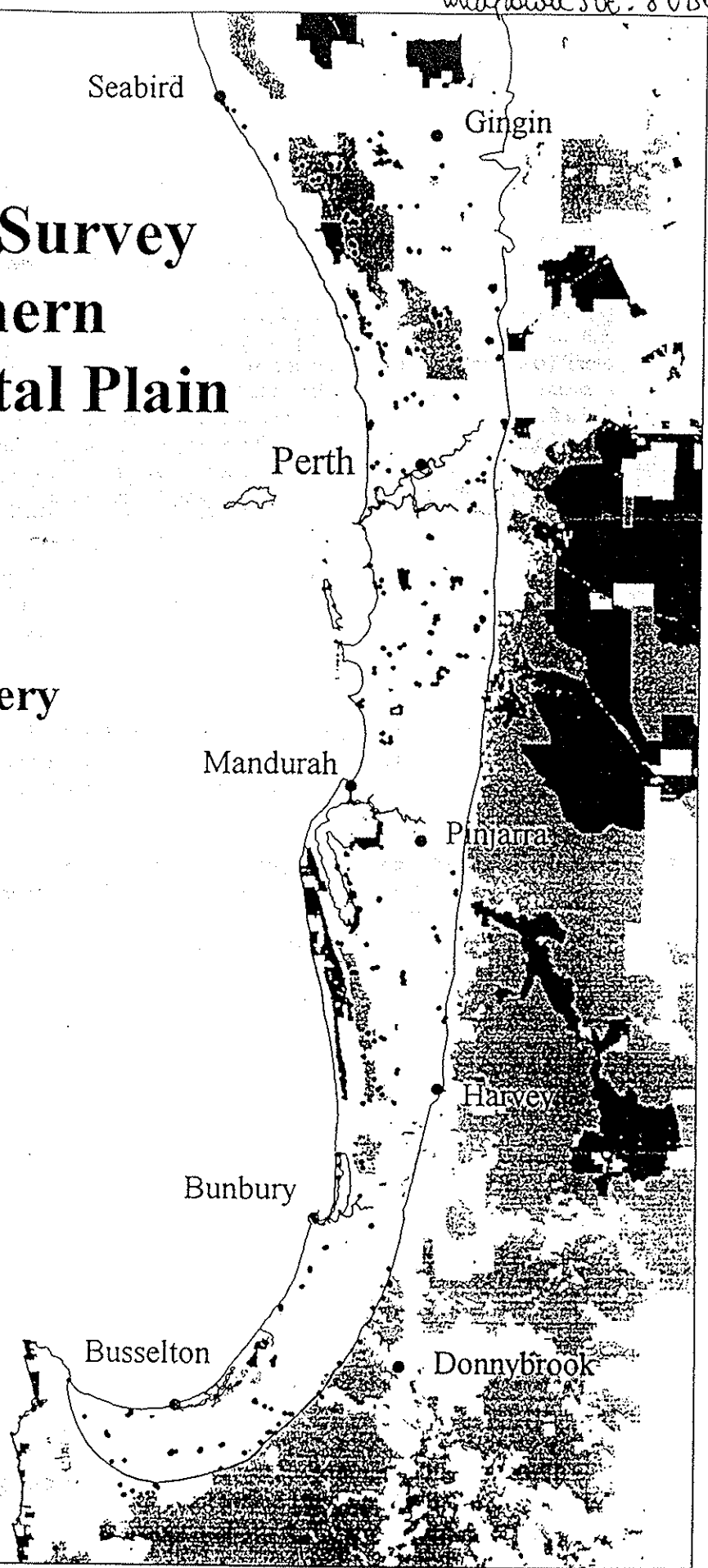
Year	Survey Sites												
	1995-96												
	HH	HH	HH	HH	LS	LS	ML	ML	MR	MR	WR	WR	
	1	2	3	4	1	2	1	2	1	2	1	2	
Location	53	53	53	40	53	53	56	56	53	53	53	53	
Survey Sites													
Trap Nights													
AMPHIBIANS													
HYLIDAE													
<i>Litoria moorei</i>	-	-	-	-	-	-	-	1	-	-	-	-	
LEPTODACTYLIDAE													
<i>Heleioporus eyrei</i>	-	-	-	-	-	-	7	-	-	-	-	-	
<i>Limnodynastes dorsalis</i>	1	1	2	-	3	-	1	3	-	-	-	-	
<i>Myobatrachus gouldii</i>	-	4	-	1	-	1	-	8	-*	-	-	-	
REPTILES													
GEKKONIDAE													
<i>Diplodactylus polyophthalmus</i>	-	-	-	-	-	-	-	-	-	-	-	5	
<i>Phyllodactylus marmoratus</i>	-	-	-	1	-	-	7	1	-	-	-	-	
PYGOPODIDAE													
<i>Aprasia repens</i>	2	2	8	5	4	2	5	1	2	1	-	2	
<i>Lialis burtonis</i>	2	2	2	1	-	4	-	1	1	2	-	-	
<i>Pletholax gracilis</i>	-	-	-	-	3	2	-	-	2	1	-	-	
AGAMIDAE													
<i>Pogona minor</i>	-	3	2	1	6	5	5	3	2	-	1	2	
SCINCIDAE													
<i>Cryptoblepharus plagiocephalus</i>	-	-	-	3	-	4	3	2	2	3	10	5	
<i>Ctenotus fallens</i>	26	22	9	3	5	10	13	23	4	7	4	3	
<i>Ctenotus lesueurii</i>	-	1	-	-	-	-	1	-	-	1	-	-	
<i>Cyclodomorphus celatus</i>	-	1	-	1	-	-	-	-	-	-	-	-	
<i>Hemiergis quadrilineata</i>	3	2	1	9	4	6	9	8	1	3	1	-	
<i>Lerista elegans</i>	4	5	2	*	14	16	15	5	17	26	7	11	
<i>Lerista praepedita</i>	1	*	1	1	5	3	2	5	4	2	4	1	
<i>Menetia greyii</i>	7	2	8	1	11	14	6	7	3	8	2	2	
<i>Morethia lineocellata</i>	-	-	-	-	8	7	-	-	7	2	-	-	
<i>Morethia obscura</i>	2	1	2	2	16	18	2	6	8	29	2	6	
<i>Tiliqua occipitalis</i>	-	-	-	-	1	-	-	-	-	-	-	-	
<i>Tiliqua rugosa</i>	2	1	-	-	2	2	1	-	3	-	1	3	
VARANIDAE													
<i>Varanus gouldii</i>	-	-	-	-	1	-	-	-	-	-	-	-	
<i>Varanus tristis</i>	-	-	-	-	1	-	-	-	-	-	-	-	
TYPHLOPIDAE													
<i>Ramphotyphlops australis</i>	1	1	-	1	-	-	2	-	-	-	1	-	
ELAPIDAE													
<i>Pseudonaja affinis</i>	-*	-	-	-	-*	-*	-	-	-	-	-	-	
<i>Rhinoplocephalus gouldii</i>	-	-	-	-	2	-	-	-	-	-	-	-	
<i>Simoselaps bertholdi</i>	1	-	3	1	-	1	-	-	-	-	-	-	
<i>Simoselaps bimaculata</i>	-	-	1	-	-	-	-	-	-	-	-	-	
<i>Simoselaps calonotus</i>	-	-	-	-	1	-	-	-	-	-	-	-	
<i>Simoselaps semifasciata</i>	-	-	1	1	-	-	-	-	-	-	-	-	
Amphibian Species	1	2	1	1	1	1	2	3	1	-	-	-	
Amphibian Individuals	1	5	2	1	3	1	8	12	-	-	-	-	
Reptile Species	12	13	12	15	17	15	13	11	13	12	10	10	
Reptile Individuals	51	43	40	31	84	94	71	62	57	85	33	40	
Lizard Species	9	12	9	12	14	13	12	11	13	12	9	10	

SPECIES	H	H	H	H	L	L	M	M	MR	WR		
	H	H	H	H	S	S	L	L				
	1	2	3	4	1	2	1	2	1	2	1	2
Observation days	53	53	53	40	53	53	56	56	53	53	53	53
MALURIDAE												
Splendid Fairy-wren <i>Malurus splendens</i>	-	1	-	-	-	-	-	-	-	-	-	-
DAPHOENOSITTIDAE												
Australian Sittella <i>Daphoenositta chrysoptera</i>	-	-	-	1	-	-	-	-	-	-	-	12
PARDALOTIDAE												
Striated Pardalote <i>Pardalotus striatus</i>	6	-	2	23	-	1	3	2	1	18	9	34
ZOSTEROPIDAE												
Grey-breasted White-eye <i>Zosterops lateralis</i>	6	23	12	4	-	-	-	-	-	-	4	3
MELIPHAGIDAE												
Brown Honeyeater <i>Lichmera indistincta</i>	43	39	42	39	10	15	43	12	48	47	14	37
Singing Honeyeater <i>Meliphaga virescens</i>	17	-	9	8	33	10	45	44	40	26	3	20
Tawny-crowned Honeyeater <i>Phylidonyris melanops</i>	-	3	1	-	-	-	-	-	-	-	-	-
White-cheeked Honeyeater <i>Phylidonyris nigra</i>	23	5	3	-	2	-	-	-	1	-	-	-
Western Spinebill <i>Acanthorhynchus superciliosus</i>	1	1	9	9	1	-	-	-	-	6	-	2
Red Wattlebird <i>Anthochaera carunculata</i>	18	1	14	7	21	21	18	13	34	32	33	16
Little Wattlebird <i>Anthochaera chrysoptera</i>	-	-	4	-	1	1	1	-	-	2	-	-
GRALLINIDAE												
Magpie-lark <i>Grallina cyanoleuca</i>	-	-	-	-	-	-	2	1	-	-	-	-
CRACTICIDAE												
Australian Magpie <i>Cracticus tibicen</i>	24	2	9	3	2	9	3	1	11	32	18	31
Grey Butcherbird <i>Cracticus torquatus</i>	-	-	8	2	7	29	13	4	11	25	22	3
CORVIDAE												
Australian Raven <i>Corvus coronoides</i>	9	-	18	35	25	19	23	4	14	15	33	32
Non Passerine Species	9	6	11	9	11	13	9	11	11	13	7	11
Passerine Species	14	12	17	16	13	13	14	14	13	15	13	14
TOTAL BIRD SPECIES	23	18	28	25	24	26	23	25	24	28	20	25

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A Floristic Survey of the southern Swan Coastal Plain

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A report prepared by the Western Australian Department of Conservation and Land Management
and the Western Australian Conservation Council for the
Australian Heritage Commission.

ABSTRACT

A study was undertaken of the plant communities of remnant bushland on the southern Swan Coastal Plain (between Seabird and the foothills of the Whicher Range). Five hundred and nine sites were established and the floristic data were used to define the major regional community types.

A total of 1485 flowering plant taxa (species, subspecies and varieties) were found in the 509 quadrats or in adjacent areas. Of these taxa 1313 were natives and 172 were weeds. Sixty one taxa appear to be endemic to the study area. Most of the endemics are restricted to the eastern side of the coastal plain (28 taxa) or to areas of ironstone (13 taxa). Seventy seven taxa appear to have their southern range end and 48 taxa to have their northern range end in the study area. Ten species of Declared Rare Flora (DRF) were found during the survey. Two of these taxa (*Schoenus natans* and *Tetraria australiensis*) were previously believed to be extinct. In all, 19 new populations of DRF were recorded and a further 75 priority species were encountered. Eleven species are proposed for listing as Declared Rare Flora (eight of these species are from the very restricted southern ironstone communities) and changes to the priority listing are recommended for another 13 taxa. At least seven taxa appear to have become locally extinct on the southern Swan Coastal Plain.

The floristic analysis defined 30 community types. It was possible to further subdivide some of these groups and, in all, a total of 43 types and subtypes were recognised. The major environmental correlates with this classification were seasonal moisture regime and geomorphology. Of the 30 major community types, three are found on the heavy soils of the eastern coastal plain, 16 in seasonal wetlands, four are centred on the Bassendean Dunes and seven are largely restricted to Spearwood and Quindalup systems.

The floristic classification showed very poor correlation to vegetation structure and, while geomorphology was a major environmental correlate, floristic community types were poorly correlated to individual mapped units. Similarly the floristic classification was poorly correlated with previously mapped vegetation complexes.

Of the 43 recognised community types or subtypes, ten are unreserved and a further 11 are only known from a single National Park or Nature Reserve. One community type (southern ironstones) is considered critically threatened, two communities are considered endangered, 15 are considered vulnerable and 11 are considered susceptible should any change in management or land use occur. Twelve communities are considered at low risk from any present threat and two communities could not be assessed due to insufficient information. Reserve recommendations are made to protect the three most threatened community types.

RECOMMENDATIONS

This study of the plant communities of the Swan Coastal Plain between Seabird and the foothills of the Whicher Range has led to the following recommendations:

- 1) Eleven taxa should be proposed for listing as Declared Rare Flora and the priority listing for 13 taxa should be changed as detailed (Table 6).
- 2) The three most threatened community types need urgent reservation. The following areas should be declared as A class Nature Reserves for the protection of flora and fauna:
 - a) the southern ironstone communities from the five small areas of State Forest and the road and rail reserve east of Ruabon Nature Reserve. (This road and rail reserve is also of regional significance as it is one of the last two remaining continuous vegetated transects in the study area showing the catena of original vegetation types on the eastern side of the plain.)
 - b) the sedgeland in Holocene dune swales in the Point Becher area (M106) and the north west corner of Lake Walyungup (M103).
 - c) the eastern *Banksia attenuata* woodlands over species rich dense shrublands from Koondoola open space, Landsdale Rd, M12, and M 53.
- 3) Final selection of areas for reservation of the 10 poorly reserved community types should be made in conjunction with species reservation data currently being collected.
- 4) The road and drain reserve on the southern side of Mundijong Road be declared as an A class Nature Reserve. (This area is of regional significance being the second catena of vegetation types across the eastern side of the plain).
- 5) As a consequence of the small amount of remnant vegetation on the eastern side of the plain, all such remnants in the study area with the basic vegetation intact or able to be regenerated are of high conservation value.
- 6) A further analysis of reservation status is needed since the present definition does not consider the area of communities reserved.
- 7) A similar analysis needs to be undertaken to determine conservation values of remnants not covered in this study since floristic community types are not well correlated to presently available geomorphological or vegetation mapping.
- 8) Additional work on the Swan Coastal Plain is required to determine, more precisely, the nature of floristic variation in the seasonal wetlands (because of their high levels of heterogeneity).

the Becher Point (M106) and Lake Walyungup (M103) areas. Both are in proposed conservation areas but this area has a rapidly expanding urban population and is presently the subject of major planning amendment to the Metropolitan Regional Scheme. The area is also being considered for a Rapid Transport Corridor (Bowman, Bishaw and Gorham, and Department of Planning and Urban Development 1994).

Community type 20a is also regionally rare. It is a very species rich *Banksia* woodland occurring over restricted areas to the north and east of Perth on two different land systems. It was recorded at Koondoola open space, Landsdale Rd, remaining section of M12 (a small reserve near Marangaroo Golf course), M 53 (Reserve C29880, Forrestfield), and the APB complex at Forrestfield.

All of these areas have been proposed as conservation reserves. The APB land has had conservation of flora recognised in its purpose (P. Keppel, pers. comm.) and Koondoola Open Space has been zoned for Regional Open Space. Marangaroo Open Space is recognised as a conservation area by the Wanneroo Council but more than 60% of the original M12 (System 6) recommendation has been developed as a golf course and some remaining parts of this reserve appear badly infected by dieback. There are a variety of development proposals for M53 and some parts of this reserve have been alienated for the Roe highway and other road realignments. Future use of the Landsdale Rd bushland is presently being decided.

A further 15 community types are considered vulnerable (11 because they are the remaining fragments of previously extensive communities) and 11 are considered susceptible should any change in management or land use occur. Twelve communities are considered at low risk from any threat and two communities are not able to be assessed due to insufficient information.

Table 21. Definition of community conservation status (after Department of Conservation and Land Management, unpubl.).

Community conservation status	Definition
Presumed destroyed	A community that is totally destroyed or so extensively modified that it is unlikely to re-establish ecosystem processes in the foreseeable future.
Critical	A community with most or all of its known occurrences facing severe modification or destruction in the immediate future.
Endangered	A community in danger of severe modification or destruction throughout its range, if causal factors continue operating.
Vulnerable	A community likely to move into the endangered category in the near future if the causal factors continue operating.
Susceptible	A community of concern because there is evidence that it can be modified or destroyed by human activities, or would be vulnerable to new threatening process.
Low risk	A community that does not qualify for one of the above categories.
Insufficiently known	A community for which there is inadequate data to assign to one of the above categories

Suggested improvements to reservation and conservation of floristic community types

There is an urgent need to adequately protect the three most threatened community types, all of which are presently unreserved. These three communities are only known from small remnants. To adequately protect these communities these remnants should be declared as A class Nature Reserves for the protection of flora and fauna.

Southern ironstone communities (type 10b): This community type is known from five small areas of State Forest and a road and drain reserve east of Ruabon Nature Reserve (Figure 9c). This road and drain reserve is also of regional significance as it is the last remaining continuous vegetated transect across the lower Swan Coastal Plain showing the catena of original vegetation types. Several species of DRF or proposed DRF are found along this reserve. Immediate steps should be taken to have the vesting and purpose of these areas changed. Our survey has shown that even quite small remnants can maintain themselves in very good condition for long periods of time without disturbance. All forms of disturbance should be excluded from these critical threatened remnants until we have a much better understanding of community function.