PART IX: THE FLORA OF THREE COASTAL BUSHLAND AREAS (System 6 Areas M 46, M 91 and M106) IN THE PERTH METROPOLITAN AREA

INTRODUCTION

Six coastal bushland areas within the metropolitan section of the System 6 Report (Department of Conservation and Environment, 1983) were the subject of recommendations. Three of these areas are the subject of this study. From north to south these three areas are:
(i) M 46 - Swanborne Beach and Rifle Range, City of Nedlands and Perth, adjacent to M 47 (Bold Park)
(ii) M 91- Reserve 24309 Coogee, City of Cockburn, adjacent to M 92, the western chain of the Cockburn Wetlands
(iii) M106 - Becher Point, adjacent to Lake Cooloongup Regional Park.
All three areas are adjacent to inland bushland areas.

GEOMORPHOLOGY AND SOILS

The three bushland areas contain a variety of coastal land forms and soils.
(i) M 46 is located on a series of relatively steep mobile Quindalup Dunes of aeolian origin. Soils are mapped as calcareous sands (Safety Bay Sands; S1- foredunes, S2 - mobile dunes) which are underlain, at varying depths, by Tamala Limestone (Gozzard 1983a).
(ii) M 91 is located on exposed Tamala Limestone (LS 1). Along the coast the limestone outcrops as a series of cliffs. Shallow pockets of soil are found on the exposed limestone and deeper sands have collected between the limestone ridges (Gozzard, 1986).
(iii) M 106 is located entirely on Quindalup Dunes but unlike those in M 46 most are regular low dunes lying parallel to the coast (S13). A narrow band of mobile sands (S 1) occur on the coast and there is a pocket of similar sands (S 2) at Point Becher. In the interdunal depressions between the parallel dunes are peaty sands (Gozzard, 1983b). This area has been the subject of a detailed geomorphological study (Searle, Semeniuk and Woods, 1988).

VEGETATION

Over the period of 1990-93 the authors visited the bushland areas and compiled records on the flora. Foot transects supported by vehicle transects, when appropriate, were made in the three areas. Vouchers were collected if the plants were not known to the authors or were considered significant. In two of the areas, M 91 and M 106, permanent sites have been established for the GinGin to Busselton Bushland Survey.

A wide variety of coastal plant communities are encompassed by these three bushland areas. Other studies have described the communities of these areas (Trudgen, 1988 and Kaeshagen and Carr, 1993) and a general treatment is included in this study.

The plant communities are closely related to topography. The principal communities are:
(i) M 46 - The communities of the foredunes (S1) are a series of Herblands and Grasslands merging with *Olearia axillaris* Heaths. On the valleys of the mobile dunes (S2) are Tuart (*Eucalyptus gomphocephala*) Woodlands, *Agonis* Woodlands, *Banksia* Woodlands and *Acacia rostellifera* Shrublands and on the ridges are Low Heaths where *Calothmanus quadrifidus* or *Chamelaucium uncinatum* may be dominant. On the northern face of a dune along Rochdale Rd are *Allocasuarina lehmanniana* Shrublands.

Kaeshagen and Carr (1993) have compiled a vegetation map the area of M 46 in the City of Perth.

(ii) M 91 - On the coastal limestone cliffs are Low Closed Heaths (under 0.5m) dominated by *Atriplex cinerea* and *Frankenia pauciflora.* Low Closed Heaths (under 0.5m) are also found on the limestone ridges but these are dominated by a series of shrubs, such as *Dryandra sessilis*, *Petrophile serruri*ae, *Melaleuca huegellii* and *Hibbertia spicata* ssp *leptotheca.* On the deeper sands between the limestone ridges are some small patches of *Banksia* Low Open Woodland but generally mixed Low Closed Heaths (greater 1m to 1.5 m) and Shrublands, dominated by *Acacia* species, *Hibbertia hypericoides* and *Petrophile serruriae.*

(iii) M 106 - The communities of the foredunes (S1) are a series of Herblands and Grasslands merging with *Olearia axillaris* Low Open Heaths. On the parallel dunes the predominant community is *Jacksonia furcellata* and *Acacia lasiocarpa* Low Heath. However the density of other species present in the community alters and some areas are dominated by other species. The most significant are the *Acacia rostellifera* Open Heaths to Open Scrub and *Stipa flavescens* Grasslands. A series of linear wetlands are found between many of the dunes. These wetlands are characterised as Sedgelands. The older interdunal wetlands are fringed by *Xanthorrhoea preissii* Shrubland and occasionally edged by *Melaleuca* woodlands. These wetlands are unique geomorphologically (Searle, Semeniuk and Woods, 1988). Two of these communities, the *Jacksonia furcellata* and *Acacia lasiocarpa* Low Heath (extending east to the western margins of the Lake Cooloongup Regional Park) and the Sedgelands of the ephemeral freshwater wetlands between the dunes were identified as being rare by Keighery and Keighery (1992).

Of particular interest are the localised occurrences of Tuart and in the foredunes adjacent to the southern boundary of the area patches of *Hibbertia cuneiformis* Low Open Heaths occurring adjacent to areas of exposed clay below the sands (these are best developed in the Anstey Swamp area to the south, Semeniuk et al. , 1989).

Trudgen (1988) has mapped the plant communities at M 106.

Vegetation Condition

In assessing the condition of a bushland areas the general characteristics of the areas vegetation needs to be noted. In coastal areas it is necessary to consider that these areas are subjected to high levels of natural disturbance and the predominant native species are, of necessity colonising species. Consequently the following features of the vegetation are of importance in the assessment of the condition of the vegetation of coastal areas:

- the abundance and density of native species in the herb layer in the communities.
- the presence of areas of bare sand, these areas occur naturally and are important habitat areas (How and Dell, 1989).
- the occurrence of extensive moss swards in sheltered locations in shrublands
- the abundance and density of native grasses.

These four features of the coastal communities must be assessed in spring when native and non-native annuals are evident.

Of the three areas the M 106 area is in the best condition, being in generally in excellent to very good condition as there are bare sand areas and moss swards, the herb layer is composed of predominantly native species, such as *Daucus glochidiatus* and *Hydrocotyle diantha* and the native grasses, *Stipa flavescens*, *Poa porphyroclados* and *Poa poiformis.* These grasses are widespread, forming a grass stratum in most communities and, at times, are the dominant species forming a grassland in their own right. There are disturbed patches which appear to be associated with past grazing, vehicle activity and burning regimes. However these areas are isolated and the activities of the Port Kennedy

Land Conservation group have reduced disturbance allowing the native species to re-establish. The weeds of greatest concern are **Homeria flaccida* and **Euphorbia terracina*. **Ehrharta calycina*, which can replace *Stipa flavescens* in disturbed sandy coastal areas was not observed in the M 106 area. The common coastal weed **Pelargonium capitatum* is also uncommon.

By comparison the Tuart Woodlands and the fringing *Banksia* Woodlands at M 46 are significantly invaded by the perennial grass, **Ehrharta calycina*. Invasion by **Ehrharta calycina* is not as significant in the other communities but the herb layer in all communities is predominantly weed species. The weeds of greatest concern are **Myrsiphyllum asparagoides* and **Euphorbia terracina*. Generally the area is in good to poor condition with much of the heath in very good condition. There has been significant disturbance in the area associated with road building, tracks, rubbish dumping and adjacent irrigated areas.

At M 91 substantial disturbance has occurred due to partial clearance, past grazing, uncontrolled access tracks, fires, substantial rabbit grazing and 'enrichment planting'. The impact of this disturbance is greatest in the sandy areas between the ridges where the herbs are replaced by weeds and the moss swards are absent. Where the limestones outcrops, the weeds are less abundant, but the grazing by rabbits is still evident in the cropped sedges. The weed of greatest concern is **Homeria flaccida* (not palatable) and **Myrsiphyllum asparagoides* present in the adjacent bushland. Generally the area is in good to poor condition with much of the heath in very good condition.

FLORA

The recorded flora of the three areas is given in Appendix 1, p76. A comparison of the flora between the three areas is shown in Table 1.

Table 1 A Comparison of the Floras of M 46, M 91 and M 106.

Bushland Area	Total taxa	Native taxa	Non - native taxa	Native taxa shared	Native taxa not shared
M 46	177	117	58 (33%)	49 (42%)	17 (15%)
M 91	142	86	56 (39%)	49 (57%)	25 (29%)
M 106	240	172	68 (28%)	49 (28%)	78 (45%)

As expected the largest area with the greatest diversity of habitat, M 106, has the greatest diversity of flora. This diversity is also reflected in the number of native taxa recorded only at M 106. The presence of freshwater wetlands at M 106 accounts for the presence of many of these taxa, such as *Pteridium esculentum*, *Baumea acuta*, *Baumea articulata*, *Baumea juncea*, *Bulboschoenus caldwellii*, *Lepidosperma effusa*, *Schoenus nitens*, *Loxocarya pubescens*, *Juncus kraussii*, *Triglochin procera*, *Typha domingensis*, *Centella cordifolia*, *Cotula coronopifolia*, *Sonchus hydrophilus*, *Lobelia alata*, *Melaleuca rhaphiophylla*, *Melaleuca teretifolia* and *Epilobium billardierianum*. Also, other taxa uncommon in coastal area are associated with the damp interdunal areas of M 106, for example the Orchidaceae and Haemodoraceae taxa. The diversity at M 106 is further enhanced by the presence of several taxa that are generally associated with outcropping Tamala limestone, such as *Acacia lasiocarpa*, *Trymalium albicans* and *Cryptandra mutila*.

A significant proportion of the taxa at M 91 are not shared by the other areas. Some of these taxa such as *Wilsonia backhousei* and *Lawrencia spicata* are normally associated with saline wetlands while *Lavatera pleibea* var *tomentosa* and *Wilsonia humilis*,

normally confined to offshore islands, are found here in small remnant populations in the cliff top heath. *Wilsonia humilis* is not mentioned in Marchant et al. (1981), although there are old records from Rottnest Island.

Significant Flora

A series of species identified by Keighery (1992) as being possibly endemic to the western side of the Swan Coastal Plain are found in the study areas. These are from:
- M46, M 91 & M106: *Rhagodia baccata* R.Br. ssp *dioica* (range, Lancelin to Leuwin Ridge) and *Nemcia reticulata* (coastal form, range, Yalgorup to Grey).
- M46 & M106, the dune form of *Hemiandra pungens* GK 12,794 (range, Becher Point to Seabird). This is a prostrate glabrous plant, with short ovate pungent leaves.
- M 91: *Grevillea thelemanniana* (range, Yalgorup to Cervantes), *Petrophile serruriae* ssp nov. (range, Cervantes to Bunbury - Hamelin Bay, apparently disjunct between Bunbury and Hamelin Bay), *Hibbertia spicata* ssp. *leptotheca* (range, Yalgorup to Lancelin), *Pimelea calcicola* (Yanchep, Neerabup and Yalgorup National Parks) and *Stylidium bulbiferum* (range, Yalgorup to Yanchep). *Petrophile serruriae* ssp nov. is a pink flowered variant of a normally yellow flowered species on the Darling Range. The type collection of *Stylidium bulbiferum* is from the Swan Coastal Plain, not the Darling Range, as assumed previously (A.H. Burbidge, pers. comm.).
- M106 *Trymalium albicans* (range, Yalgorup to Lancelin) and *Diplopeltis huegelii* var *huegelii* (range, Perth to Dongara).

Keighery (1992) also identified a series of taxa occurring at the ends of their ranges in the near coastal section of the Swan Coastal Plain. Nine of these taxa occur in the bushland areas . This study has identified some northern and southern extensions of some of these taxa.

Agonis flexuosa:	Range	N = Bold Park
Allocasuarina lehmanniana	Range	S = M 46/ Bold Park
Chamelaucium uncinatum	Range	S = M 46/Bold Park (M47)
Cryptandra mutila	Range	S = was Point Peron now M106
Diplolaena dampieri	Range	N = Garden Is/Rottnest, M 106 most northern on the mainland.
Hibbertia cuneiformis	Range	N = M 106
Lavatera plebeia var *tomentosa*	Range	Only mainland record at M 91; known from offshore islands - Rottnest, Green, Shag Rock.
Zygophyllum fruticulosum	Range	S = was Cottesloe, now M 106.

CONCLUSION

Although these three coastal areas are within 50 kilometres of each other they encompass a different suite of species expressed in a variety of plant communities. These communities reflect the different geomorphological units on which they are located. Although much of these coastal areas have been subject to considerable disturbance the heaths have remained in generally very good condition. The M 106 area is unusual in that the sandy soil communites, the most disturbed communities in the other areas, are in very good condition.

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Appendix 1: Flora of M 91, M 106 and M46

Records from opportunistic collecting, 1990-93. Families in alphabetical order and according to Marchant et al., (1987). An * indicates a non-native taxon.

TAXON	M 91	M 106	M46
FERNS			
DENNSTAEDIACEAE			
Pteridium esculentum		+	
GYMNOSPERMS			
ZAMIACEAE			
Macrozamia riedlei	+	+	+
CUPRESSACEAE			
Callitris preissii		+	
ANGIOSPERMSS			
AIZOACEAE			
*Carpobrotus edulis	+	+	+
C. edulis x virescens	+		
Carpobrotus virescens		+	+
*Tetragonia decumbens	+	+	+
Tetragonia implexicoma			+
Tetragonia tetragonioides		+	+
AMARANTHACEAE			
Ptilotus drummondii	+		
ANTHERICAEAE			
Arthropodium capillipes		+	
Caesia micrantha		+	
Corynotheca micrantha		+	
Sowerbaea laxiflora		+	
Thysanotus arenarius		+	+
Thysanotus manglesianus		+	
Thysanotus patersonii	+	+	
Thysanotus sparteus		+	
Tricoryne elatior	+	+	
APIACEAE			
Apium annuum	+	+	+
Apium prostratum		+	
Centella cordifolia		+	
Daucus glochidiatus	+	+	+
*Foeniculum vulgare	+		
Hydrocotyle diantha		+	
Hydrocotyle hispidula		+	
Trachymene coerulea			+
Trachymene pilosa		+	
APOCYNACEAE			
Alyxia buxifolia		+	

TAXON	M 91	M 106	M46
ASPHODELEACEAE			
*Asphodelus fistulosus	+	+	+
*Trachyandra divaricata	+	+	+
ASTERACEAE			
Angianthus cunninghamii		+	
Actites megalocarpa		+	
*Arctotheca calendula	+	+	+
*Arctotheca populifolia		+	+
*Arctotis stoechadifolia			+
*Aster subulatus		+	
Calocephalus brownii			+
*Carduus pycnocephalus		+	+
*Centaurium melitensis	+	+	
*Cirsium vulgare	+	+	+
*Conyza albida	+	+	+
*Conyza bonariensis	+		
Cotula australis		+	
Cotula cotuloides		+	
Cotula coronopiifolia		+	
*Dittrichia graveolens	+	+	
Helichrysum cordatum	+	+	+
Hyalospermum cotula	+		
*Hypochaeris glabra	+	+	+
Lagenifera huegelii		+	+
Leptorhynchos scabrus		+	
Millotia myosotidiifolia		+	
Olearia axillaris	+	+	+
Olearia rudis		+	
Podotheca angustifolia		+	
*Pseudognaphalium luteo-album		+	
Senecio lautus ssp. dissectifolius		+	
Senecio lautus ssp. maritimus	+	+	+
*Senecio tamoides			+
Siloxerus humifusus			+
*Sonchus asper	+		
Sonchus hydrophilus		+	
*Sonchus oleraceus	+	+	+
*Ursinia anthemoides		+	+
*Urospermum picroides	+		
*Vellerophyton dealbatum	+		
Waitzia aurea		+	
Waitzia suaveolens			+
BRASSICACEAE			
*Brassica tournefortii	+	+	+
*Cakile maritima		+	+
*Heliophila pusilla	+	+	+
Stenopetalum gracile		+	+
CAMPANULACEAE			
Wahlenbergia preissii		+	+

TAXON	M 91	M 106	M46
CARYOPHYLLACEAE			
*Cerastium glomeratum		+	
*Minuartia hybrida	+	+	+
*Petrorhagia velutina	+	+	+
*Sagina maritima	+	+	
*Silene gallica	+	+	+
*Spergula arvensis			+
*Stellaria media	+		
CASUARINACEAE			
Allocasuarina humilis	+		+
Allocasuarina lehmanniana			+
CHENOPODIACEAE			
Atriplex cinerea	+	+	+
Atriplex hypoleuca		+	
Atriplex isatidea			+
*Chenopodium murale	+	+	
Rhagodia baccata ssp baccata	+	+	+
Rhagodia baccata ssp dioica	+	+	+
Salsola kali		+	+
Sarcocornia quinqueflora	+		
Suaedea australis	+		
Threkeldia diffusa	+		+
COLCHICACEAE			
Wurmbaea monantha		+	
CONVOLVULACEAE			
Wilsonia backhousei	+		
Wilsonia humilis	+		
CRASSULACEAE			
Crassula colorata	+	+	+
Crassula exserta	+	+	+
*Crassula glomerata	+	+	+
*Crassula natans		+	
Crassula pedicellosa			+
CUSCUTACEAE			
*Cuscuta epithymum		+	
CYPERACEAE			
Baumea acuta		+	
Baumea articulata		+	
Baumea juncea		+	
Bulboschoenus caldwelli		+	
Carex preissii		+	+
Cyperus tenuiflorus		+	
Isolepis cernua	+	+	+
Isolepis nodosa	+	+	+
Lepidosperma angustatum	+	+	+
Lepidosperma effusum		+	
Lepidosperma gladiatum	+	+	+
Lepidosperma longitudinale	+	+	+

TAXON	M 91	M 106	M46
Lepidosperma scabrum			+
Lepidosperma ?tenue		+	
Mesomelaena pseudostygia		+	+
Schoenus clandestinus		+	
Schoenus grandiflora	+	+	+
Schoenus nitens		+	
Tetraria octandra		+	
DASYPOGONACEAE			
Acanthocarpus preissii	+	+	+
Lomandra hermaphrodita		+	
Lomandra maritima	+	+	+
DILLENIACEAE			
Hibbertia acerosa	+		
Hibbertia cuneiformis		+	
Hibbertia hypericoides	+		
Hibbertia racemosa	+		+
Hibbertia spicata ssp. leptotheca	+		
EPACRIDACEAE			
Acrotriche cordata	+	+	
Leucopogon australis	+		
Leucopogon parviflorus		+	+
EUPHORBIACEAE			
*Euphorbia peplus	+	+	+
*Euphorbia terracina	+	+	+
Phyllanthus calycinus	+	+	+
Poranthera microphylla		+	+
Ricinocarpus glaucus		+	
FABACEAE (PAPILIONACEAE)			
Daviesia decurrens			
Daviesia nudiflora			
Daviesia triflora			
Gompholobium tomentosum	+	+	+
Hardenbergia comptoniana	+	+	+
Jacksonia furcellata	+	+	
Kennedia coccinea	+		
Kennedia prostrata		+	+
*Lotus angustissimus		+	+
*Lupinus consentinii			+
*Medicago polymorpha		+	+
*Meliotis indica	+	+	+
Nemcia reticulata	+	+	+
*Trifolium angustifolium			+
*Trifolium campestre	+		+
*Trifolium cernuum	+	+	+
*Vicia sativa			+
FRANKENIACEAE			
Frankenia pauciflora	+		

TAXON	M 91	M 106	M46
FUMARIACEAE			
*Fumaria capreolata			+
*Fumaria muralis			+
GENTIANACEAE			
*Centaurium erythraea		+	+
*Cicendia filiformis		+	
GERANIACEAE			
*Erodium botrys		+	
*Erodium cicutarium	+	+	+
*Geranium molle			+
Geranium solanderi		+	+
*Pelargonium capitatum	+	+	+
Pelargonium littorale		+	+
GOODENIACEAE			
Lechenaultia linearoides			+
Scaevola canescens			+
Scaevola crassifolia	+	+	+
Scaevola holosericea		+	
Scaevola nitida		+	
Scaevola thesioides			+
GYROSTEMONACEAE			
Tersonia cyathifolia			+
HAEMODORACEAE			
Anigozanthos humilis		+	
Anigozanthos manglesii		+	+
Conostylis aculeata	+	+	+
Conostylis candicans		+	+
Haemodorum laxum			+
Haemodorum spicatum		+	+
Haemodorum paniculatum			+
Phlebocarya ciliata		+	
HYACINTHACEAE			
*Ornithogalum ?caudatum			+
IRIDACEAE			
*Freesia leichtlinii		+	
*Gladiolus caryophyllaceus	+		
*Homeria flaccida		+	
*Homeria ?flaccida 'yellow'	+		
Patersonia occidentalis		+	
*Romulea rosea	+	+	+
JUNCACEAE			
Juncus bufonius		+	
Juncus krausii		+	
Juncus pallidus		+	
JUNCAGINACEAE			
Triglochin calcitrapa	+	+	+

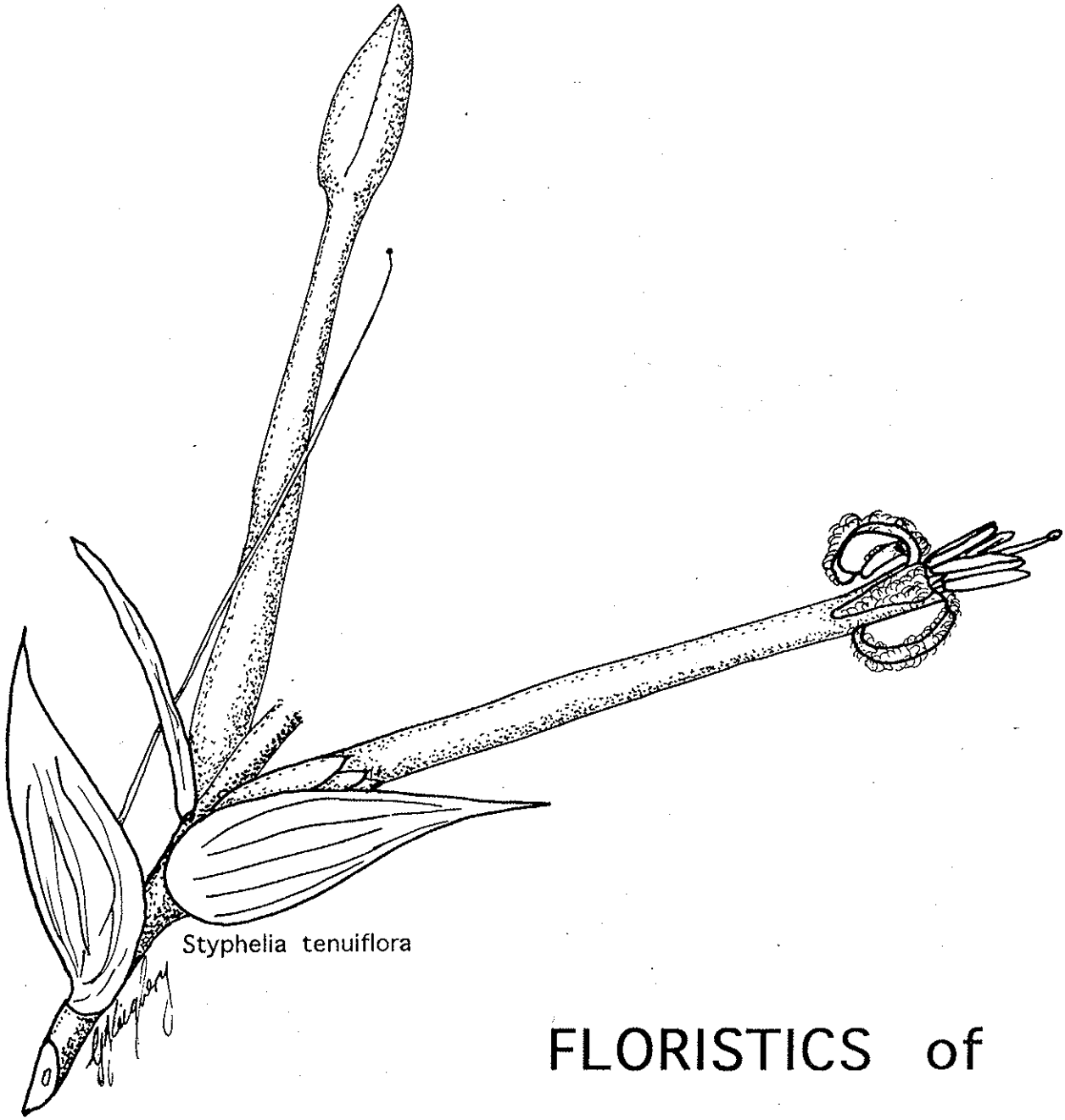
TAXON	M 91	M 106	M46
Triglochin procera		+	
Triglochin striata		+	
Triglochin trichophora		+	+
LAMIACEAE			
Hemiandra pungens		+	+
*Stachys arvensis		+	
Westringia dampieri		+	
LAURACEAE			
Cassytha flava	+	+	+
Cassytha pubescens	+	+	+
Cassytha racemosa	+	+	
LOBELIACEAE			
Lobelia alata		+	
Lobelia gibbosa			+
Lobelia tenuior		+	+
LOGANIACEAE			
Logania vaginalis		+	
MALVACEAE			
Lavatera pleibia var tomentosa	+		
Lawrencia spicata	+		
MIMOSACEAE			
Acacia cochlearis		+	+
Acacia cyclops	+	+	+
Acacia lasiocarpa	+	+	+
Acacia pulchella	+		+
Acacia rostellifera	+	+	+
Acacia saligna	+	+	+
Acacia truncata	+		+
MYOPORACEAE			
Eremophila glabra	+	+	+
Myoporum insulare	+	+	+
MYRTACEAE			
Astarea fasicularis		+	
Agonis flexuosa			+
Calothamnus quadrifidus	+	+	+
Chamelaucium uncinatum			+
Eucalyptus decipiens	+		
Eucalyptus gomphocephala		+	+
Melaleuca acerosa	+	+	+
Melaleuca huegelii	+	+	
Melaleuca rhaphiophylla		+	
Melaleuca teretifolia		+	
OLACACEAE			
Olax benthamiana		+	+

TAXON	M 91	M 106	M46
ONAGRACEAE			
Epilobium billardierianum		+	
Epilobium hirtigerum		+	
*Oenothera drummondii		+	+
ORCHIDACEAE			
Acianthus reniformis		+	+
Caladenia flava		+	
Caladenia latifolia	+	+	+
Caladenia longicauda		+	
Microtis media		+	
*Monadenia bracteata	+		
Prasophyllum calcicola			+
Prasophyllum fimbria		+	
Pterostylis nana		+	
Pterostylis vittata		+	
OROBANCHACEAE			
*Orobanche minor	+	+	+
OXALIDACEAE			
Oxalis perennans		+	+
PHORMIACEAE			
Dianella divaricata	+	+	+
PHYTOLACCACEAE			
*Phytolacca octandra	+		
PLANTAGINACEAE			
Plantago ?exilis	+		
POACEAE			
+Agropyron racemosus			+
Agrostis avenacea		+	
*Aira caryophyllea	+	+	+
Amphipogon turbinatus		+	
*Avellina michelii		+	
*Avena barbata	+	+	+
*Briza maxima	+	+	+
Bromus arenarius		+	+
*Bromus diandrus	+	+	+
*Bromus hordeaceus	+	+	
*Bromus madritensis		+	
*Catapodium rigidum	+	+	+
*Cynodon dactylon		+	+
Danthonia occidentalis	+	+	+
*Ehrharta calycina	+		+
*Ehrharta longiflora		+	
*Eragrostis curvula		+	
*Holcus lanatus		+	
*Lagurus ovatus	+	+	+
*Lolium multiflorum	+	+	+
*Phalaris minor	+		
*Poa annua	+		

TAXON	M 91	M 106	M46
Poa drummondiana	+	+	+
Poa poiformis		+	+
Poa porphyroclados	+	+	+
Sporobolus virginicus	+	+	
Spinifex hirsutus		+	+
Spinifex longifolius	+	+	+
*Stenotraphum secundatum			+
Stipa compressa		+	
Stipa elegantissima		+	+
Stipa flavescens	+	+	+
Stipa semibarbata		+	
*Vulpia myuros	+		+
POLYGALACEAE			
Comesperma integerrimum		+	+
Comesperma confertum	+	+	+
POLYGONACEAE			
Muehlenbeckia adpressa		+	
*Rumex crispus		+	
PORTULACACEAE			
Calandrinia corrigioloides	+	+	+
Calandrina granulifera		+	+
Calandrinia liniflora		+	
PRIMULACEAE			
*Anagallis arvensis	+	+	+
Samolus junceus	+	+	
Samolus repens	+		
PROTEACEAE			
Banksia attenuata	+		+
Banksia menziesii	+		+
Dryandra nivea	+		
Dryandra sessilis	+		+
Grevillea thelemanniana	+		
Grevillea vestita	+		+
Hakea lissocarpha	+		
Hakea prostrata	+		+
Petrophile brevifolia			
Petrophile serruriae	+		
RANUNCULACEAE			
Clematis microphylla			+
RESTIONACEAE			
Loxocarya cinerea		+	+
Loxocarya flexuosa	+	+	+
Loxocarya pubescens		+	
RHAMNACEAE			
Cryptandra mutila	+	+	
Spyridium globulosum	+	+	+
Trymalium albicans		+	

TAXON	M 91	M 106	M46
RUBIACEAE			
*Galium aparine	+		
*Galium murale		+	+
Opercularia vaginata		+	+
Opercularia aff. vaginata		+	
RUTACEAE			
Diplolaena dampieri		+	
SANTALACEAE			
Exocarpus sparteus		+	+
Santalum acuminatum	+	+	+
SAPINDACEAE			
Diplopeltis huegelii			+
SCROPHULARIACEAE			
*Bellardia trixago		+	
*Dischisma arenaria		+	+
*Parentucellia viscosa	+	+	
Verbascum virgatum	+		
SOLANACEAE			
Anthocercis ilicifolia			+
Anthocercis littorea		+	
*Lycium ferocissimum			+
*Nicotiana glauca	+		
*Solanum nigrum	+	+	+
*Solanum sodomaeum	+	+	
Solanum symonii	+	+	+
STACKHOUSIACEAE			
Stackhousia pubescens		+	
STERCULIACEAE			
Thomasia cognata	+	+	
THYMELAEACEAE			
Pimelea calcicola	+		
TYPHACEAE			
Typha domingensis		+	
*Typha orientalis		+	
STYLIDIACEAE			
Stylidium bulbiferum	+		
URTICACEAE			
Parietaria debilis	+	+	+
VALERIACEAE			
*Centranthus macrosiphon			+

TAXON	M 91	M 106	M46
VERBENACEAE			
*Phyla nodiflora		+	
VIOLACEAE			
Hybanthus calycinus	+		
XANTHORRHOEACEAE			
Xanthorrhoea preissii	+	+	
ZYGOPHYLLACEAE			
Zygophyllum fruticulosum	+	+	+



Styphelia tenuiflora

FLORISTICS of RESERVES and BUSHLAND AREAS of the PERTH REGION (SYSTEM 6)

Parts V - IX

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Wildflower Society of Western Australia (Inc.)