THE BOTANY OF YALGORUP NATIONAL PARK

INTRODUCTION

Yalgorup National Park is situated west of the Old Coast Road approximately 15-30 miles south of Mandurah towards Bunbury.

The Park includes Lakes Preston and Clifton and various areas of land connected by these two bodies of water. The majority of the Park is situated near the southern end of Lake Clifton and the northern part of Lake Preston, while a smaller area adjoins the northern end of Lake Clifton.

For the purpose of this report, the former area is referred to as the 'southern sector' and the latter as the 'northern sector' of the Park. (See accompanying map.)

Six different vegetation systems are recognized within the Park; these are discussed below. With the aid of aerial photographs the vegetation boundaries have been checked and mapped accordingly.

A list of species collected and their respective distributions is attached. All 220 species were collected from within the Park.

VEGETATION:

Six vegetation systems are recognized within the confines of the Park:

1. Unconsolidated dune vegetation.
2. Sand dune heath.
3. Limestone heath.
4. Tuart woodland.
5. Paperbark swamp.
6. Sedge swamp.

1. Unconsolidated dune vegetation:

The topography of this coastal foredune system is constantly changing due to on shore wind erosion, consequently blow-outs and sand drifts are common. The plants here characteristically aggregate into dense clumps (with bare white sand between) thus affording protection to one another.

On the windward side of the foredunes, dense stands of *Olearia axillaris*, *Scaevola crassifolia*, *Carpobrotus virescens*, and *Scirpus nodosus* occur, and much root growth is exposed by erosion. The more sheltered leeward side allows *Diplolaena dampierii* and *Myoporum adscendens* to form the dominant shrub cover. Also common on the leeward side of the foredunes are *Anthericum divaricatum*, *Senecio lautus*, *Cakile maritima* and *Exocarpus sparteus*.

2. Sand dune heath:

This region consists of stabilized sand dunes and occurs immediately east of the unconsolidated dune system. It is an area of undulating sand hills covered by a dense layer of low heath vegetation, while in the depressions and on the leeward side of the hills taller shrubs are usually well developed.

In the 'northern sector' of the Park, the dunes are higher than in the south, they form deeper depressions and therefore have larger areas which are protected from the wind. Although the dominant shrub cover in 'northern' and 'southern sectors' is the same, the increased protection from the wind in the former region permits the growth of some species which were not found in the south, for example, *Hibiscus huegelii* and *Thomasia cognata*.

Melaleuca acerosa and *Acacia lasiocarpa* are the dominant plants of the low heath vegetation, however, a number of other species are very common, notably *Phyllanthus calycinus*, *Pimelia ferruginea* (common on the windward side of the hills) and *Lepidosperma angustatum* (which is very abundant). *Acacia rostellifera* is the dominant tall shrub in the more sheltered areas, however, *Acacia saligna*, *Jacksonia furcellata*, *Agonis flexuosa* (better developed in the northern sector) and Tuart (rare) do also occur.

3. Limestone heath:

This region has an undulating topography of limestone hills with shallow sandy deposits between the rocky outcrops. In places the limestone heath boarders directly upon the sand dune heath and the Paperbark swamp systems while elsewhere the Tuart woodland forms a barrier to this continuity.

In the 'northern sector' this system is less defined from the Tuart woodland than it is in the south. This is because the limestone hills are not so prominant and especially because the heath and surrounding woodland has been severely burnt. The fire has allowed many species to colonize both regions and little regrowth of characteristic shrubs has occurred.

Because of the pronounced undulations of topography in the 'southern sector' of the Park, deep sand has accumulated in the depressions between adjacent hills and in these areas a sparse cover of Tuart woodland has developed.

Acacia cuneata is perhaps the most common low shrub (ca 1 m tall) on the limestone heath, however, a number of other shrubs are very common for example, *Hakea trifurcata, Templetonia retusa, Lycinema ciliatum, Casuarina humilis, Melaleuca acerosa,* and *Melaleuca huegelii* (restricted in its distribution). Small pockets of *Acacia cochlearis* and *Conospermum triplinervium* (mainly on limestone heath - Tuart woodland border) do occur. The mallee, *Eucalyptus decipiens* forms dense stands of up to ca 2 m tall in some areas. In rare instances *Banksia grandis* and *Xanthorrhoea preissii* occur in this region.

4. Tuart Woodland

This is the most common vegetation type in the Park. The topography of this region consists of flat areas and gently undulating hills, the predominant soil type being light brown sand.

Associated with the Tuart (*Eucalyptus gomphocephala*) is *Agonis flexuosa* and Jarrah (*E. marginata*) all of which form the dominant tree layer. The relative frequency of these three species seems to vary throughout the system, for example, the *Agonis* is more common in the low-lying areas near the swamps and lakes while the Jarrah is more common in the drier eastern regions of the 'northern sector'. *Acacia saligna* is a common tall shrub throughout this belt, while in certain areas *Banksia attenuata* and *B. grandis* become prominent. *Casuarina fraseri* is common in the 'northern sector', while Marri (*Eucalyptus calophylla*) is restricted to the eastern verges of the Park. *Acacia pulchella, Melaleuca acerosa,* and *Jacksonia sternbergiana* are among the more common lower shrubs.

5. Paperbark swamps

Surrounding the lakes and the sedge swamps there is a relatively narrow band of Paperbark trees. There are two species of *Melaleuca* involved - *M. cuticularis* and

M. rhaphiophylla. *M. cuticularis* is the more common species, occurring close to and into the waters of lakes and swamps where the soil is of a gritty limestone nature. *M. rhaphiophylla* is restricted to the sedge swamps and some areas of Lake Clifton where humus accumulation and black peaty soil occur - *Lepidosperma gladiatum* usually forms the dominant ground cover beneath this species. In areas where the two Paperbarks grow together, *M. cuticularis* forms in a band closer to the lake or swamp.

Beneath the *M. cuticularis* along the shores of Lake Clifton, *Juncus maritimus*, *Cyperus nitens* and *Wilsonia backhousii* form the dominant ground cover. While *J. maritimus* is usually present beneath the Paperbark, the other two species appear to be restricted to certain regions along the Lake. Immediately behind the *M. cuticularis* stand there is a very narrow band of *Acacia cyclops*, this zonation is particularly noticeable around Lake Preston.

6. Sedge swamps

These swamps are restricted to the south-east of the 'southern sector' of the Park and are basically an extension of the Lake Clifton water system. They are open flat areas predominantly covered with sedge but some patches of free water do occur; the soil is a light grey clay.

An undescribed species in the family Cyperaceae is common in the free water areas, there is also some *Typha* but this is fairly rare.

In the areas surrounding the water *Melaleuca viminea* and *Leptocarpus aristatus* are by far the most dominant species. Some *Melaleuca cuticularis* does occur throughout the region and dense stands of *Xanthorrhoea preissii* are also common. Some of the dominant smaller shrubs are *Melaleuca incana* (growing predominantly among the Blackboys), *Scaevola holosericea*, *Acacia pulchella*, and *Stackhousia huegelii*. There are occasional transgressions of *Acacia saligna*, *Agonis flexuosa*, and *Banksia attenuata* onto this area from the surrounding Tuart woodland. *Pteridium esculentum* (bracken fern) was present but rare.

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SPECIES LIST AND RECORDED DISTRIBUTIONS

The numbers at the head of the 'distribution columns' refer to the Vegetation systems as follows:

1. Unconsolidated dune system
2. Sand dune heath
3. Limestone heath
4. Tuart woodland
5. Paperbark swamp
6. Sedge swamp

	1	2	3	4	5	6
LICHEN						
Xanthoria ectanea (Ach.) Rås ex R. Filson					x	
POLYPODIACEAE						
Pteridium esculentum (Forst.f) Nakai						x
CYCADACEAE						
Macrozamia riedlei (Gaud.) C.A. Gardner			x	x		
TYPHACEAE						
Typha sp.						x
GRAMINEAE						
Aira caryophyllea L.				x		
Avena fatua L.				x		
Briza maxima L.			x	x		
Briza minor L.			x	x		
Poa drummondiana Nees		x				
Spinifex hirsutus Labill.	x					
Stipa compressa R.Br.			x	x		
Stipa ? variabilis Hughes				x		
CYPERACEAE						
Gahnia trifida Labill.					x	x
Lepidosperma angustatum R.Br.	x	x				
L. gladiatum Labill.					x	x
L. gracile R.Br.		x				
Schoenus grandiflorus (Nees) F.Muell.					x	x
Schoenus ? nitens (R.Br) Poir					x	
Scirpus nodosus Rottb.	x					
Cyperaceae sp (SP. 1376)						x
RESTIONACEAE						
Leptocarpus aristatus R.Pr.						x
Loxocarya cinerea R.Br.		x	x	x		
L. flexuosa Benth.				x		
JUNCACEAE						
Juncus maritimus Lam.						x
Luzula meridionalis Nord.				x		
LILIACEAE						
Anthericum divaricatum Jacq.	x	x				
Burchardia umbellata R.Br.				x		
Caesia parviflora R.Br				x		
Chamaescilla corymbosa (R.Br) F.Muell.				x		

	1	2	3	4	5	6
LILIACEAE (Cont'd)						
Dianella revoluta R.Br.				x		
Sowerbaea laxiflora Lindl.				x		
Stypandra imbricata R.Br.				x		
Thysanothus dichotomus (Labill.) R.Br.		x				
T. patersoni R.Br.		x	x	x		
T. multiflorus R.Br.			x	x		
Trichoryne elatior R.Br.			x			
XANTHORRHOEACEAE						
Acanthocarpus preissii Lehm.		x				
Xanthorrhoea preissii Endl.			x	x		x
AMARYLLIDACEAE						
Anigosanthus humilis Lindl.		x	x	x		
A. manglesii D.Don				x		
Conostylis aculeata R.Br ssp. preissii (Endl.) J.W. Green		x	x			
C. candicans Endl.		x				
IRIDACEAE						
Orthrosanthus laxus (Endl.) Benth				x		
Patersonia occidentalis R.Br.				x		x
ORCHIDACEAE						
Elythranthera emarginata (Labill.)				x		

Thelymitra nuda R.Br.				x		
CASUARINACEAE						
Casuarina fraseriana Miq.				x		
C. humilis Otto et Dietr.			x			
PROTEACEAE						
Banksia attenuata R.Br.			x	x		
B. grandis Willd.			x	x		
B. littoralis R.Br.						x
Conospermum triplinervium R.Br.			x			
Dryandra nivea R.Br.			x	x		
D. sessilis (Knight) Domin			x			
Grevillea crythmifolia R.Br.			x			
G. thelemanniana Endl.			x			
Hakea prostrata R.Br.		x	x			
H. ruscifolia Labill.			x			
H. trifurcata R.Br.			x			
H.? sp. nov. (SP. 1422)			x			
Petrophile linearis R.Br.			x			
P. longifolia R.Br.			x			
P. serruriae R.Br.			x	x		
SANTALACEAE						
Exocarpus sparteus R.Br.	x	x		x		
Leptomeria cunninghamii Miq.						x
L. pauciflora R.Br.						x
Santalum acuminatum (R.Br.) DC.		x				
POLYGONACEAE						
Muehlenbeckia adpressa (Labill.) Meisn.			x			x

	1	2	3	4	5	6
CHENOPODIACEAE						
Rhagodia radiata Nees	x					
Salicornia blackiana Ulbrich					x	
Salsola kali L.	x					
Threlkeldia diffusa R.Br.	x	x				
AMARANTACEAE						
Ptilotus? drummondii (Moq.) F.Muell. Var. drummondii				x		
PHYTOLACCACEAE						
Tersonia brevipes Moq.			x	x		
AIZOACEAE						
Carpobrotus virescens (Haw.) Schwantes	x	x				
Tetragonia decumbens Mill.	x					
PORTULACACEAE						
Calandrinia brevipedata F.Muell.	x					
C. liniflora Frenzl.			x	x		
CARYOPHYLLACEAE						
Petrohagia prolifera (L.) Ball et Heywood			x	x		
Silene gallica L.		x	x	x		
RANUNCULACEAE						
Clematis pubescens Hueg.		x	x	x		x
Ranunculus ? parviflorus L.				x		
LAURACEAE						
Cassytha racemosa Nees		x	x	x	x	x
BRASSICACEAE						
Cakile maritima Scop.	x					
Heliophylla pusilla L.		x	x			
Lepidium rotundum DC.		x				
Stenopetalum robustum Endl.		x	x	x		
DROSERACEAE						
Drosera stolonifera Endl.				x		
CRASSULACEAE						
Crassula colorata (Nees) Ostf.		x	x	x		
MIMOSACEAE						
Acacia cochlearis (Labill.) Wendl.			x			
A. cuneata Benth.			x			
A. cyclops Cunn. ex Don					x	
A. diptera Lindl.				x		
A. lasiocarpa Benth.		x				
A. pulchella R.Br.				x	x	
A. rostellifera Benth		x				
A. saligna (Labill.) Wendl.		x		x		
PAPILIONACEAE						
Bossiaea eriocarpa Benth				x		
Burtonia conferta DC.			x	x		
Daviesia divaricata Benth.			x			
D. incrassata Sm.			x			
Gompholobium tomentosa Labill.			x			
Hardenburgia comptoniana (Andr.) Benth.		x	x	x		x

PAPILIONACEAE (Cont'd)	1	2	3	4	5	6
Jacksonia furcellata (Bonpl.) DC.		x				x
J. sternbergiana Hueg.				x		
Kennedia coccinea Vent.		x	x	x		
K. prostrata R.Br.		x	x	x		
Lupinus hirsutus L.				x		
Medicago polymorpha L. ssp. polymorpha				x		
Melilotus indica All.				x		
Oxylobium capitatum Benth.			x			
Sphaerolobium macranthum Meisn.					x	x
S. medium R.Br.			x			
Templetonia retusa (Vent.) R.Br.		x	x	x		x
Viminaria juncea (Schrad.) Hoffmgg.					x	x
GERANIACEAE						
Erodium cicutarium (L.) L'Her. ex Ait.			x	x		
Pelargonium capitatum (L.) Ait.				x		
P. littorale Hueg.			x			
LINACEAE						
Linum marginale Cunn. ex Planch.						x
RUTACEAE						
Diplolaena dampieri Desf.		x	x	x		
Eriostemon spicatus A.Rich.		x	x	x		x
Phebalium anceps DC.				x		
TREMANDRACEAE						
Tetratheca viminea Lindl.				x		
EUPHORBIACEAE						
Adriana quadripartita (Labill.) Gaud.				x		
Phyllanthus calycinus Labill.		x	x	x		
Poranthera microphylla Brongn.			x			
STACKHOUSIACEAE						
Stackhousia huegelii Endl.			x	x		x
SAPINDACEAE						
Diplopeltis huegelii Endl. var. huegelii		x	x			
Dodonaea aptera Miq.				x		
RHAMNACEAE						
Spyridium globulosum (Labill.) Benth.	x	x				
Trymalium ledifolium Fenzl.			x	x		
MALVACEAE						
Hibiscus huegelii Endl.		x				
STERCULIACEAE						
Lasiopetalum membranaceum (Steud.) Benth.				x		
Thomasia cognata Steud.		x				
T. triphylla J. Gay				x		
DILLENIACEAE						
Hibbertia cuneiformis (Labill.) Gilg.	x	x				
H. hypericoides (DC.) Benth.			x	x		
H. polystachys Benth.			x			
H. racemosa (Endl.) Gilg.			x	x		
THYMELIACEAE						
Pimelea ferruginea Labill.		x				

	1	2	3	4	5	6
THYMELIACEAE (Cont'd)						
P. spectabilus Lindl.				x		
P. sylvestris R.Br.			x			
MYRTACEAE						
Agonis flexuosa (Spreng.) Schau.		x		x		x
Eucalyptus calophylla R.Br.				x		
E. decipiens Endl.			x			
E. falcata Turcz.			x	x		
E. gomphocephala DC.		x		x		
E. marginata Sm.				x		
Melaleuca acerosa Schau.		x	x	x		
M. cuticularis Labill.					x	x
M. huegelii Endl.			x			
M. incana R.Br.						x
M. leptoclada Benth.						x
M. rhaphiophylla Schau.					x	
M. viminea Lindl.						x
APIACEAE						
Centella cordifolia (Hook.f.) Nannf.					x	
Daucus glochidiatus (Labill.) Fisch., Mey. et Ave-Lall.			x	x		
Eryngium pinnatifidum Bunge		x	x	x		
Hydrocotyle tetrogonocarpa Bunge		x				
H. sp. (SP. 1340A).				x		
Trachymene pilosa Sm.			x	x		x
EPACRIDACEAE						
Astroloma baxteri DC.			x			
A. drummondii Sond.			x			
Leucopogon parviflorus (Andr.) Lindl.		x				x
Lycinema ciliatum R.Br.			x			
PRIMULACEAE						
Anagallis arvensis L.						x
Anagallis arvensis L. var. caerulea Gouan.			x	x	x	x
Samolus junceus R.Br.					x	
LOGANIACEAE						
Logania vaginalis (Labill.) F.Muell.				x		x
GENTIANACEAE						
Villarsia albiflora F.Muell.						x
APOCYNACEAE						
Alyxia buxifolia R.Br.	x	x				
CONVOLVULACEAE						
Cuscuta epithymum L.	x					
Wilsonia backhousii Hook.f.					x	
LAMIACEAE						
Hemiandra pungens R.Br.		x	x			
SOLANACEAE						
Anthocercis littorea Labill.		x	x	x		x
Solanum sodomaeum L.				x		

	1	2	3	4	5	6
SCROPHULARIACEAE						
Bellardia trixago (L.) All.			x	x		x
Dischisma arenarium E. May				x		
Parentucellia laxifolia (L.) Car.			x	x		x
P. viscosa (L.) Car.		x	x	x		
Veronica calycina R.Br.		x				
OROBANCHACEAE						
Orobanche australiana F.Muell. ex Tate		x				
LENTIBULARIACEAE						
Polypomphlox multifida (R.Br.) F.Muell.						x
MYOPORACEAE						
Eremophila glabra (R.Br.) Ostf.		x				
Myoporum adscendens R.Br.	x	x				
M. tetrandum (Labill.) Domin	x	x				
PLANTAGINACEAE						
Plantago lanceolata L.						x
P. varia R.Br.		x				
RUBIACEAE						
Opercularia hispidula Endl.					x	
O. vaginata Labill.				x	x	
LOBELIACEAE						
Isotoma hypocrateriformis (R.Br.) Druce						x
Lobelia tenuior R.Br.		x	x	x	x	
GOODENIACEAE						
Dampiera prostrata DeVr.					x	
Scaevola crassifolia Labill.	x	x				
S. globulifera Labill.		x	x			
S. holosericea DeVr.		x				x
STYLIDIACEAE						
Stylidium aff. caricifolium Lindl.		x				
S. junceum R.Br.		x	x			
S. schoenoides DC.			x			
S. sp nov. (S.P. 1404)		x				
ASTERACEAE						
Arthrixia pulverulentia (Lindl.) Druce				x		
Brachycome iberidifolia Benth		x	x	x		
Craspedia uniflora Forst.				x		
Helichrysum bracteatum (Vent.) Andr.				x		
H. cordatum DC.	x	x				
Helipterum cotula DC.			x			
Hypochoeris glabra L.				x		
Leptorohynchos elongatus DC.		x				
Millotia myosotidifolia (Benth.) Steetz.		x	x	x		
Olearia axillaris (DC.) Benth	x					x
O. rudis (Benth.) Benth.		x	x	x		
Picris hieracioides var squarrosa (Steetz.) Benth.				x		
Podolepis gracilis (Lehm.) R. Grah.				x		
P. lessonii (Cass.) Benth.		x	x	x		
Podotheca angustifolia (Labill.) Less.		x	x			
P. chrysantha (Steetz.) Benth.				x		
Senecio lautus Willd.	x	x	x	x		
S. ramosissimus DC.				x		
Waitzia citrina (Benth.) Steetz.			x			