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& LAND MANAGEMENT
WESTERN AUSTRALIA

FLORA AND VEGETATION OF THE MINDARIE CUSP AREA

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VEGETATION

The vegetation of the area, despite peripheral disturbance and numerous 4WD tracks, is in excellent condition, intact in structure with few weeds present.

From the coast inland, the vegetation consists of a narrow belt of strand vegetation backed by tall dunes. The beach has a *Cakile maritima* herbfield, immediately backed by a *Spinifex hirsutus*/*S. longifolius* hummock grassland, which rapidly merges into a *Scaevola/Myoporum* heath on the relatively unstable foredunes.

The large "blow-outs" present are sparsely vegetated (or not at all) usually on ridge tops with a mixture of rhizomatous species such as *Lepidosperma gladiatum/Spinifex hirsutus* and *S. longifolius*.

The flats and ridges around the blow-outs are covered with a low open heath dominated by *Olearia axillaris*, generally with a significant proportion of sedges in the lower layer (especially *Lomandra maritima*).

In the deeper valleys and more sheltered sites between the dune ridges an *Acacia* shrubland occurs (usually 1-3 m, comprising mainly *A. rostellifera* but with *A. cochlearis*, *A. cyclops* and rarely *A. xanthina* depending on the site).

One deep valley on the north-east flanking valley of the largest blow-out had a 4-5 m tall closed shrubland of *Melaleuca cardiophylla* with rare *Acacia xanthina*. This merged gradually into a low closed heath of *Melaleuca huegelii* and *Dryandra sessilis* upslope to the east where soils became shallower over limestone.

Three significant areas of limestone heath are located in the eastern and northern margins of the area. There are a variety of communities on these shallow soils. The commonest is a *Dryandra sessilis* heath (usually with *Calothamnus quadrifidus*, *Hakea trifurcata* and *Hibbertia hypericoides*). On the shallowest soil on ridgetops *Melaleuca huegelii* becomes the dominant species except for a single ridgeline south of Mindarie where a Eucalypt closed mallee heath was recorded. This area was dominated by a mixture of *Eucalyptus foecunda* and *E. petrensis*.

On the Spearwood dunes, rare occurrences of Tuart (*E. gomphocephala*) were noted, however, these rarely formed a woodland. Usually (especially in the south-eastern corner of the area) a *Banksia attenuata*/*B. menziesii* low woodland or open low woodland was recorded. The composition of the understorey varied considerably over the site.

As with most coastal areas the vegetation is a complex mosaic of communities depending on topography, exposure, geomorphology and soil depth.

The most unusual communities were the *Melaleuca cardiophylla* tall shrubland and the Mallee *Eucalyptus* heath. However, the *Olearia axillaris* heath on the Quindalup Dunes is extremely

poorly represented in reserves, and is here present in excellent condition.

SPECIES

We recorded 192 species of flowering plants in our brief survey (Appendix 1). Obviously many more would be noted if the area was resurveyed in Spring.

SIGNIFICANT FLORA

Rare Species

Eucalyptus argutifolia

A stand of this species, declared rare under the Wildlife Conservation Act was located during the survey (see Map). Only a single stand was located of 5-10 individuals.

Jacksonia sericea

A priority species which is common in the *Banksia* woodlands.

Eucalyptus foecunda and *E. petrensis*

Both priority species were found to be locally abundant on a ridgeline near the *Eucalyptus argutifolia* population.

Hemiandra pungens "Coastal Form"

A glabrous, prostrate shrub with broad-ovate acute leaves occurs in the *Scaevola* heath (rarely in the *Olearia axillaris* heath) along the fore dunes. This is apparently a distinct local form in this species complex. Previous records include an erect, pubescent shrub on Reabold Hill and a prostrate, pubescent shrub on Quindalup Dunes at Bold Park and Trigg Dunes Reserve.

This "dune" form matches a single collection at PERTH; viz:

Yanchep Beach; W.A.L. 8/1960

Its distribution and status are currently unresolved.

Sonchus (Actites) megalocarpa

Substantial numbers of this unusual native thistle occur on the ridgelines of the large blow outs. This is a significant range extension for this species, as previously the northern most record was Garden Island (50 km to the south). No other mainland records are known for the Perth to Bunbury region.

Limestone Endemics

A rich association of these species, generally poorly known taxonomically (Keighery 1990) were recorded within the area. These include *Petrophile serruriae*, *Leptomeria empetriformis*, *Trymalium albicans*, *Diplopeltis huegelii*, *Hibbertia spicata* ssp. *leptotheca* and *Pimelea calcicola*.

Western Coastal Plain - Quindalup species: *Allocasuarina lehmanniana*, a species with few occurrences in reserves, once common on the northern coastal plain. Recorded for M46 (near Bold Park and Trigg Dunes Reserve).

Alogyne huegelii var. *glabrata*

Probably a distinct species. Within the Metro region, one small stand is present in Blackwell Beach reserve. Recorded for Yalgorup National Park, and north of the region to Dongara.

REFERENCES

Keighery, G. J. (1990). Coastal Limestone Endemics, with an appendix on Quindalup Dune species. Unpubl. CALM Report, June 1990.

APPENDIX 1:

FLORA LIST for the Mindarie Cusp Area.

Key

D : Dunes

H : Heath

T : Tuart Woodland

LH: Limestone heath

B : Banksia woodland

* : Introduced species

POACEAE

* <i>Agropyron racemosum</i>	D
* <i>Aira caryophyllea</i>	T, LH
<i>Amphipogon turbinatus</i>	B
* <i>Avena barbata</i>	T
* <i>Briza maxima</i>	T
* <i>Bromus diandrus</i>	LH
* <i>Bromus madritensis</i>	T
<i>Danthonia caespitosa</i>	B, H
* <i>Ehrharta longiflora</i>	T, LH
* <i>Lagurus ovatus</i>	T, B
* <i>Lolium rigidum</i>	H
<i>Neurachne alopecuroidea</i>	B
<i>Poa drummondiana</i>	LH
<i>P. porphyroclados</i>	H
<i>Spinifex hirsutus</i>	D
<i>S. longifolius</i>	D
<i>Stipa compressa</i>	B
<i>S. flavescens</i>	H
<i>Sporobolus virginicus</i>	D

CYPERACEAE

<i>Carex preissii</i>	T
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<i>Isolepis nodosa</i>	D, H
<i>Lepidosperma ?angustatum</i>	B, H
<i>L. gladiatum</i>	D, H
<i>L. longitudinale</i>	T
<i>Mesomelaena stygia</i>	
<i>Schoenus clandestinus</i>	
<i>S. curvifolius</i>	
<i>S. grandiflorus</i>	

RESTIONACEAE

<i>Alexgeorgea nitens</i>	B
<i>Loxocarya flexuosa</i>	LH, H
<i>L. fascicularis</i>	B, LH, T
<i>Lyginia barbata</i>	B

CENTROLEPIDACEAE

<i>Centrolepis drummondiana</i>	B
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JUNCACEAE

<i>Luzula meridionalis</i>	B
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DASYPOGONACEAE

<i>Acanthocarpus preissii</i>	H, T, LH
<i>Lomandra caespitosa</i>	H, T
<i>L. maritima</i>	H
<i>L. preissii</i>	B
<i>L. suaveolens</i>	H, B

XANTHORRHOEACEAE

<i>Xanthorrhoea preissii</i>	LH, H, B
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PHORMIACEAE

Dianella divaricata H, T

ANTHERICACEAE

Arthropodium capillipes T

Caesia micrantha B

Corynotheca micrantha B

Thysanotus arenarius B

T. patersonii B

**Trachyandra divaricata* D, H

Tricoryne elatior H

COLCHICACEAE

Burchardia umbellata B

HAEMODORACEAE

Conostylis aculeata H, D

C. candicans H

C. stylidioides H

Haemodorum paniculatum B

H. spicatum H, B

IRIDACEAE

**Homeria flaccida* T

**Romulea rosea* T

ORCHIDACEAE

Caladenia latifolia T

Lyperanthus nigricans B

DICOTYLEDONS

CASUARINACEAE

<i>Allocasuarina fraseriana</i>	B
<i>A. humilis</i>	H, B, LH
<i>A. lehmanniana</i>	H (Signif. Sp. Metro)

PROTEACEAE

<i>Banksia attenuata</i>	B
<i>B. ilicifolia</i>	B
<i>B. menziesii</i>	B
<i>B. prionotes</i>	B
<i>Conospermum triplinervum</i>	B
<i>Dryandra nivea</i>	LH, B
<i>D. sessilis</i>	LH
<i>Grevillea crithmifolia</i>	H
<i>G. thelemanniana</i>	LH
<i>Hakea lissocarpha</i>	B
<i>H. trifurcata</i>	LH
<i>Petrophile brevifolia</i>	H, B
<i>P. linearis</i>	B
<i>P. ?serruriae</i>	LH (significant spp. Metro)
<i>P. macrostachya</i>	B
<i>Stirlingia latifolia</i>	B

SANTALACEAE

<i>Exocarpos sparteus</i>	D, H ^a
<i>Leptomeria empetriformis</i>	LH (Signif Spp - Metro)
<i>Santalum acuminatum</i>	H

OLACACEAE

<i>Olax benthamiana</i>	H
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CHENOPODIACEAE

<i>Atriplex cinerea</i>	H
<i>Rhagodia baccata</i>	D, H, T
<i>Salsola kali</i>	D
<i>Threlkeldia diffusa</i>	D, H

AMARANTHACEAE

<i>Ptilotus manglesii</i>	B
<i>P. polystachyus</i>	B

GYROSTEMONACEAE

<i>Tersonia cyathifolia</i>	H, LH, B
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AIZOACEAE

* <i>Carpobrotus edulis</i>	T, B
<i>C. virescens</i>	D
* <i>Tetragonia decumbens</i>	D

PORTULACCACEAE

<i>Calandrinia corrigioloides</i>	H, B
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CARYOPHYLLACEAE

* <i>Cerastium glomeratum</i>	LH
* <i>Silene gallica</i>	LH

RANUNCULACEAE

<i>Clematis microphylla</i>	H, LH
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LAURACEAE

<i>Cassytha ?flava</i>	D
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<i>C. glabella</i>	T, H
<i>C. racemosa</i>	B

BRASSICACEAE

* <i>Cakile maritima</i>	D
* <i>Heliophila pusilla</i>	H, B, LH

CRASSULACEAE

<i>Crassula colorata</i>	B, LH
<i>C. exserta</i>	T
* <i>C. glomerata</i>	D

MIMOSACEAE

<i>Acacia cochlearis</i>	D, H
<i>A. cyclops</i>	H
<i>A. huegelii</i>	B
<i>A. lasiocarpa</i>	LH
<i>A. pulchella</i>	H, T, B
<i>A. rostellifera</i>	H
<i>A. saligna</i>	B, T, H
<i>A. truncata</i>	LH

FABACEAE

<i>Bossiaea eriocarpa</i>	B
<i>Daviesia decurrens</i>	B
<i>D. divaricata</i>	LH, B
<i>D. nudiflora</i>	B
<i>D. triflora</i>	B
<i>Gompholobium aristatum</i>	B, H
<i>Hovea trisperma</i>	B
<i>Hardenbergia comptoniana</i>	B, LH, H, T
<i>Isotropis cuneiformis cuneifolia</i>	B
<i>Jacksonia ?sericea</i>	H, B (Priority species - CALM)
<i>Kennedia prostrata</i>	H, B

<i>Nemcia reticulata</i>	H (Signif. spp. - Metro)
<i>Templetonia retusa</i>	LH
GERANIACEAE	
* <i>Pelargonium capitatum</i>	D, H
RUTACEAE	
<i>Eriostemon spicatum</i>	B
POLYGALACEAE	
<i>Comesperma calymega</i>	B
<i>C. integerrimum</i>	H
EUPHORBIACEAE	
<i>Adriana quadripartita</i>	D
* <i>Euphorbia terracina</i>	D
<i>Phyllanthus calycinus</i>	LH, H
SAPINDACEAE	
<i>Diplopeltis huegelii</i>	LH (Signif. spp. - Metro)
STERCULIACEAE	
<i>Thomasia cognata</i>	LH, H
RHAMNACEAE	
<i>Spyridium globulosum</i>	D, H
<i>S. tridentatum</i>	T, B
<i>Trymalium albicans</i>	LH (Signif. spp. - Metro)

MALVACEAE

Alyogyne huegelii
 var. *glabrata* H (Signif. spp. - Metro)

DILLENIACEAE

Hibbertia hypericoides B
H. racemosa H
H. spicata ssp. *leptotheca* LH (Signif. spp. - Metro)

^A
~~THYMELAEACEAE~~
_A

P. argentea H
Pimelea calcicola LH (Signif. spp. - Metro)

MYRTACEAE

Calothamnus quadrifidus LH, H
Eucalyptus argutifolia LH (Declared Rare Flora)
E. foecunda LH (Priority sp.)
E. gomphocephala T, H
E. petrensis LH, H (Priority sp.)
Hypocalymma robustum B
Leptospermum spinescens H, B
Melaleuca acerosa H
M. cardiophylla H
M. huegelii LH
Scholtzia laxiflora B

APIACEAE

Daucus glochidiatus H, LH
Trachymene coerulea LH
T. pilosa B
Xanthosia huegelii B

EPACRIDACEAE

<i>Acrotriche cordata</i>	LH
<i>Astroloma pallidum</i>	B
<i>Conostephium pendulum</i>	B
<i>C. preissii</i>	B
<i>Leucopogon parviflorus</i>	H
<i>L. propinquus</i>	D, H
<i>L. sprengeloides</i>	LH

PRIMULACEAE

* <i>Anagallis arvensis</i>	T, B, LH
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LAMIACEAE

<i>Hemiandra pungens</i>	D, H (Signif. spp. - Metro)
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LOGANIACEAE

<i>Logania vaginalis</i>	T
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SOLANACEAE

<i>Anthocercis littorea</i>	D, H
* <i>Solanum nigrum</i>	T, H
* <i>S. sodomaeum</i>	H

OROBANCHACEAE

<i>Orobanche minor</i>	H, B
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MYOPORACEAE

<i>Eremophila glabra</i>	H
<i>Myoporum insulare</i>	D

RUBIACEAE

Opercularia vaginata LH, B, H

GOODENIACEAE

Lechenaultia linarioides LH

Scaevola crassifolia ~~folia~~ D, H

STYLIDIACEAE

Stylidium junceum LH

ASTERACEAE

**Arctotheca populiifolia* D

**Conyza albida* H

Helichrysum cordatum D, H

**Hypochaeris glabra* LH

Lagenifera huegelii B

Millotia tenuifolia LH, B

Olearia axillaris D, H

O. rudis LH

Podolepis gracilis B

Podotheca angustifolia LH

Quinetia urvillei LH

Siloxerus humifusus B

Sonchus megacarpa D (Range end)

**Ursinia anthemoides* B

Waitzia suaveolens B

← *Senecio lautus* D, H

192 species

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