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TOBY INLET CATCHMENT

VEGETATION AND FLORA



BRIAN T CLAY

September 2000

**TOBY INLET CATCHMENT
VEGETATION and FLORA**

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**January 2001
FOR THE TOBY INLET CATCHMENT INTEGRATED MANAGEMENT PLAN**

by

**THE TOBY INLET CATCHMENT GROUP
FUNDED BY THE NATURAL HERITAGE TRUST**

**Identification of Plants
by**

Hazel Cole, Don Carter, Sarah Comer, Pauline and Brian Clay

**Determination Reference
"The Regional Cape Naturaliste Herbarium"**

Preliminary Collation of Data by Sarah Comer

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1. INTRODUCTION

Vegetation and flora surveys were conducted at 28 sites within the Toby Inlet Catchment, by members of the Toby Inlet Catchment Group, as part of the brief to complete an 'Integrated Catchment Plan' for the Toby Inlet Catchment.

Located some 6 to 10 kilometres from Dunsborough, in a south easterly direction at Lat 33 39.36 S and Long 115 06.17 E, the Toby Inlet Catchment is situated at the western end of Geographe Bay Catchment and is part of that catchment (see Map).

The Toby Inlet Catchment covers a variety of landforms with a diverse representation of native vegetation and variable land use. Land use generally has impacted on the local native vegetation, with varying degrees of degradation. Due to external pressures, farmers were encouraged to clear their land, construct drains, alter water drainage lines, and drain the wetlands. In recent times, Urban development has further impacted on that system.

The total native vegetation cover for the Geographe Bay Catchment has been calculated, using Geographic Information Systems. Vegetation on private and public land has been estimated at 89980 hectares, or 45% of the total land area in Geographe Bay Catchment. The vegetation cover on private land is estimated at only 14% of the total land area of Geographe Bay Catchment (Geographe Bay Catchment Natural Resource Atlas). Figure 4 indicates the Vegetation systems within the Catchment.

Clearing by early settlers has left a landscape devoid of much of the original vegetation, which is now represented by pockets of remnants left within an area that has been cleared for Agriculture. Problems related to clearing are the changes in the hydrological balance, with the replacement of deep-rooted native vegetation with shallow-rooted annual crops and pasture (Saunders and Hobbs, 1993). Water tables have risen, increasing salinity, water logging and erosion. Wildlife habitats have been lost and or degraded, resulting in the loss of native fauna (Geographe Bay Catchment Natural Resource Atlas)

Toby Inlet Catchment Landscape Audit defines the landscape of the 'Toby Inlet Catchment' as representing a unique array of responses to the demands of settlement and 'natural' patterns. The evolution of these landscapes, over time, has gradually increased the level of environmental modification. This evolution has destroyed the very thing that originally attracted these people to the area. It is time to slow this process down and insure that we do not leave a legacy of degradation for the next generation to repair (Figure 7).

1.1 Climate and Weather

The Toby Inlet Catchment area experiences a Mediterranean climate with warm to hot, dry summers and mild, wet winters. At Cape Naturaliste the mean annual rainfall is 824.7mm. The rainfall pattern and long term annual average of Cape Naturaliste is similar to that of Busselton (WAWA, 1995) where the mean annual rainfall is 821.7mm. No official rainfall data is available for Dunsborough. However, the mean annual average rainfall of 976 mm, taken from data gathered by Clay from 1991 to 1998 on Commonage Road, some 90 m above sea level, indicates a higher mean rainfall to the south of Dunsborough, and increasing to Margaret River further to the south.

The sub-surface geology within the study area is complex and variable, making it difficult to determine the effects of rainfall during periods of high rainfall. In the wetlands area the thin sandy soils have a low capacity to absorb water, and where these sands are underlain by clay, the potential for flooding on the plains will occur following peak flow events. In the 1960's high rainfall periods caused localised flooding within the flood plain, with water regularly covering both Commonage Road and Quindalup Siding Road (Local residents, pers. comm.).

It has been recorded that Cyclone Alby devastated the *Melaleuca cuticularis* communities either side of the Caves Road bridge in the 1970's (Local landowners, pers. comm.). A large number of these have never recovered. Tree deaths can also occur due to the lowering of the water table during a period of low rainfall. Increased salinity can also be related to low rainfall periods, due to the washing effect of the land, taking higher salt loads to the water bodies after heavy rains. Perhaps the greatest effects occur within the macroinvertebrate community by the degree of seasonality. Low-flow events, in particular, are known to have a dramatic effect on the wetland biota (Streamtec, 1997).

1.2 Geology, Landforms and Soils

A hierarchy of soil-landscape mapping has been adopted by Agriculture Western Australia to maintain a consistent approach to land resource surveys. Two levels of the hierarchy will be used to describe the soils and landform in the Toby Inlet catchment. They are the regional subdivisions called Zones, which are areas defined on a geomorphological criteria and mapped at 1:1,000,000, and Soil-Landscape Systems, which are areas with recurring patterns of landform, soils and vegetation mapped at 1:250,000.

Within the Swan Coastal Plain zone, a series of Soil-Landscape Systems have been described (Tille and Lantzke (1990). For each of these systems, a description of the soil types and identification of the susceptibility of the soils to nutrient transport has been prepared (Tille & Lantzke, *loc. cit.*; Weaving, 1998).

The Swan Coastal Plain has been subjected to repeated incursions of the sea over time. This has resulted in a highly variable mixture of alluvial, aeolian, shoreline and marine sediments being deposited in the palusplains. It is very difficult to predict these various sediments without detailed investigations. Geological surveys show the presence of only one sedimentary unit, Qpa (Lowrey, 1967). Qpa has been described as usually fine to medium quartz sand on the surface, with laterite near this surface cover, or near the water table. Underlying the quartz sand is mixed sand, silt and clay of various thicknesses.

About a third of the Toby Inlet catchment is within the Leeuwin - Naturaliste Ridge. There are gravelly as well as sandy soils in these areas of Jarrah-Marri woodland forest. The soils and landforms in the catchment are described in more detail below. The following information has come from the Geographe Bay Catchment Natural Resource Atlas (Weaving, 1998) and Tille and Lantzke, 1990.

The following Zones are within the Toby Inlet catchment:

The **Swan Coastal Plain** is a flat to gently undulating plain. It is about 15km wide and extends eastward from Dunsborough, along the coast of Geographe Bay and northwards. The Swan Coastal Plain is formed on Quaternary marine alluvial (riverine) and aeolian (wind) sediments (Tille & Lantzke 1990). Along the coast of Geographe Bay there is a belt of narrow dunes, which are active with lagoons on the landward side.

The **Donnybrook Sunkland Zone** (in this area) lies between the Swan Coastal Plain and the Leeuwin Block. The landscape is level to undulating, formed on Cretaceous and Jurassic Perth Basin sedimentary rock.

The **Leeuwin Zone** is a narrow strip of land between 0.2 and 6km wide running along the coast from Cape Naturaliste to Cape Leeuwin. It is composed of crystalline rock capped by laterite and sand. It is a discontinuous ridge of Tamala limestone with underlying Leeuwin Block granite being exposed in places (Tille & Lantzke, 1990).

The Soil-Landscape Systems for the Toby Inlet catchment are shown on Figure 1 and described below:

Within the Swan Coastal Plain Zone:

Abba System: Poorly drained flats on the southern Swan Coastal Plain. Main soils are grey, deep sandy duplex and wet soil. The principal vegetation type is jarrah-marri-paperbark woodland.

Bassendean System: Dune flats and swampy depressions of the Swan Coastal Plain with pale deep sand. Main vegetation types are Banksia woodlands and heath on dunes and paperbark woodland on flats.

Cokelup System: Poorly drained flats on the southern Swan Coastal Plain. Main soils are saline, wet soils, shallow, loamy duplex and clay. The vegetation consists of paperbark and flooded gum woodland.

Jindong System: Well drained alluvial flats on the southern Swan Coastal Plain. Main soils are sandy earth, loamy earths and grey deep sandy duplex. Marri forest is the principal vegetation.

Quindalup System: Coastal dunes of the Swan Coastal Plain of calcareous deep sands, with coastal scrub the principal vegetation. Behind the dunes is a series of low, very gently inclined beach ridges and flats. These consist of calcareous sands with some accumulation of organic matter in the surface. Peppermint woodland was dominant here. Behind the beach ridges and flats is a long narrow depression containing Toby Inlet. Dark calcareous sands and estuarine deposits are found in the depression. Vegetation includes samphire flats to paperbark (*Melaleuca* spp.) and tea-tree (*Leptospermum* spp.).

Vasse System: Poorly drained estuarine flats of the Swan Coastal Plain. Soils include tidal flat soil, saline wet soil and pale deep sand. The main vegetation types include samphire, sedges and paperbark woodlands.

Within the Donnybrook Sunkland Zone:

Yelverton System: Poorly drained flats on the northern edge of the Donnybrook Sunkland with sandy gravel, pale deep sand, loamy gravel and non-saline wet soil. The main vegetation consists of jarrah-marri-banksia-paperbark forest and woodland.

Within the Leeuwin Zone:

Cowaramup Uplands System: Lateritic plateau in the Leeuwin Zone with sandy gravel, loamy gravel and grey sandy duplex. Jarrah-marri forest is the principal vegetation.

Metricup System: Granitic and laterite slopes in the eastern edge of the northern Leeuwin Zone. The major soil types include loamy gravel, sandy gravels and duplex. The main vegetation is jarrah-marri forest.

Figure 2 shows the nutrient management units for the Toby Inlet catchment. These units are based on the soils of the area and show the susceptibility of the different soils to nutrient transport, as briefly described below:

Well drained soils of the hills: Overland flow or soil erosion during intense rainfall events are the most likely forms of nutrient transport in this group of soils.

Well drained, phosphate retaining soils of the lowlands: These soils generate little overland flow and are likely to retain much of the phosphate being transported.

Bleached sands: Nutrients move quickly through the topsoils, however, subsoils often intercept much of the phosphate.

Imperfectly drained flats: Nutrients are likely to enter shallow water tables but movement towards a water course is often slow.

Poorly drained depressions: Nutrients are transported by overland flow from these waterlogged areas with the proximity of drains largely determining export rates.

Waterways and wetlands: Anywhere in close proximity to waterways must be considered to have a high risk of nutrient transport.

1.3 Aims

Vegetation surveys were conducted within the Toby Inlet Catchment to provide a baseline assessment of remnant vegetation and to determine the diversification of species, habitat destruction by livestock such as feral animals, invasion of weeds, weather cycles and the introduction of diseases, such as die-back (*Phytophthora cinnamomi*).

Compile a description of the remnant vegetation community types and possibly map the remnant vegetation types within the Toby Inlet Catchment, and correlate all available data.

1.4. Methods

Basic vegetation surveys, at 28 predetermined sites, were completed between August and October 1998. The surveys were largely opportunistic and conducted within the "Spearwood, Pinjarra and Chapman" vegetation systems (Figure 4, Beard's Vegetation Systems in the Toby Inlet Catchment). Transects, approximately 100 metres in length and 5 to 10 metres in width, were traversed by a group of observers. All plant species along this transect were recorded, and some plants of importance outside these transects were also recorded. Herbaceous plants and orchids were only recorded where identification was possible. A specimen of those plants that could not be identified in the field were collected and returned to base for further determination. Specimens that could not be determined by this procedure, were sent to the Government Herbarium for processing.

A description of the dominant plant species in each structural layer was recorded and the structural classification from Keighery (1994) was used to compile vegetation descriptions from each area.

Species recorded on each transect were entered into an Access database. Records in this database were used to compile lists on the frequency of occurrence of a particular species. On this basis each species were assigned to a category:
Rare is 1 record, uncommon is 2 to 5 records and common is greater than 5 records.
(Figure 2)

Plot locations were recorded and all data submitted to Agriculture WA for inclusion into an Access Data Base for inclusion into a GIS data base. These data are not yet available for this report.

2. RESULTS

A total of 273 flowering plant taxa (species, sub-species) were collected in 28 transects 100m x 10m (Figure 1). In all 147 genera from 53 families were recorded with Papilionaceae (33 taxa), Proteaceae (20 taxa), Epacridaceae (14 taxa), Mimosaceae (14 taxa) and Orchidaceae (13 taxa) being the most common families.

Weeds, such as Arum Lily, appear to be a problem in the surrounding open pasture areas. Apart from grasses, weeds appeared to be less invasive in the remnant vegetation complex than in the open country.

Records indicated a greater number of plants on the sandy soils compared to the number of plant numbers on the clay loams and or lateritic soils (appendix 1).

'Grey sands' supported a mean species richness of 97.3% with low woodlands followed by 'Clay loam/grey sand over clay' with a mean species richness of 80.7% and 'Grey sand over laterite' with a mean species richness of 79.7%. All of these soil types supported forest to open forest. The heavier soils such as 'Clay over laterite/granite' supported a species richness of between 73.7% to 76.5%.

It has been hard to arrive at a meaningful analysis of these data due in part to the impact of grazing by stock, kangaroo's and diseases such as dieback (*Phytophthora cinnamomi*). It is suggested that the impact on the vegetation has reduced the diversity of species, although there remains a healthy plant coverage.

To determine diversity of plant species, exclosures need to be erected to monitor the diversity of plant species and numbers of plants to assess the impact of grazing. From these data it is hoped that a more accurate assessment could be made on the plant associations and the diversity within each soil type.

In many areas, cattle have been allowed to graze under the remnant dominant vegetation, with impact on certain species. In latter years due to the increase in Kangaroo numbers, there is also visual evidence that this form of grazing is impacting on the diversity of species. At the "Marsupial Research Station, Wattleup" run by the University of WA, research showed that over a 15 year period, kangaroo's had eliminated 15 native species. (The Effects of Overgrazing by Macropods on Plant Associations and Plant Diversity on the Swan Coastal Plain – Brian T Clay July 1995). In the study it was also noted that unpalatable species were increasing in numbers.

Species abundance, figure 2, scored as rare, uncommon to common within the 28 sites supports the statement that some plant species have been impacted upon by predation. Rare or uncommon recorded plants within the study area such as *Acacia*, *Anigozanthus*, *Bossiaea*, *Caladenia*, *Conostephium*, *Conostylis*, *Gompholobium*, *Jacksonia*, *Patersonia* species are known plants that are eaten by Kangaroo's.

Plant species eaten by cattle are not known.

Dieback has invaded certain areas and was recorded by visual observation at several transect sites. It appears that the 'fungus' was introduced to extraction sites by machinery and to many roads by introducing road base material that was infected with dieback. Again this disease could have affected the diversity of species, in certain areas, and could bias final analyses.

3. CONCLUSION

From the surveys conducted, further research is required to support existing data. To obtain valid data on species diversification exclosures need to be erected at predetermined sites so as to monitor plant species, numbers and coverage. This project should be maintained over several years to evaluate predation.

General dieback surveys need to be conducted outside Reserves to determine the extent of the spread. Control on private property is difficult and can only be approached by informing the public on means and ways to control the spread. The Toby Inlet Catchment Group has been responsible for various control measures of dieback in Shire Reserves and on private land.

Although the vegetation has been impacted upon by predation and disease, the remnant vegetation supports a fairly diverse healthy plant community. These communities need protecting with a management plan that would ensure the retention of these remnants by controlling predation, weed control and the control of diseases. Some of the areas, once animals are restricted could benefit from a replacement of understorey plants.

Appendix 1

Structural Units on various soil types:

1. Soil type. Grey sand over laterite.

Structural Unit. Eucalyptus marginata, E. calophylla forest over low woodland of Allocasuarina fraseriana, Banksia grandis over low shrub of Xanthorrhoea preissii Melaleuca thymoides over dwarf scrub of Adenanthos barbiger var intermedius, Hovea chorizemifolia.

4 Transects with 158 plants collected and 128 flowering plant taxa.

Mean species richness 79.7%

2. Soil type. Grey sand

Structural Unit. Low woodland of Banksia attenuata, Kunzea glabrescens, over scrub of Bossiaea lineaphylla, Melaleuca thymoides over low scrub of Macrozamia reidlei, Podocarpus drouynianus over dwarf scrub of Sedges and Stirligia latifolia over open low Lyginia barbata.

6 Transects with 188 plants collected and 183 flowering plant taxa.

Mean species richness 97.3%

3. Soil type. Clay over laterite

Structural Unit. Forest of Eucalyptus marginata, E. calophylla over low open woodland Of Banksia grandis, Persoonia longifolia over open heath of Xanthorrhoea preissii, Isopogon sphaerolobium over closed low heath of Calothamnus sanguineus.

7 Transects with 374 plants collected and 286 flowering plant taxa.

Mean species richness 76.5%

4. Soil type. Clay over laterite and granite

Structural Unit. Open heath of Hemigenia podalyrina, Hakea lissocarpa, Dodonaea ceratocarpa over open low heath of Hypocalymma ssp., Acacia ssp., over herbland of Conostylis setigera, Synaphea petiolaris, Lechenaultia biloba.

2 Transects with 95 plants collected and 70 flowering taxa.

Mean species richness 73.7%

5. Soil type. Clay loam

Structural Unit. Open forest of Eucalyptus marginata, E. calophylla, E. patens over closed tall shrub of Mirbelia dilatata, Agonis parviceps.

5 Transects with 150 plants collected and 121 flowering taxa.

Mean species richness 80.7%

6. Soil type. Grey sand over clay

Structural Unit. Forest of Eucalyptus marginata, E. Calophylla, over low open woodland of Banksia grandis, Allocasuarina fraseriana over open shrubland of Xanthorrhoea preissi, Acacia ssp. And Hakea amplexicaulis.

2 Transects with 109 plants collected and 88 flowering plant taxa.

Mean species richness 80.7%

**TOBY INLET CATCHMENT
VEGETATION QUADRATS**

Appendix 2

Site	Soil	Aspect	Slope	Vegetation Description	Location
Judy & Don Henderson, RSM 183 Commonage Rd	Grey sand over laterite	North-north eastern	Gentle	Forest of Eucalyptus marginata, E. calophylla over low woodland of Allocasuarina fraseriana, Banksia grandis over low scrub of Xanthorrhoea preissii, Melaleuca thymoides, over dwarf scrub of Adenanthos barbiger var intermedius, Hovea chorizemifolia.	S333936 E1150617 Plot 2bi

Plot 2bi - Location: S 333936 - E 1150617. 12th August 1998

#	Species	Fam #
14	Acacia extensa	163
16	Acacia obovata	163
15	Acacia pulchella	163
11	Adenanthos barbiger var. intermedius	090
2	Agonis flexuosa	273
3	Allocasuarina fraseriana	070
25	Allocasuarina humilis	070
41	Anigozanthos manglesii	055
1	Banksia grandis	090
26	Bossiaea ornata	165
17	Calothamnus sanguineus	273
42	Chamaescilla corymbosa	54F
43	Cheilanthes sieberi	007
44	Chorizandra enodis	032
30	Conostylis setigera ssp setigera	055
27	Drosera menziesii	143
4	Eucalyptus calophylla	273
5	Eucalyptus marginata	273
31	Gompholobium confertum	165
21	Gompholobium scabrum	165
10	Hakea amplexicaulis	090
19	Hardenbergia comptoniana	165
33	Hibbertia hypericoides	226
37	Hibbertia racemosa	226
28	Hovea chorizemifolia	165
13	Hypocalymma robustum	273
22	Jacksonia furcellata	165
29	Kennedia coccinea	165
45	Lepidosperma leptostachyum	032
18	Logania serphyllifolia ssp angustifolia	302
35	Loxocarya flexuosa	039
23	Melaleuca thymoides	273
7	Nuytsia floribunda	097
36	Philothea spicatus	176
6	Persoonia elliptica	090
8	Persoonia longifolia	090
39	Pimelea preissii	263
12	Pimelea spectabilis	263
38	Stirlingia latifolia	090
9	Xanthorrhoea preissii	054D

SOME ANG
O.S. →
57/41

**40 plants with 32 flowering plant taxa
Species richness 80.0%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Judy & Don Henderson, RSM 183 Commonage Rd	Grey/white sand.	North-north eastern	gentle	Low Woodland of <i>Banksia attenuata</i> , <i>Kunzea ericifolia</i> over Scrub of <i>Bossiaea lineaphylla</i> , <i>Melaleuca thymoides</i> over Low Scrub of <i>Macrozamia reidlii</i> , <i>Podocarpus drouynianus</i> , over Dwarf Scrub of Sedges <i>Stirlingia latifolia</i> , over Open low <i>Lyginia barbata</i>	S333936 E1150617 Plot 2bii

Plot 2bii - Location: S 333936 - E 1150617. 19th. August 1998

#	Species	Fam #
56	<i>Acacia extensa</i>	163
55	<i>Acacia pulchella</i>	163
49	<i>Agonis flexuosa</i>	273
50	<i>Allocasuarina fraseriana</i>	070
54	<i>Allocasuarina humilis</i>	070
85	<i>Anigozanthos manglesii</i>	055
47	<i>Banksia attenuata</i>	090
48	<i>Banksia grandis</i>	090
70	<i>Bossiaea linophylla</i>	165
72	<i>Calothamnus sanguineus</i>	273
74	<i>Calytrix flavescens</i>	273
92	<i>Chamaescilla corymbosa</i>	54F
91	<i>Cheilanthes sieberi</i>	007
90	<i>Comesperma ciliatum</i>	183
64	<i>Conostephium pendulum</i>	288
81	<i>Drosera menziesii</i>	143
52	<i>Dryandra sessilis</i> var <i>cordata</i> (P2)	090
68	<i>Eremea pauciflora</i> var <i>paucifolia</i>	273
75	<i>Gompholobium confertum</i>	165
77	<i>Hibbertia racemosa</i>	226
62	<i>Hypocalymma robustum</i>	273
89	<i>Isotropis cuneifolia</i>	165
76	<i>Jacksonia sternbergiana</i>	165
80	<i>Kunzea glabrescens</i>	273
57	<i>Leucopogon elatoir</i>	288
97	<i>Loxocarya flexuosa</i>	039
73	<i>Loxocarya fasciculata</i>	039
98	<i>Lyginia barbata</i>	039
63	<i>Lysinema ciliatum</i>	288
65	<i>Macrozamia riedlei</i>	16A
61	<i>Melaleuca trichophylla</i>	273
79	<i>Melaleuca thymoides</i>	273
53	<i>Nuytsia floribunda</i>	097
60	<i>Patersonia occidentalis</i>	060
88	<i>Patersonia umbrosa</i> var <i>xanthina</i>	060
51	<i>Persoonia longifolia</i>	090
59	<i>Petrophile linearis</i>	090
66	<i>Podocarpus drouynianus</i>	017
86	<i>Scaevola calliptera</i>	341
83	<i>Stackhousia monogyna</i>	202
84	<i>Stirlingia latifolia</i>	090

324268
6273917

57/11

**41 plants with 35 flowering taxa
Species richness 85.4%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Brennans Patch	clay over laterite	West- south western	gentle	Forest of Eucalyptus marginata, E. calophylla, over open heath of Xylomelum occidentale, Hakea sp.	S333954 E1150608 Plot C5B

Plot C5B - Location: S 333954 - E 1150608. 26th. August 1998

#	Species	Fam #
136	Acacia divergens	163
106	Acacia extensa	163
115	Acacia lateriticola (glabrous variant)	163
134	Acacia myrtifolia	163
105	Acacia obovata	163
129	Acacia pulchella	163
122	Adenanthos barbiger var intermedius	090
102	Agonis flexuosa	273
103	Allocasuarina fraseriana	070
142	Astrolooma ciliatum	288
101	Banksia grandis	090
147	Billardiera variifolia	152
125	Bossiaea aquifolium	165
112	Bossiaea ornata	165
138	Burchardia umbellata	054J
127	Calothamnus sanguineus	273
151	Chamaescilla corymbosa	054F
044	Chorizandra enodis	032
144	Conostylis aculeata	055
137	Daviesia divaricata	165
146	Drosera stolonifera	143
123	Dryandra lindleyana var lindleyana	090
100	Eucalyptus calophylla	273
99	Eucalyptus marginata	273
126	Gompholobium confertum	165
107	Hakea amplexicaulis	090
116	Hakea lissocarpa	090
104	Hibbertia hypericoides	226
108	Hovea chorizemifolia	165
111	Hovea trisperma	165
113	Hypocalymma robustum	273
124	Isopogon sphaerocephalus	090
153	Lepidosperma costale	032
132	Leucopogon elatoir	288
139	Logania serphyllifolia ssp angustifolia	302
135	Mirbelia dilatata	165
109	Patersonia occidentalis	060
110	Patersonia umbrosa var xanthina	060
140	Pentapeltis peltigera	281
117	Persoonia longifolia	090
036	Philothea spicatus	175
120	Pimelea preissii	263
143	Scaevola calliptera	341
121	Synaphea petiolaris	090
152	Tetrarrhena laevis	031
114	Tetratheca setigera	182
118	Xanthorrhoea preissii	054D
119	Xylomelum occidentale	090

324046
6273359

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48 plants with 38 flowering taxa
Species richness 79.2%

Marshall and Gill Bennett, Grey sand North eastern Gentle Low closed woodland of *Banksia attenuata*, S333949
off O'Bryne Rd Allocasuarina fraseriana, over tall open scrub E1150628
of *Xanthorrhoea preissii*, over shrubland of Plot D4S
Hakea amplexicaulis, *Acacia extensa*.

Plot D4S - Location: S 333949 - E 1150628. 19th. August 1998

#	Species	Fam #
161	<i>Acacia extensa</i>	163
165	<i>Acacia pulchella</i>	163
177	<i>Adenanthos barbiger</i> var <i>intermedius</i>	090
163	<i>Adenanthos meisneri</i>	090
171	<i>Agonis flexuosa</i>	273
185	<i>Allocasuarina huegeliana</i>	070
183	<i>Anigozanthos manglesii</i>	055
174	<i>Banksia grandis</i>	090
184	<i>Comesperma ciliatum</i>	183
180	<i>Conostylis setigera</i> ssp <i>setigera</i>	055
186	<i>Eremea pauciflora</i> var <i>paucifolia</i>	273
178	<i>Hakea amplexicaulis</i>	090
168	<i>Hibbertia hypericoides</i>	226
167	<i>Hovea trisperma</i>	165
175	<i>Hypocalymma angustifolium</i>	273
162	<i>Lysinema ciliatum</i>	288
169	<i>Macrozamia riedlei</i>	016A
173	<i>Persoonia longifolia</i>	090
176	<i>Philothea spicatus</i>	175
167	<i>Stirlingia latifolia</i>	090
170	<i>Xanthorrhoea preissii</i>	054D

324559
6273522

57/1-11

21 plants with 19 flowering plant taxa
Species richness 90.5%

Site	Soil	Aspect	Slope	Vegetatio description	Location
Marshall and Gill Bennett, off Hayes Rd	clay loam.	North-north eastern	gentle	Open Forest of Eucalyptus marginata, E. calophylla, E. patens, over closed tall scrub of Mirbelia dilatata, Agonis parviceps.	S334024 E1150629 Plot D8T

Plot D8T - Location: S 334024 - E 1150629. 19th. August 1998

#	Species	Fam #
211	Acacia extensa	163
192	Acacia pulchella	063
193	Adenanthos meisneri	090
202	Anigozanthos flavidus	055
215	Billardiera candida	152
187	Calothamnus sanguineus	073
198	Conostylis setigera ssp setigera	055
196	Dasyogon bromeliifolius	054C
213	Drosera menziesii	143
189	Dryandra lindleyana var lindleyana	090
197	Eucalyptus patens	273
212	Hakea amplexicaulis	090
195	Hakea lissocarpa	090
191	Hibbertia hypericoides	226
188	Hovea chorizemifolia	165
200	Kennedia prostrata	165
203	Kingia australis	054C
207	Leucopogon parviflorus	288
216	Loxocarya fasciculata	039
190	Mirbelia dilatata	065
206	Philothea spicatus	175
199	Pimelea spectabilis	263
194	Sollya heterophylla	152
205	Trymalium ledifolium var rosmarinifolium	215
201	Xanthorrhoea preissii	054D
214	Xylomelum occidentale	090

324604
6272999

57/1-11

26 plants with 24 flowering plant taxa
Species richness 92.3%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Creek View and O'Byrne	Grey sand over laterite		gentle	Open Forest of Eucalyptus marginata, E. calophylla over low open woodland of Agonis flexuosa, Banksia grandis, over open heath of Xanthorrhoea preissii, Kunzea ericifolia	S333948 E1150623 Plot D4T

Plot D4T - Location: S 333948 - E 1150623. 19th. August 1998

#	Species	Fam #
218	Acacia extensa	163
259	Acacia pulchella	163
230	Adenanthos barbiger var intermedius	090
245	Agonis flexuosa	273
251	Allocasuarina fraseriana	070
220	Anigozanthos manglesii	055
233	Banksia grandis	090
217	Bossiaea linophylla	165
232	Bossiaea ornata	165
244	Burchardia umbellata	054J
227	Calothamnus sanguineus	273
254	Conostylis setigera ssp setigera	055
228	Dasypogon bromeliifolius	54C
260	Dasypogon hookeri	054C
249	Drosera menziesii	143
231	Dryandra lindleyana var lindleyana	090
223	Eucalyptus calophylla	273
222	Eucalyptus marginata	273
237	Hakea amplexicaulis	090
234	Hardenbergia comptoniana	165
257	Hibbertia cuneiformis	226
243	Hibbertia cunninghamii	226
225	Hibbertia hypericoides	226
242	Hovea chorizemifolia	165
261	Hypocalymma angustifolium	273
226	Jacksonia furcellata	165
246	Kennedia prostrata	165
221	Kunzea glabrescens	273
247	Lepidosperma leptostachyum	032
256	Loxocarya fasciculata	039
253	Macrozamia riedlei	016A
262	Orthrosanthus laxus	060
224	Persoonia longifolia	090
252	Petrophile linearis	090
258	Pimelea suaveolens	263
248	Pterostylis aff. nana	066
219	Pterostylis vitata	066
250	Xanthorrhoea gracilis	054D
235	Xanthorrhoea preissii	054D

324429
6273550

57/H11

39 plants with 32 flowering plant taxa
Species richness 82.1%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Bennett's Cottage South	Grey sand over clay	Southerly	flat	Forest of <i>Eucalyptus marginata</i> , <i>E. calophylla</i> , over low open woodland of <i>Banksia grandis</i> , <i>Allocasuarina fraseriana</i> , over open shrubland of <i>Xanthorrhoea preissii</i> , <i>Acacia</i> spp., <i>Hakea amplexicaulis</i> .	S334018 E1150646 Plot D7R

Plot D7R - Location: S 334018 - E 1150646. 19th. August 1998

#	Species	Fam #
288	<i>Acacia extensa</i>	163
289	<i>Acacia incurva</i>	163
264	<i>Acacia stenoptera</i>	163
286	<i>Adenanthos barbiger</i> var <i>intermedius</i>	090
273	<i>Adenanthos meisneri</i>	090
281	<i>Allocasuarina fraseriana</i>	070
263	<i>Andersonia caerulea</i>	288
267	<i>Banksia grandis</i>	090
276	<i>Bossiaea ornata</i>	165
296	<i>Burchardia umbellata</i>	054J
272	<i>Calothamnus sanguineus</i>	273
285	<i>Chamaescilla corymbosa</i>	054F
284	<i>Chorizandra enodis</i>	032
278	<i>Conostylis setigera</i> ssp <i>setigera</i>	055
275	<i>Dampiera linearis</i>	341
282	<i>Daviesia decurrens</i>	165
269	<i>Eucalyptus calophylla</i>	273
268	<i>Eucalyptus marginata</i>	273
290	<i>Haemodorum laxum</i>	055
280	<i>Hakea amplexicaulis</i>	090
287	<i>Hibbertia cunninghamii</i>	226
266	<i>Hibbertia hypericoides</i>	226
298	<i>Hovea chorizemifolia</i>	165
271	<i>Hypocalymma robustum</i>	273
293	<i>Kunzea glabrescens</i>	273
274	<i>Mesomelaena tetragona</i>	032
270	<i>Nuytsia floribunda</i>	097
292	<i>Orthrosanthus laxus</i>	060
279	<i>Patersonia umbrosa</i> var <i>xanthina</i>	060
294	<i>Persoonia longifolia</i>	090
277	<i>Philothea spicatus</i>	175
297	<i>Pimelea argentea</i>	263
265	<i>Trymalium ledifolium</i> var <i>rosmarinifolium</i>	215
291	<i>Xanthorrhoea gracilis</i>	054D
299	<i>Xanthorrhoea preissii</i>	054D

325039

6272637

57/111

**35 plants with 29 flowering plant taxa
Species richness 82.9%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
South of Bennett's Brook	grey sand		flat	Forest of Eucalyptus calophylla over open Woodland of Agonis flexuosa, over tall shrubland of Acacia spp., Persoonia longifolia over open shrubland of Xanthorrhoea preissii	S333955 E1150701 Plot D4Q

Plot D4Q - Location: S 333955 - E 1150701. 19th August 1998

#	Species	Fam #
326	Acacia cochlearis	163
320	Acacia extensa	163
328	Acacia pulchella	163
325	Adenanthos barbiger var intermedius	090
312	Agonis flexuosa	273
317	Burchardia umbellata	054J
315	Cassyltha racemosa	131
324	Chorizandra enodis	032
316	Dampiera lindleyi	341
307	Daviesia incrassata	165
318	Daviesia decurrens	165
311	Drosera menziesii	143
305	Eucalyptus calophylla	273
306	Eucalyptus marginata	273
323	Hakea amplexicaulis	090
310	Hibbertia hypericoides	226
319	Hovea elliptica	165
313	Hypocalymma robustum	273
303	Kunzea glabrescens	273
321	Lepidosperma leptostachyum	032
308	Lindsaea linearis	011D
302	Logania vaginalis	302
322	Lyginia barbata	039
304	Mirbelia dilatata	165
300	Persoonia longifolia	090
314	Philothea spicatus	175
301	Pimelea argentea	263
329	Pimelea rosea var rosea	263
327	Xanthorrhoea preissii	054D

325412

6273353

= 57/1-11

29 plants with 24 flowering plant taxa
Species richness 82.8%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Hayes Rd. Brennan - South	Grey sand over laterite	West	Steep	Open Forest of Eucalyptus marginata, E. calophylla, over low open forest of Banksia grandis, Agonis flexuosa, over shrubland of Xanthorrhoea preissii, over open low heath of Hibbertia hypericoides, Hovea chorizemifolia	S334024 E1150607 200mSouth Plot C9B

Plot C9B - Location: S 334024 - E 1150607. 26th. August 1998

#	Species	Fam #
360	Acacia lateriticola (glabrous variant)	163
339	Acacia extensa	163
353	Acacia pulchella	163
365	Acacia stenoptera	163
346	Adenanthos barbiger var intermedius	090
334	Agonis flexuosa	273
337	Allocasuarina fraseriana	070
373	Anigozanthos manglesii	055
377	Astroloma ciliatum	288
335	Banksia grandis	090
342	Bossiaea ornata	165
344	Burchardia umbellata	054J
350	Calothamnus sanguineus	273
387	Chamaescilla corymbosa	054F
375	Cheilanthes sieberi	007
366	Conostylis aculeata	055
338	Daviesia incrassata	165
369	Drosera menziesii	143
379	Drosera stolonifera	143
359	Dryandra binpinnatifida	090
362	Dryandra lindleyana var lindleyana	090
332	Eucalyptus calophylla	273
333	Eucalyptus marginata	273
341	Hakea lissocarpha	090
357	Hibbertia cunninghamii	226
340	Hibbertia hypericoides	226
345	Hovea chorizemifolia	165
347	Hypocalymma robustum	273
352	Isopogon sphaerocephalus	090
356	Kingia australis	054C
388	Lepidosperma costale	032
386	Lepidosperma leptostachyum	032
368	Leucopogon capitellatus	288
355	Leucopogon verticillatus	288
385	Lomandra nigricans	054C
348	Mirbelia dilatata	165
382	Opercularia echinocephala	331
371	Patersonia occidentalis	060
381	Pentapeltis peltigera	281
336	Persoonia longifolia	090
354	Pimelea rosea	263
343	Pimelea spectabilis	263
374	Platysace tenuissima	281
363	Scaevola calliptera	341
67	Styphelia tenuiflora	288
384	Tetrarrhena laevis	031
361	Tetratheca setigera	182
349	Trymalium floribundum ssp trifidum	215
376	Xanthorrhoea gracilis	054D
372	Xanthorrhoea preissii	054D

324037
6072434

57/1-13

**50 plants with 39 flowering plant taxa
Species richness 78.0%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Lower Henderson	clay loam	Southern	gentle	Low Open Forest of Eucalyptus calophylla, over closed tall scrub of Agonis parviceps over low shrubland of Xanthorrhoea preissii, over Bracken.	S333945 E1150603 Plot C3C

Plot C3C - Location: S 333945 - E 1150603. 26th. August 1998

#	Species	Fam #
399	Acacia pulchella	163
406	Adenanthos barbiger intermedius	090
402	Adenanthos meisneri	090
389	Agonis flexuosa	273
396	Agonis parviceps	273
391	Allocauarina fraseriana	070
409	Amphipogon turbinatus	031
412	Anigozanthos viridis	055
398	Astartea fascicularis	273
392	Banksia grandis	090
422	Baumea articulata	032
404	Beaufortia sparsa	273
416	Chamaescilla corymbosa	054F
414	Conostylis setigera ssp setigera	055
397	Dasyopogon bromeliifolius	054C
407	Dasyopogon hookeri	054C
415	Drosera menziesii	143
390	Eucalyptus calophylla	273
408	Hakea amplexicaulis	090
405	Hibbertia hypericoides	226
423	Lepidosperma costale	032
419	Lepidosperma leptostachyum	032
393	Leucopogon parviflorus	288
413	Loxocarya flexuosa	039
420	Lyginia barbata	039
394	Nuytsia floribunda	097
411	Opercularia vaginata	331
410	Piptatherum miliaceum *weed	031
418	Pteridium esculentum	011C
403	Xylomelum occidentale	090
421	Zantedeschia aethiopica	035

323912
6273633
57/1-1

31 plants with 27 flowering plant taxa
Species richness 87.1%

Bennett's
adjacent to
Hayes Rd gate

clay loam

Flat

Tall Forest of *Eucalyptus marginata*, *E.*
calophylla, *E. patens*, over low open woodland
of *Melaleuca raphiophylla*, over shrubland of
Macrozamia reidleyi, *Mirbelia dilatata*, *Sollya*
heterophylla

S334012
E1150702
Plot D7F

Plot D7F - Location: S 334012 - E 1150702. 19th. August 1998

#	Species	Fam #
454	<i>Acacia extensa</i>	163
435	<i>Agonis flexuosa</i>	273
450	<i>Agonis linearifolia</i>	273
446	<i>Cheilanthes sieberi</i>	007
458	<i>Chorizandra enodis</i>	032
442	<i>Drosera stolonifera</i>	143
467	<i>Eucalyptus calophylla</i>	273
465	<i>Eucalyptus marginata</i>	273
466	<i>Eucalyptus patens</i>	273
425	<i>Grevillea quercifolia</i>	090
434	<i>Hakea amplexicaulis</i>	090
440	<i>Hakea lissocarpha</i>	090
427	<i>Hardenbergia comptoniana</i>	165
447	<i>Hibbertia hypericoides</i>	226
464	<i>Hovea chorizemifolia</i>	165
429	<i>Hovea elliptica</i>	165
452	<i>Leucopogon parviflorus</i>	288
463	<i>Lindsaea linearis</i>	011D
461	<i>Loxocarya fasciculata</i>	039
433	<i>Macrozamia reidleyi</i>	016A
432	<i>Mesomelaena tetragona</i>	032
444	<i>Mirbelia dilatata</i>	165
431	<i>Patersonia occidentalis</i>	060
449	<i>Pimelea spectabilis</i>	263
428	<i>Pteridium esculentum</i>	011C
443	<i>Sollya heterophylla</i>	152
436	<i>Xanthorrhoea gracilis</i>	054D
430	<i>Xanthorrhoea preissii</i>	054D

28 plants with 22 flowering plant taxa
Species richness 78.6%

325447
6772829

57/3-3

Site	Soil	Aspect	Slope	Vegetation Description	Location
North of Hayes Rd	laterite over clay	North	Steep	Open forest of <i>Eucalyptus marginata</i> , <i>E. calophylla</i> , over low open woodland of <i>Banksia grandis</i> , <i>Persoonia longifolia</i> , over open heath of <i>Xanthorrhoea preissii</i> , <i>Isopogon sphaerolobium</i> , over closed heath of <i>Calothamnus sanguineus</i> .	S334043 E1150605 Plot C10B

Plot C10B - Location: S 334043 - E 1150605. 9th. September 1998

#	Species	Fam #
492	<i>Acacia extensa</i>	163
489	<i>Acacia obovata</i>	163
473	<i>Acacia pulchella</i>	163
485	<i>Adenanthos barbiger</i> var. <i>intermedius</i>	090
470	<i>Agonis flexuosa</i>	273
472	<i>Banksia grandis</i>	090
501	<i>Billardiera variifolia</i>	152
476	<i>Bossiaea ornata</i>	165
474	<i>Calothamnus sanguineus</i>	273
518	<i>Chamaescilla corymbosa</i>	054F
521	<i>Chorizandra enodis</i>	032
490	<i>Chorizema aciculare</i>	165
477	<i>Chorizema ilicifolium</i>	165
507	<i>Conostylis aculeata</i>	055
502	<i>Dampiera linearis</i>	341
508	<i>Daviesia incrassata</i>	165
504	<i>Drosera menziesii</i>	143
499	<i>Dryandra bipinnatifida</i> ssp. <i>bipinnatifida</i>	090
468	<i>Eucalyptus calophylla</i>	273
469	<i>Eucalyptus marginata</i>	273
509	<i>Gompholobium knightianum</i>	165
514	<i>Grevillea quercifolia</i>	090
483	<i>Hakea amplexicaulis</i>	090
486	<i>Hakea lissocarpha</i>	090
505	<i>Hibbertia cunninghamii</i>	226
481	<i>Hibbertia hypericoides</i>	226
496	<i>Hibbertia quadricolor</i>	226
500	<i>Hovea chorizemifolia</i>	165
488	<i>Hovea trisperma</i>	165
475	<i>Hypocalymma robustum</i>	273
487	<i>Isopogon sphaerocephalus</i>	090
506	<i>Kennedia carinata</i>	165
482	<i>Kunzea glabrescens</i>	273
513	<i>Lechenaultia biloba</i>	341
519	<i>Lepidosperma costale</i>	032
480	<i>Leucopogon capitellatus</i>	288
495	<i>Leucopogon parviflorus</i>	288
494	<i>Macrozamia riedlei</i>	16A
478	<i>Mirbelia dilatata</i>	165
512	<i>Opercularia echinocephala</i>	331
479	<i>Patersonia umbrosa</i> var. <i>xanthina</i>	060
515	<i>Pentapeltis peltigera</i>	281
471	<i>Persoonia longifolia</i>	090
484	<i>Philothea spicatus</i>	175
493	<i>Pimelea suaveolens</i>	263
503	<i>Scaevola calliptera</i>	341
517	<i>Stylidium amoemum</i> var. <i>amoemum</i>	343
510	<i>Synaphea petiolaris</i>	090
511	<i>Tetratheca setigera</i>	182
491	<i>Xanthorrhoea preissii</i>	054D
516	<i>Xanthosia candida</i>	281

323997

6271848

↑ this is not W of Hayes rd ↓

57/6-1 - ?

not adequate

**51 plants with 41 flowering plant taxa
Species richness 80.4%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Yungarra Drive	Clay over laterite / granite	North	Gentle-steep	Open eath of Hemigenia podalyrina, Hakea spp. Dodonaea ceratocarpa over open low heath of Hypocalymma spp. Acacia spp, over herbland of Conostylis setigera, Synaphea petiolaris, Lechenaultia biloba.	S333747 E1150511 Plot B1J

Plot B1J - Location: S 333747 - E 1150511. 23rd. September 1998

#	Species	Fam #
575	Acacia nervosa	163
532	Acacia obovata	163
530	Acacia pulchella var pulchella	163
522	Andersonia caerulea	188
550	Astroloma ciliatum	288
547	Astroloma pallidum	288
573	Baeckea camphorosmae	273
578	Boronia tenuis	175
553	Bromus madritensis	031
563	Burchardia multiflora	054J
560	Burchardia umbellata	054J
545	Calothamnus sanguineus	273
577	Chorizema rhombeum	165
557	Conostylis setigera ssp setigera	055
527	Cryptandra arbutiflora	215
568	Dampiera linearis	341
572	Darwinia citriodora	273
543	Daviesia decurrens	165
528	Dodonaea ceratocarpa	207
580	Drosera menziesii	143
562	Drosera pallida	143
546	Dryandra bipinnatifida ssp bipinnatifida	090
554	Ehrharta calycina	031
579	Gompholobium knightianum	165
541	Grevillea quercifolia	090
544	Hakea amplexicaulis	090
535	Hakea lissocarpa	090
540	Hakea trifurcata	090
526	Hemigenia podalyrina	313
567	Hibbertia cunninghamii	226
533	Hibbertia hypericoides	226
581	Hovea chorizemifolia	165
561	Hovea trisperma	165
539	Hypocalymma angustifolium	273
538	Hypocalymma robustum	273
576	Jacksonia alata	165
523	Kennedia coccinea	165
574	Labichea punctata	164
556	Lechenaultia biloba	341
584	Lepidosperma costale	032
585	Lepidosperma longitudinale	032
534	Leucopogon tenuis	288
529	Melaleuca systema	273
582	Mesomelaena stygia	032
525	Mirbelia dilatata	165
552	Neurachne alopecuroidea	031
549	Patersonia occidentalis	060
559	Patersonia pygmaea	060
551	Persoonia longifolia	090
570	Petrophile striata	090
542	Philothea spicata	175
566	Pimelea umbricata var. pettigera	263
564	Scaevola calliptela	341
548	Stylidium amoenum	343
531	Synaphea petiolaris	090

**57 plants with 43 flowering plant taxa
Species richness 75.4%**

322506
6277244
out of 5100
01/00

Site	Soil	Aspect	Slope	Vegetation Description	Location
Big Rock - West	Clay over laterite and Granite	South Eastern	Gentle	Mixed Eucalyptus marginata E. calophylla with a diverse understorey of Acacia spp, Hakea, Grevillea, Leucopogon, Bossieae and herbs such as Caladenia, Patersonia, Burchardi	S 333733 E 1150506 Plot BR-W

Plot BRW - Location: S 333733 - E 1150506. 23rd. September 1998

#	Species	Fam #
598	Acacia pulchella var. pulchella	163
610	Adenanthos barbiger var. intermedius	090
625	Astroloma ciliatum	288
614	Beyeria viscosa	185
616	Billardiera variifolia	152
613	Bossiaea ornata	165
632	Burchardia umbellata	054J
624	Caladenia flava	066
591	Chorizema rhombeum	165
596	Comesperma virgatum	183
590	Dampiera linearis	341
619	Dasypogon bromeliifolius	054C
615	Daviesia preissii	165
622	Dryandra binpinnatifida	090
627	Dryandra lindleyana	090
600	Eriostemon spicatus	175
587	Eucalyptus calophylla	273
588	Eucalyptus marginata	273
603	Grevillea quercifolia	090
607	Hakea amplexicaulis	090
597	Hakea lissocarpha	090
594	Hibbertia cunninghamii	226
595	Hibbertia hypericoides	226
601	Hovea chorizemifolia	165
612	Hovea elliptica	165
605	Hovea trisperma	165
593	Hypocalymma angustifolium	273
592	Hypocalymma robustum	273
617	Isopogon sphaerocephalus	090
621	Kennedia coccinea	165
609	Labichea punctata	164
634	Lepidosperma longitudinale	032
604	Leucopogon capitellatus	288
589	Leucopogon propinquus	288
608	Leucopogon verticillatus	288
629	Patersonia occidentalis	060
626	Patersonia pygmaea	060
630	Patersonia umbrosa var xanthina	060
606	Persoonia longifolia	090
623	Pterostylis recurva	066
618	Scaevola striata	341
620	Spyridium globulosum	215
631	Tetralthea calliptera	182
633	Trichocline spathulata	345
599	Trymalium ledifolium	215
611	Xanthorrhoea preissii	054D
637	Xanthosia candida	281

322343
6277672
out of study
01:0

**43 plants with 31 flowering plant taxa
Species richness 72.1%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Big Rock - granite	Clay over laterite /granite	Eastern	Gentle	Open heath of Calothamnus graniticus, Thryptomene saxicola, over low shrubland of Hypocalymma spp.	S333733 E1150505 Plot BRG

Plot BRG - Location: S 333733 - E 1150505. 23rd. September 1998

#	Species	Fam #
645	Acacia lissiocarpa <i>Hakea</i>	163
646	Acacia pulchella var pulchella	163
649	Acacia pulchella var. pulchella	163
644	Acacia trifurcata <i>Hakea</i>	163
668	Anagallis arvensis	293
677	Briza maxima	031
661	Burchardia umbellata	054J
666	Caladenia flava	066
643	Calothamnus graniticus var graniticus	273
641	Calothamnus sanguineus	273
669	Cheilanthes sieberi	007
663	Conostylis setigera	055
638	Cryptandra arbutiflora	215
654	Daviesia divaricata	165
655	Daviesia preissii	165
665	Dryandra lindleyana	090
662	Haemodorum laxum	055
642	Hibbertia hypericoides	226
640	Hypocalymma angustifolium	273
648	Hypocalymma robustum	273
659	Isopogon sphaerocephalus	090
658	Labichea punctata	164
673	Lepidosperma angustatum	032
671	Lepidosperma costale	032
670	Lepidosperma leptostachyum	032
650	Leucopogon capitellatus	288
678	Lolium perenne	031
656	Pelargonium capitatum	167
672	Schoenus brevisetis	032
651	Stypandra glauca	054E
660	Synaphea petiolaris	090
653	Thryptomene saxicola	273
657	Trymalium ledifolium	215
652	Xanthorrhoea gracilis	054D
647	Xanthorrhoea preissii	054D

*Some as previous
Big Rock west*

*out of study
area*

**31 plants with 23 flowering plant taxa
Species richness 74.2%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Headwater - Area B Rosneath Farm	Clay over laterite		Flat	Low open forest of Eucalyptus marginata, E. calophylla over tall open shrubland of Banksia grandis, over Xanthorrhoea preissii over open low shrubland of Acacia lateritica, Daviesia spp.	S333930 E1150505 Plot B140

Plot B14 O - Location: S 333930 - E 1150505. 16th. September 1998

#	Species	Fam #
688	Acacia lateritica	163
711	Astroloma ciliatum	288
681	Banksia grandis	090
696	Bossiaea ornata	165
707	Burchardia umbellata	054J
720	Caladenia flava	066
705	Caladenia latifolia	066
687	Calothamnus sanguineus	273
706	Chamaescilla corymbosa	054F
724	Chorizema rhombeum	165
713	Conostylis setigera	055
684	Daviesia decurrens	165
698	Daviesia preissii	165
712	Drosera menziesii	143
728	Drosera stolonifera	143
691	Dryandra lindleyana	090
679	Eucalyptus calophylla	273
680	Eucalyptus marginata	273
709	Gompholobium knightianum	165
730	Haemodorum stygia	055
693	Hakea amplexicaulis	090
685	Hakea lissocarpha	090
699	Hibbertia cunninghamii	226
689	Hibbertia hypericoides	226
686	Hovea chorizemifolia	165
729	Hovea trisperma	165
690	Hypocalymma robustum	273
732	Hypolaena exsulca	039
723	Isotropis cuneifolia	165
722	Johnsonia lupulina	054F
721	Lechenaultia biloba	0341
714	Logania serpyllifolia	302
701	Lomandra brittanii	054C
708	Loxocarya fasciculata	039
731	Lyginia barbata	039
683	Nuytsia floribunda	097
717	Patersonia occidentalis	060
715	Pentapeltis peltigera	281
682	Persoonia longifolia	090
694	Philothea spicata	175
697	Petrophile striata	090
719	Platysace tenuissima	281
718	Scaevola calliptera	341
725	Stylidium amoenum	343
695	Tetratheca setigera	182
727	Thelymitra crinita	066
716	Thysanotus manglesianus	054F
692	Trymalium ledifolium	215
703	Xanthorrhoea gracilis	054D
704	Xanthorrhoea preissii	054D
710	Xanthosia candida	281

322410
6274068

out of study
area

**51 plants with 43 flowering plant species
Species richness 84.3%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Ocean Farms	Clay over laterite	Northern	Gentle	Forest of Eucalyptus calophylla, E. marginata, over low open woodland of Banksia grandis, Persoonia longifolia, over tall open shrubland of Agonis linearifolia, over open low heath of Calothamnus sanguineus, Adenanthos barbigerus.	S333936 E1150528 Plot C1H

Plot C1H - Location: S 333936 - E 1150528. 16th. September 1998

#	Species	Fam #
748	Acacia lateriticola	163
805	Acacia nervosa	163
755	Acacia pulchella	163
806	Acacia stenoptera	163
746	Adenanthos barbigerus	090
777	Agonis linearifolia	273
766	Agonis parviceps	273
776	Anigozanthos flavidus	055
798	Astroloma drummondii	288
773	Astroloma pallidum	288
736	Banksia grandis	090
763	Billardiera floribunda	152
807	Billardiera variifolia	152
808	Bossiaea linophylla	165
751	Bossiaea ornata	165
779	Burchardia umbellata	054J
809	Calectasia grandiflora	054C
750	Calothamnus sanguineus	273
788	Chamaescilla corymbosa	054F
762	Cheiranthra preissiana	152
802	Chorizema reticulatum	165
804	Comesperma calymega	183
787	Conostylis aculeata	055
756	Conostylis setigera	055
784	Dampiera linearis	341
810	Darwinia citriodora	273
768	Dasyogon hookeri	54C
811	Daviesia cordata	165
783	Daviesia decurrens	165
741	Daviesia divaricata	165
740	Daviesia preissii	165
785	Drosera menziesii	143
753	Dryandra lindleyana	090
734	Eucalyptus calophylla	273
735	Eucalyptus marginata	273
744	Gompholobium ovatum	165
813	Goodenia eatoniana	341
812	Goodenia scaevolina	341
752	Grevillea quercifolia	090
745	Hakea amplexicaulis	090
759	Hibbertia cunninghamii	226
782	Hibbertia hypericoides	226
765	Hovea elliptica	165
801	Hovea trisperma	165
791	Hybanthus debilissimus	243
796	Hypocalymma angustifolium	273
754	Hypocalymma robustum	273
781	Isopogon sphaerocephalus	090
814	Isotoma hypocrateriformis	340
789	Johnsonia lupulina	054F
816	Kennedia australis	165
815	Kennedia carinata	165
820	Kennedia coccinea	165

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out of study
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#	Species	Fam #
774	<i>Kunzea recurva</i>	273
775	<i>Labichea punctata</i>	164
749	<i>Lechenaultia biloba</i>	341
792	<i>Lepidosperma costale</i>	032
817	<i>Leucopogon australis</i>	288
818	<i>Leucopogon capitellatus</i>	288
800	<i>Leucopogon parviflorus</i>	288
819	<i>Leucopogon tenuis</i>	288
764	<i>Leucopogon verticillatus</i>	288
770	<i>Logania serpyllifolia</i>	302
747	<i>Logania vaginalis</i>	302
778	<i>Olearia ciliata</i>	345
797	<i>Patersonia occidentalis</i>	060
757	<i>Patersonia umbrosa</i>	060
771	<i>Pentapeltis peltigera</i>	281
733	<i>Persoonia linearifolia</i>	090
745	<i>Philotheca spicata</i>	175
799	<i>Pimelea rosea</i>	263
767	<i>Pimelea spectabilis</i>	263
761	<i>Pimelea suaveolens</i>	263
794	<i>Pteridium esculentum</i>	011C
758	<i>Pterostylis barbata</i>	066
760	<i>Pterostylis recurva</i>	066
738	<i>Sphaerolobium medium</i>	165
803	<i>Sphenotoma capitatum</i>	288
772	<i>Stylidium schoenoides</i>	343
780	<i>Tetralthea setigera</i>	182
793	<i>Trichocline spathulata</i>	345
737	<i>Tripterococcus brunonis</i>	202
795	<i>Xanthorrhoea gracilis</i>	054D
786	<i>Xanthorrhoea preissii</i>	054D

84 plants with 55 flowering plant taxa
Species richness 65.5%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Light Industrial - Ocean View Creek Line	Grey sand over laterite	Eastern	Gentle	Tall Open Forest of Eucalyptus calophylla, E. marginata, Agonis flexuosa over tall open shrubland of Agonis linearifolia, Mirbelia dilatata, over low shrubland of Calothamnus sanguineus, Cryptandra arbutiflora	S333832 E1150610 Plot C4H

Plot C4H - Location: S 333832 - E 1150610. 16th. September 1998

#	Species	Fam #
828	Acacia divergens	163
829	Acacia obovata	163
827	Acacia pulchella	163
830	Adenanthos barbiger var intermedius	090
823	Agonis flexuosa	273
824	Agonis linearifolia	273
835	Anigozanthos flavidus	055
838	Astroloma ciliatum	288
840	Billardiera floribunda	152
844	Calothamnus sanguineus	273
831	Chorizema ilicifolium	165
837	Conostylis setigera	055
833	Cryptandra arbutiflora	215
822	Eucalyptus calophylla	273
821	Eucalyptus marginata	273
832	Hakea lissocarpa	090
839	Johnsonia lupulina	054F
825	Kunzea ericifolia	273
849	Lepidosperma costale	032
848	Lepidosperma tetraquetum	032
842	Logania serpyllifolia	302
826	Mirbelia dilatata	165
846	Neurachne alopecuroidea	031
847	Pteridium esculentum	11C
834	Scaevola microphylla	341
843	Scaevola calliptera	341
836	Sollya heterophylla	152
841	Synaphea petiolaris	090
845	Tetrarrhena laevis	031

324051
6275885
GPS did not
rec. where it
should be

**29 plants with 23 flowering plant taxa
Species richness 79.3%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Hayes Rd Special Rural	Clay over laterite		Flat	Low woodland of <i>Agonis flexuosa</i> , <i>E. calophylla</i> over shrubland of <i>Hovea trisperma</i> , <i>Hakea amplexicaulis</i> , <i>Mirbelia dilatata</i> over low shrubland of <i>Acacia pulchella</i> , <i>Anigozanthos flavidus</i> over open sedgeland of <i>Mesomelaena stygia</i> , <i>Juncus pallidus</i> .	S334028 E1150604 Plot C10C

Plot C10C - Location: S 334028 - E 1150604. 19th. September 1998

#	Species	Fam #
863	<i>Acacia extensa</i>	163
855	<i>Acacia pulchella</i>	163
857	<i>Adenanthos obovatus</i>	090
850	<i>Agonis flexuosa</i>	273
870	<i>Anigozanthos flavidus</i>	055
872	<i>Banksia grandis</i>	090
886	<i>Billardiera variifolia</i>	152
879	<i>Chorizema ilicifolium</i>	165
878	<i>Conostylis aculeata</i>	055
881	<i>Dampiera linearis</i>	341
875	<i>Daviesia decurrens</i>	165
869	<i>Daviesia preissii</i>	165
882	<i>Drosera menziesii</i>	143
851	<i>Eucalyptus calophylla</i>	273
852	<i>Eucalyptus patens</i>	273
854	<i>Grevillea trifida</i>	090
856	<i>Hakea amplexicaulis</i>	090
861	<i>Hakea lissocarpha</i>	090
860	<i>Hibbertia hypericoides</i>	226
864	<i>Hovea trisperma</i>	165
874	<i>Hypocalymma angustifolium</i>	273
892	<i>Hypolaena exsulca</i>	039
891	<i>Lepidosperma costale</i>	032
890	<i>Lepidosperma tetraquetum</i>	032
862	<i>Leucopogon capitellatus</i>	288
868	<i>Leucopogon propinquus</i>	288
885	<i>Lindsaea linearis</i>	011D
876	<i>Logania vaginalis</i>	302
877	<i>Lomandra trifida</i>	054C
867	<i>Macrozamia riedlei</i>	016A
888	<i>Mesomelaena stygia</i>	032
853	<i>Mirbelia dilatata</i>	165
887	<i>Orthrosanthus laxus</i>	060
880	<i>Patersonia umbrosa</i>	060
871	<i>Persoonia longifolia</i>	090
873	<i>Philothea spicata</i>	175
859	<i>Trymalium floribundum</i>	215
866	<i>Xanthorrhoea preissii</i>	054D

323962
6272309

57/2-1

not a spp.
not cited

**38 plants with 32 flowering plant taxa
Species richness 84.2%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Joyce Clark	Grey sand	Easterly	Flat	Forest of Eucalyptus marginata, E. calophylla, Nuytsia floribunda over tall shrubland of Xanthorrhoea preissii, over open heath of Melaleuca thymoides, Adenanthos meisneri, Macrozamia reidlei.	S333834 E1150603 Plot B8D

Plot B8D - Location: S 333834 - E 1150603. 30th. September 1998

#	Species	Fam #
913	Acacia extensa	163
899	Acacia pulchella	163
919	Acacia stenoptera	163
912	Adenanthos barbiger var intermedius	090
898	Adenanthos meisneri	090
896	Agonis flexuosa	273
900	Allocasuarina huegeliana	070
926	Amphipogon turbinatus	031
951	Anigozanthos manglesii	055
907	Astroloma ciliatum	288
904	Bossiaea eriocarpa	165
921	Briza maxima	031
950	Briza minor	031
923	Bromus diandrus	031
929	Burchardia umbellata	054J
947	Caesia parviflora	54F
938	Caladenia attigens ssp attigens	066
936	Caladenia flava	066
937	Caladenia splendens	066
906	Calothamnus sanguineus	273
918	Calytrix flavescens	273
940	Chamaescilla corymbosa	054F
917	Conostylis aculeata	055
916	Conostylis setigera	055
915	Dampiera linearis	341
942	<u>Diuris splendens</u>	066
930	Drosera menziesii	143
893	Eucalyptus calophylla	273
895	Eucalyptus marginata	273
943	Gompholobium knightianum	165
928	Gompholobium scabra	165
935	Gompholobium tomentosum	165
910	Hibbertia hypericoides	226
908	Hypocalymma robustum	273
934	Isotropis cuneifolia	165
901	Jacksonia furcellata	165
946	Lagenifera heugelii	345
914	Leucopogon propinquus	288
922	Lolium perenne	031
924	Loxocarya flexuosa	039
925	Lyginia barbata	039
911	Macrozamia reidlei	016A
902	Melaleuca thymoides	273
939	Mesomelaena stygia	032
894	Nuytsia floribunda	097
932	Patersonia occidentalis	060
933	Patersonia umbrosa	060
909	Philotheca spicata	175
948	Platysace tenuissima	281
905	Stirlingia latifolia	090
949	Stylidium diversifolium	343
927	Thysanotus manglesianus	054F
897	Xanthorrhoea preissii	054D
945	Xanthosia candida	281
941	Zantedeschia aethiopica	035
	54 plants with 44 flowering plant taxa	Species richness 8

Not used -
not entered

323872
6275821

71/1-3

Site	Soil	Aspect	Slope	Vegetation Description	Location
Rosneath Farm - Creek	Clay-loam	Easterly	Gentle	Forest of Melaleuca preissii, Eucalyptus rudis, E. calophylla, over tall shrubland of Agonis linearifolia, Xanthorrhoea preissii, Acacia divergens over herbland of Scaevola sp over sedgeland of Lepidosperma spp.	S333882 E1150422 Plot B 12N

Plot B12N - Location: S 333852 - E 1150422. 7th October 1998

#	Species	Fam #
961	Acacia divergens	163
957	Agonis flexuosa	273
955	Agonis linearifolia	273
966	Anigozanthos flavidus	055
954	Callystachys lanceolata	
969	Cheiranthera preissiana	152
958	Eucalyptus calophylla	273
956	Eucalyptus rudis	273
965	Hovea trisperma	165
976	Juncus pallidus	052
979	Lepidosperma costale	032
978	Lepidosperma longitudinale	032
977	Lepidosperma tetraquetum	032
974	Lomandra nigricans	054C
960	Melaleuca acerosa	273
953	Melaleuca preissii	273
971	Opercularia hispidula	331
975	Orobanche minor	320
952	Paraserianthes lophantha	163
970	Scaevola microphylla	341
973	Stackhousia monogyna	202
962	Thomasia macrocalyx	223
959	Viminaria juncea	165
963	Xanthorrhoea preissii	054D

321280
6275218

out of study
area

**24 plants with 19 species of flowering plant taxa
Species richness 79.2%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
R. Clarke - Block Q	Grey sand	South-eastern	Gentle	Eucalyptus marginata, E. calophylla with an underlying storey of Banksia and Allocasuarinas, with an understory of Hibbertia's, Hoveas and associated herbs	S333844 E1150432 Plot B10p

Plot B10P - Location: S 3338444 - E 1150432. 7th. October 1998

#	Species	Fam #
990	Acacia myrtifolia	163
988	Acacia pulchella var. pulchella	163
997	Acacia stenoptera	163
985	Agonis flexuosa	273
983	Allocasuarina fraseriana	070
984	Banksia grandis	090
1014	Beyeria cinerea	185
993	Bossiaea ornata	165
1002	Burchardia multiflora	054J
1025	Caladenia attigens	066
1015	Caladenia flava	066
1018	Chamaescilla corymbosa	054F
1009	Conostylis aculeata	055
1003	Craspedia variabilis	345
991	Daviesia preissii	165
1010	Drosera menziesii	143
1011	Drosera pallida	143
981	Eucalyptus calophylla	273
982	Eucalyptus marginata	273
1006	Gompholobium knightianum	165
989	Hakea amplexicaulis	090
1012	Hibbertia cunninghamii	226
995	Hibbertia hypericoides	226
996	Hibbertia racemosa	226
992	Hovea chorizemifolia	165
1024	Hovea stricta	165
1019	Lagenifera heugelli	345
1001	Lechenaultia biloba	034I
1027	Lepidosperma longitudinale	032
1013	Lindsaea linearis	011D
1007	Lomandra preissii	054C
1008	Loxocarya flexuosa	039
1026	Mesomelaena stygia	032
987	Nuytsia floribunda	097
1000	Patersonia pygmaea	060
994	Pimelea preissii	263
1004	Platysace tenuissima	281
1021	Stylidium brunonianum	343
1017	Stylidium schoenoides	343
999	Tetraria octandra	032
1020	Thysanotus manglesianus	054F
1016	Trachymene pilosa	281
1005	Trichocline spathulata	345
986	Xanthorrhoea preissii	054D

321533
6275469

out of study area

**44 plants with 35 flowering plant taxa
Species richness 79.6%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
The Lakes Golf course - Caves Rd	Grey sand over clay	North esaterly	Flat	Open Forest of Eucalyptus calophylla, E. rudis, Nuytsia floribunda with a degraded cover. (ex farm)	S E Plot LFR

Plot LFR - Location:

31st. August 1998

#	Species	Fam #
1042	Acacia littorea	163
1036	Acacia myrtifolia	163
1038	Acacia pulchella	163
1031	Agonis flexuosa	273
1043	Bromus catharticus	031
1032	Casuarina obesa	070
1045	Cotula coronopifolia	345
1033	Eucalyptus calophylla	273
1029	Eucalyptus rudis	273
1040	Hakea varia	090
1037	Jacksonia furcellata	165
1046	Juncus pallidus	052
1048	Luzula meridionalis	052
1030	Melaleuca raphiophylla	273
1034	Nuytsia floribunda	097
1041	Solanum symonii	315
1035	Viminaria juncea	165
1039	Xanthorrhoea preissii	054D

18 plants with 15 flowering plant taxa
Species richness 83.3%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Rosneath Farm -	Clay over laterite	Northern	Gentle-steep	Open forest of Eucalyptus marginata, E. calophylla, over shrubland of Acacia pulchella, Hakea amplexicaulis, Xanthorrhoea preissii.	S333913 E1150458 Plot B12M

Plot B12M - Location S 333913 - E 1150458. 7th. October 1998

#	Species	Fam #
1057	Acacia myrtifolia	163
1055	Acacia pulchella	163
1081	Agrostocrinum scabrum	054F
1103	Astroloma drummondii	288
1104	Brachycome iberidifolia	345
1065	Briza minor	031
1067	Burchardia umbellata	054J
1089	Caladenia flava	066
1090	Caladenia splendens	066
1064	Calothamnus sanguineus	273
1070	Chamaescilla corymbosa	054F
1106	Chorizema rhombeum	165
1102	Comesperma ciliatum	183
1076	Conostylis setigera	055
1083	Drosera pallida	143
1100	Dryandra binpinnatifida	090
1107	Dryandra lindleyana	090
1063	Eriostemon spicatus	175
1049	Eucalyptus calophylla	273
1050	Eucalyptus marginata	273
1101	Gompholobium ovatum	165
1053	Hakea amplexicaulis	090
1054	Hakea lissocarpha	090
1059	Hibbertia cunninghamii	226
1058	Hibbertia hypericoides	226
1069	Hovea chorizemifolia	165
1062	Hovea stricta	165
1078	Hybanthus debilissimus	243
1056	Hypocalymma robustum	273
1093	Juncus pallidus	052
1075	Labichea punctata	164
1087	Lagenifera heugelii	345
1080	Lechenaultia biloba	341
1094	Lepidosperma costale	032
1095	Lepidosperma longitudinale	032
1077	Logania serpyllifolia	302
1085	Loxocarya flexuosa	039
1096	Mesomelaena stygia	032
1073	Opercularia echinocephala	331
1105	Patersonia babianoides	060
1068	Pentapeltis peltigera	281
1051	Persoonia longifolia	090
1063	Philothea spicata	175
1061	Pimelea preissii	263
1060	Pimelea suaveolens	263
1074	Platysace tenuissima	281
1086	Scaevola striata	341
1084	Stylidium amoenum var amoenum	343
1082	Stylidium schoenoides	343
1066	Tetrarrhena laevis	031
1079	Tetratheca hirsuta	182
1072	Trichocline spathulata	345
1052	Xanthorrhoea preissii	054D
1088	Xanthosia candida	281

322270
6274588

out of study
area

54 plants with 43 flowering plant taxa
Species richness 79.6%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Burt's Block	Grey sand	Eastern	Gentle	Low open woodland of <i>Allocasuarina fraseriana</i> , <i>Agonis flexuosa</i> , <i>Banksia attenuata</i> , <i>Banksia illicifolia</i>	S333833 E1150552 Plot B7E

Plot B7E - Location: S 3333833 - E 1150552. 14th. October 1998

#	Species	Fam #
1116	<i>Acacia pulchella</i> var. <i>pulchella</i>	163
1110	<i>Agonis flexuosa</i>	273
1112	<i>Allocasuarina fraseriana</i>	070
1142	<i>Amphipogon turbinatus</i>	031
1108	<i>Banksia attenuata</i>	090
1109	<i>Banksia illicifolia</i>	090
1143	<i>Bromus madritensis</i>	031
1125	<i>Burchardia umbellata</i>	054J
1138	<i>Caesia parviflora</i>	054F
1133	<i>Caladenia attigens</i>	066
1128	<i>Caladenia flava</i>	066
1134	<i>Drosera glanduligera</i>	143
1130	<i>Drosera menziesii</i>	143
1126	<i>Elythranthera brunonis</i>	066
1113	<i>Eucalyptus calophylla</i>	273
1121	<i>Gompholobium ovatum</i>	165
1122	<i>Gompholobium tomentosum</i>	165
1124	<i>Hemiandra pungens</i>	313
1119	<i>Hibbertia cuneiformis</i>	226
1120	<i>Hibbertia cunninghamii</i>	226
1123	<i>Hovea stricta</i>	165
1118	<i>Jacksonia furcellata</i>	165
1129	<i>Lyperanthus serratus</i>	066
1117	<i>Macrozamia riedlei</i>	016A
1111	<i>Nuytsia floribunda</i>	097
1139	<i>Stackhousia monogyna</i>	202
1131	<i>Stylidium diversifolium</i>	343
1137	<i>Stylidium petiolare</i>	343
1115	<i>Xylomelum angustifolium</i>	090
1114	<i>Xylomelum occidentale</i>	090

323588

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70/17

Range extension

**30 plants with 23 flowering plant taxa
Species richness 76.7%**

Site	Soil	Aspect	Slope	Vegetation Description	Location
Summerville	Clay over laterite and granite	North - eastern	gentle	Open forest of Eucalyptus marginata, E. calophylla over tall open shrubland of Hakea spp. Persoonia longifolia, over open low heath of Adenanthos barbigerus, Hibbertia hypericoides, Calothamnus meisnerii	S334034 E1150532 Plot C10 F2

Plot C10 F2 - Location: S 3340434 - E 1150532. 9th. September 1998

#	Species	Fam #
1160	Acacia extensa	163
1161	Acacia nervosa	163
1156	Acacia pulchella var. pulchella	163
1176	Adenanthos barbiger var intermedius	090
1168	Astroloma ciliatum	288
1163	Bossiaea ornata	165
1169	Burchardia umbellata	054J
1157	Calothamnus meisneri	273
1182	Chorizema reticulatum	165
1175	Conostylis setigera	055
1183	Cryptandra arbutiflora	215
1162	Daviesia divaricata	165
1178	Daviesia preissii	165
1179	Drosera menziesii	143
1146	Eucalyptus calophylla	273
1145	Eucalyptus marginata	273
1167	Grevillea quercifolia	090
1148	Hakea amplexicaulis	090
1147	Hakea lissocarpa	090
1173	Hibbertia cunninghamii	226
1150	Hibbertia hypericoides	226
1172	Hibbertia quadricolor	226
1171	Hovea chorizemifolia	165
1158	Hypocalymma robustum	273
1154	Isopogon sphaerocephalus	090
1186	Lepidosperma leptostachyum	032
1159	Leucopogon parviceps	288
1170	Logania serphyllifolia ssp angustifolia	302
1174	Loxocarya fasciculata	039
1153	Mirbelia dilatata	165
1164	Olearia ciliata	345
1166	Orthrosanthus laxus	060
1180	Pentapeltis peltigera	281
1155	Persoonia longifolia	090
1161	Petrophile striata	090
1185	Platysace tenuissima	281
1184	Stylidium bulbiferum	343
1187	Tetraria octandra	032
1181	Tetratheca setigera	182
1177	Xanthorrhoea gracilis	054D
1149	Xanthorrhoea preissii	054D

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out of study
area

41 plants with 33 flowering plant taxa
Species richness 80.5%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Burt's Farm	Grey sand	Easterly	Flat	Open Forest of Eucalyptus calophylla, E. marginata over low open woodland of Banksia grandis, Xylomelum occidentale, over open shrubland of Xanthorrhoea preissii, Calothamnus sanguineus, over low shrubland of Acacia spp., Hakea amplexicaulis	S333821 E1150552 Plot B6G

Plot B6G - Location: S 333821 - E 1150552. 14th. October 1998

#	Species	Fam #
1195	Acacia lateritica	163
1208	Acacia littorea	163
1202	Acacia myrtifolia	163
1217	Acacia pulchella var. pulchella	163
1192	Agonis flexuosa	273
1229	Agrostocrinum scabrum	054F
1190	Banksia grandis	090
1211	Bossiaea ornata	165
1228	Burchardia umbellata	054J
1227	Caesia parviflora	054F
1236	Caladenia ferruginea	066
1240	Caladenia flava	066
1241	Caladenia heugelli	066
1204	Calothamnus sanguineus	273
1218	Chorizema rhombeum	165
1222	Comesperma ciliatum	183
1235	Comesperma virgatum	183
1233	Conostylis setigera	055
1207	Daviesia cordata	165
1220	Diuris corymbosa	066
1247	Drosera glanduligera	143
1200	Drosera menziesii	143
1248	Drosera pallida	143
1189	Eucalyptus calophylla	273
1188	Eucalyptus marginata	273
1212	Gompholobium knightianum	165
1198	Gompholobium ovatum	165
1219	Gompholobium tomentosum	165
1191	Hakea amplexicaulis	090
1253	Hardenbergia comptoniana	165
1197	Hibbertia hypericoides	226
1201	Hovea chorizemifolia	165
1210	Hypocalymma robustum	273
1230	Johnsonia lupulina	054F
1245	Labichea punctata	164
1213	Lechenaultia biloba	341
1252	Lepidosperma costale	032
1251	Lepidosperma longitudinale	032
1224	Logania serpyllifolia	302
1237	Loxocarya flexuosa	039
1203	Macrozamia riedlei	016A
1249	Monadenia bracteata	066
1250	Neurachne alopecuroidea	031
1223	Opercularia echinocephala	331
1205	Opercularia hispidula	331
1206	Patersonia occidentalis	060
1231	Pentapeltis peltigera	281
1189	Philothea spicata	175
1215	Pimelea preissii	263
1199	Platysace tenuissima	281
1234	Pterostylis barbata	066
1221	Scaevola calliptera	341
1216	Sphaerolobium medium	165
1225	Stylidium amoenum var amoenum	343

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#	Species	Fam #
1243	<i>Stylidium petiolare</i>	343
1242	<i>Stylidium schoenoides</i>	343
1232	<i>Tetrateca setigera</i>	182
1246	<i>Thelymitra crinita</i>	066
1214	<i>Thysanotus manglesianus</i>	054F
1196	<i>Xanthorrhoea gracilis</i>	054D
1194	<i>Xanthorrhoea preissii</i>	054D
1226	<i>Xanthosia candida</i>	281
1193	<i>Xylomelum occidentale</i>	090

63 plants with 47 flowering plant taxa
Species richness 74.6%

Site	Soil	Aspect	Slope	Vegetation Description	Location
Summerville	Clay over laterite	North-eastern	gentle	Forest of Eucalyptus marginata, E. calophylla over tall open shrubland of Hakea amplexicaulis over open shrubland of Bossiaea aquifolium, Xanthorrhoea preissii, over Herbland of Hibbertia spp. Patersonia spp.	S334034 E1150532 Plot C10 F1

Plot C10 F1 - Location: S 334034 - E 1150532. 9th. September 1998

#	Species	Fam #
1271	Acacia divergens	163
1279	Acacia extensa	163
1272	Acacia myrtifolia	163
1262	Adenanthos barbiger var intermedius	090
1298	Astroloma ciliatum	288
1268	Bossiaea aquifolium	165
1278	Bossiaea ornata	165
1303	Burchardia umbellata	054J
1263	Calothamnus sanguineus	273
1312	Chamaescilla corymbosa	054F
1314	Chorizema rhombeum	165
1296	Conostylis setigera	055
1310	Dampiera linearis	341
1276	Daviesia cordata	165
1285	Daviesia decurrens	165
1267	Daviesia divaricata	165
1293	Dryandra lindleyana	090
1255	Eucalyptus calophylla	273
1254	Eucalyptus marginata	273
1280	Gompholobium knightianum	165
1260	Grevillea triloba	090
1257	Hakea amplexicaulis	090
1270	Hakea lissocarpha	090
1291	Hibbertia hypericoides	226
1290	Hibbertia quadricolor	226
1300	Hovea chorizemifolia	165
1269	Hovea elliptica	165
1282	Hovea trisperma	165
1295	Hypocalymma robustum	273
1264	Isopogon sphaerocephalus	90
1287	Kennedia carinata	165
1299	Kennedia coccinea	165
1274	Kunzea glabrescens	273
1286	Lagenifera heugelii	345
1292	Lechenaultia biloba	341
1316	Lepidosperma leptostachyum	032
1301	Leucopogon capitellatus	288
1294	Logania serphyllifolia var angustifolia	302
1313	Lomandra nigricans	054C
1273	Macrozamia riedlei	016A
1315	Mesomelaena stygia	032
1259	Mirbelia dilatata	165
1309	Opercularia echinocephala	331
1307	Orthrosanthus laxus	060
1306	Patersonia occidentalis	060
1302	Patersonia umbrosa	060
1283	Pentapeltis setigera	281
1256	Persoonia longifolia	090
1281	Philothea spicata	175
1275	Pimelea sp. imbricata	263
1277	Pimelea suaveolens	263
1289	Platysace tenuissima	281
1304	Scaevola striata	341
1311	Sollya heterophylla	152
1265	Styphelia tenuiflora	288
1308	Synaphea gracillima	090

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out of study
area

#	Species	Fam #
1288	Synaphea petiolaris	090
1297	Tetralthea setigera	182
1284	Trymalium ledifolium	215
1266	Xanthorrhoea gracilis	054D
1258	Xanthorrhoea preissii	054D

61 plants with 47 flowering plants
Species richness 77.1%

Toby Inlet Catchment

Species Abundance

1 Record = Rare

2 - 5 Records = Uncommon

> 5 Records = Common

Species	Family Abundance		Mean %
	#	29 Sites	
<i>Acacia cochlearis</i>	163	Rare	03%
<i>Acacia divergens</i>	163	Uncommon	14%
<i>Acacia extensa</i>	163	Common	52%
<i>Acacia lasiocarpa</i>	163	Rare	03%
<i>Acacia lateriticola</i> "glabrous variant"	163	Uncommon	17%
<i>Acacia littorea</i>	163	Uncommon	07%
<i>Acacia myrtifolia</i>	163	Common	21%
<i>Acacia nervosa</i>	163	Uncommon	10%
<i>Acacia obovata</i>	163	Uncommon	17%
<i>Acacia pulchella</i>	163	Common	59%
<i>Acacia pulchella</i> var. <i>pulchella</i>	163	Common	24%
<i>Acacia stenoptera</i>	163	Common	21%
<i>Acacia trifurcata</i>	163	Rare	03%
<i>Adenanthos meisneri</i>	090	Common	21%
<i>Adenanthos barbiger</i> var. <i>intermedius</i>	090	Common	52%
<i>Agonis flexuosa</i>	273	Common	57%
<i>Agonis linearifolia</i>	273	Uncommon	14%
<i>Agonis parviceps</i>	273	Uncommon	07%
<i>Agrostocrinum stypanroides</i>	054F	Uncommon	07%
<i>Allocauarina fraseriana</i>	070	Common	31%
<i>Allocauarina huegeliana</i>	070	Uncommon	07%
<i>Allocauarina humilis</i>	070	Uncommon	07%
<i>Amphipogon turbinatus</i>	031	Uncommon	10%
<i>Anagalis arvensis</i>	293	Rare	03%
<i>Andersonia caerulea</i>	188	Uncommon	07%
<i>Anigozanthos flavidus</i>	055	Uncommon	17%
<i>Anigozanthos manglesii</i>	055	Common	21%
<i>Anigozanthos viridis</i>	055	Rare	03%
<i>Astartea fascicularis</i>	273	Rare	03%
<i>Astroloma ciliatum</i>	288	Common	31%
<i>Astroloma drummondii</i>	288	Uncommon	07%
<i>Astroloma pallidum</i>	288	Uncommon	07%
<i>Baeckea camphorosmae</i>	273	Rare	03%
<i>Banksia attenuata</i>	090	Uncommon	07%
<i>Banksia grandis</i>	090	Common	48%
<i>Banksia illicifolia</i>	090	Rare	03%
<i>Baumea articulata</i>	032	Rare	03%
<i>Beaufortia sparsa</i>	273	Rare	03%
<i>Beyeria viscosa</i>	185	Rare	03%
<i>Billardiera candida</i>	152	Rare	03%
<i>Billardiera floribunda</i>	152	Uncommon	07%
<i>Billardiera variifolia</i>	152	Uncommon	10%
<i>Boronia tenuis</i>	175	Rare	03%
<i>Bossiaea aquifolium</i>	165	Uncommon	09%
<i>Bossiaea eriocarpa</i>	165	Rare	03%
<i>Bossiaea linophylla</i>	165	Uncommon	10%
<i>Bossiaea ornata</i>	165	Common	45%
<i>Brachycome iberidifolia</i>	345	Rare	03%
<i>Pteridium esculentum</i>	011C	Rare	03%
<i>Briza maxima</i>	031	Uncommon	07%

Bromus ?catharticus	031	Rare	03%
Bromus ?madritensis	031	Uncommon	17%
Bromus diandrus	031	Rare	03%
Burchardia multiflora	054J	Uncommon	07%
Burchardia umbellata	054J	Common	59%
Burtonia (Gompholobium) scabra	165	Uncommon	03%
Caesia parviflora	054F	Uncommon	10%
Caladenia attigens	066	Uncommon	07%
Caladenia attigens ssp attigens	066	Rare	03%
Caladenia ferruginaea	066	Rare	03%
Caladenia flava	066	Common	28%
Caladenia heugelli	066	Rare	03%
Caladenia latifolia	066	Rare	03%
Caladenia splendens	066	Uncommon	07%
Calectasia grandiflora	054C	Rare	03%
Callystachys lanceolata		Rare	03%
Calothamnus graniticus ?graniticus	273	Rare	03%
Calothamnus sanguineus	273	Rare	57%
Calytrix flavescens	273	Uncommon	07%
Cassytha racemosa	131	Rare	03%
Casuarina obesa	070	Rare	03%
Chamaescilla corymbosa	054F	Common	45%
Cheilanthes sieberi	007	Uncommon	17%
Cheiranthra preissiana var planifolia	152	Uncommon	07%
Chorizema aciculare	165	Rare	03%
Chorizema ilicifolium	165	Uncommon	10%
Chorizandra enodis	165	Common	41%
Chorizema reticulatum	165	Uncommon	07%
Chorizema rhombeum	165	Common	21%
Comesperma calymega	183	Rare	03%
Comesperma ciliatum	183	Uncommon	14%
Comesperma virgatum	183	Uncommon	07%
Conostephium pendulum	288	Rare	03%
Conostylis aculeata	055	Common	24%
Conostylis setigera ssp setigera	055	Common	55%
Cotula coronopifolia	345	Rare	03%
Craspedia variabilis	345	Rare	03%
Cryptandra arbutiflora	215	Uncommon	14%
Dampiera lindleyi	341	Rare	03%
Dampiera linearis	341	Common	28%
Darwinia citriodora	273	Uncommon	07%
Dasypogon bromelifolius	054C	Uncommon	14%
Dasypogon hookeri	054C	Uncommon	10%
Daviesia incrassata	165	Uncommon	07%
Daviesia cordata	165	Uncommon	10%
Daviesia decurrens	165	Common	24%
Daviesia divaricata	165	Uncommon	17%
Daviesia preissii	165	Common	24%
Daviesia incrassata	165	Common	07%
Diuris corymbosa	066	Rare	03%
Dodonaea ceratocarpa	207	Rare	03%
Drosera glanduligera	143	Uncommon	07%
Drosera menziesii	143	Common	62%
Drosera pallida	143	Uncommon	14%
Drosera stolonifera	143	Uncommon	14%
Dryandra bimpinnatifida	090	Uncommon	17%
Dryandra lindleyana ssp lindleyana var	090	Common	24%

<i>Dryandra lindleyana</i> var. <i>lindleyana</i>	090	Uncommon	07%
<i>Dryandra sessilis</i>	090	Rare	03%
<i>Ehrharta calycina</i>	031	Rare	03%
<i>Elythranthera brunonis</i>	66	Uncommon	07%
<i>Eremaea pauciflora</i>	273	Uncommon	07%
<i>Eucalyptus calophylla</i>	273	Common	79%
<i>Eucalyptus marginata</i>	273	Common	62%
<i>Eucalyptus patens</i>	273	Uncommon	10%
<i>Eucalyptus rudis</i> ssp. <i>rudis</i>	273	Uncommon	07%
<i>Gompholobium conferta</i>	165	Rare	03%
<i>Gompholobium knightianum</i>	165	Common	24%
<i>Gompholobium ovatum</i>	165	Uncommon	14%
<i>Gompholobium scabrum</i>	165	Uncommon	17%
<i>Gompholobium tomentosum</i>	165	Uncommon	10%
<i>Goodenia eatoniana</i>	341	Rare	03%
<i>Grevillea quercifolia</i>	090	Common	21%
<i>Grevillea trifida</i>	390	Rare	03%
<i>Grevillea triloba</i>	090	Rare	03%
<i>Hakea amplexicaulis</i>	090	Common	69%
<i>Hakea lissocarpa</i>	090	Common	45%
<i>Hakea trifurcata</i>	090	Rare	03%
<i>Hakea varia</i>	090	Rare	03%
<i>Hardenbergia comptoniana</i>	165	Uncommon	14%
<i>Hemiandra pungens</i>	313	Rare	03%
<i>Hemigenia podalyrina</i>	313	Rare	03%
<i>Hibbertia quadricolor</i>	226	Rare	03%
<i>Hibbertia cuneiformis</i>	226	Uncommon	07%
<i>Hibbertia cunninghamii</i>	226	Common	41%
<i>Hibbertia hypericoides</i>	226	Common	79%
<i>Hibbertia quadricolor</i>	226	Uncommon	07%
<i>Hibbertia racemosa</i>	226	Uncommon	10%
<i>Hovea chorizemifolia</i>	165	Common	55%
<i>Hovea elliptica</i>	165	Uncommon	11%
<i>Hovea trisperma</i>	165	Common	35%
<i>Hypocalymma angustifolium</i>	273	Common	24%
<i>Hypocalymma robustum</i>	273	Common	79%
<i>Hypolaena exsulca</i>	039	Uncommon	07%
<i>Idsopogon sphaerocephalus</i>	090	Common	28%
<i>Isotoma hypocrateriformis</i>	340	Rare	03%
<i>Isotropis cuneifolia</i>	165	Uncommon	10%
<i>Jacksonia alata</i>	165	Rare	03%
<i>Jacksonia furcellata</i>	165	Uncommon	17%
<i>Jacksonia sternbergiana</i>	165	Rare	03%
<i>Johnsonia lupulina</i>	054F	Uncommon	14%
<i>Juncus pallidus</i>	052	Uncommon	14%
<i>Kennedia carinata</i>	165	Uncommon	10%
<i>Kennedia coccinea</i>	165	Common	21%
<i>Kennedia prostrata</i>	165	Uncommon	07%
<i>Kingia australis</i>	054C	Uncommon	10%
<i>Kunzea glabrescens</i>	273	Uncommon	24%
<i>Kunzea rostrata</i>	273	Rare	03%
<i>Labichea punctata</i>	164	Common	21%
<i>Lagenophora heugelii</i>	345	Uncommon	14%
<i>Lechenaultia biloba</i>	341	Common	28%
<i>Lepidosperma costale</i>	032	Common	41%
<i>Lepidosperma leptostachyum</i>	032	Common	24%
<i>Lepidosperma longitudinale</i>	032	Common	21%

<i>Lepidosperma tetraquetum</i>	032	Uncommon	10%
<i>Leucopogon parviceps</i>	288	Rare	03%
<i>Leucopogon australis</i>	288	Rare	03%
<i>Leucopogon capitellatus</i>	288	Common	24%
<i>Leucopogon parviflorus</i>	288	Common	21%
<i>Leucopogon propinquus</i>	288	Uncommon	14%
<i>Leucopogon elatior</i>	288	Rare	03%
<i>Leucopogon tenuis</i>	288	Uncommon	07%
<i>Leucopogon verticillatus</i>	288	Uncommon	10%
<i>Lindsaea linearis</i>	011D	Uncommon	14%
<i>Logania serphyllifolia</i> ssp <i>angustifolia</i>	302	Common	31%
<i>Logania vaginalis</i>	302	Uncommon	10%
<i>Lolium perenne</i>	031	Uncommon	07%
<i>Lomandra ?nigricans</i>	054C	Rare	03%
<i>Lomandra ?preissii</i>	054C	Rare	03%
<i>Lomandra brittanii</i>	054C	Rare	03%
<i>Lomandra nigricans</i>	054C	Uncommon	07%
<i>Loxocarya fasciculata</i>	039	Common	21%
<i>Loxocarya flexuosa</i>	039	Common	24%
<i>Luzula meridionalis</i>	052	Rare	03%
<i>Lyginia barbata</i>	039	Uncommon	17%
<i>Lyperanthus serratus</i>	060	Rare	03%
<i>Lysinema ciliatum</i>	288	Uncommon	07%
<i>Macrozamia riedlei</i>	016A	Common	34%
<i>Melaleuca systena</i>	273	Uncommon	07%
<i>Melaleuca preissii</i>	273	Rare	03%
<i>Melaleuca rhapsiophylla</i>	273	Rare	03%
<i>Melaleuca trichophylla</i>	273	Rare	03%
<i>Melaleuca thymoides</i>	273	Uncommon	10%
<i>Mesomelaena tetragona</i>	032	Uncommon	07%
<i>Mirbelia dilatata</i>	165	Common	38%
<i>Neurachne alopecuroidea</i>	031	Uncommon	10%
<i>Nuytsia floribunda</i>	031	Common	31%
<i>Olearia ciliata</i>	345	Uncommon	07%
<i>Opercularia echinocephala</i>	331	Uncommon	17%
<i>Opercularia hispidula</i>	331	Uncommon	07%
<i>Opercularia vaginata</i>	331	Rare	03%
<i>Orobanche minor</i>	320	Rare	03%
<i>Orthrosanthus laxus</i>	060	Uncommon	17%
<i>Paraserianthes lophantha</i>	163	Rare	03%
<i>Patersonia babianoides</i>	060	Rare	03%
<i>Patersonia occidentalis</i>	060	Common	38%
<i>Patersonia pygmaea</i>	060	Uncommon	10%
<i>Patersonia umbrosa</i> var <i>xanthina</i>	060	Common	34%
<i>Pelargonium capitatum</i>	167	Rare	03%
<i>Pentapeltis peltigera</i>	281	Common	28%
<i>Pentapeltis setigera</i>	281	Rare	03%
<i>Persoonia elliptica</i>	030	Rare	03%
<i>Persoonia longifolia</i>	090	Common	59%
<i>Pithocarpa pulchella</i>	090	Rare	03%
<i>Petrophile linearis</i>	090	Uncommon	07%
<i>Petrophile striata</i>	090	Uncommon	10%
<i>Philotheca spicata</i>	175	Common	55%
<i>Pimelea argentea</i>	263	Uncommon	07%
<i>Pimelea preissii</i>	263	Uncommon	14%
<i>Pimelea rosea</i> var <i>rosea</i>	263	Uncommon	10%
<i>Pimelea imbricata</i> var <i>piligera</i>	263	Rare	03%

<i>Pimelea spectabilis</i>	263	Uncommon	17%
<i>Pimelea suaveolens</i> ssp <i>sauveolens</i>	263	Uncommon	17%
<i>Piptatherum miliaceum</i> *	031	Rare	03%
<i>Platysace tenuissima</i>	281	Common	28%
<i>Podocarpus drouynianus</i>	017	Rare	03%
<i>Pseudanthus virgatus</i>		Rare	03%
<i>Pteridium esculentum</i>	011C	Uncommon	10%
<i>Pterostylis</i> aff. <i>nana</i>	066	Rare	03%
<i>Pterostylis barbata</i>	066	Uncommon	07%
<i>Pterostylis recurva</i>	066	Rare	03%
<i>Pterostylis vitata</i>	066	Rare	03%
Purple enamel orchid	066	Rare	03%
<i>Rhodanthe ?corymbosa</i>	345	Rare	03%
<i>Rhodanthe citrina</i>	345	Rare	03%
<i>Scaevola microphylla</i>	341	Rare	03%
<i>Scaevola calliptera</i>	341	Common	38%
<i>Solanum symonii</i>	315	Rare	03%
<i>Sollya heterophylla</i>	152	Uncommon	14%
<i>Sphaerolobium medium</i>	165	Uncommon	07%
<i>Sphenotoma capitatum</i>	288	Rare	03%
<i>Spyridium globulosum</i>	215	Rare	03%
<i>Stackhousia monogyna</i>	202	Uncommon	10%
<i>Stirlingia latifolia</i>	030	Uncommon	14%
<i>Stylidium amoenum</i> var <i>amoenum</i>	343	Uncommon	17%
<i>Stylidium striatum</i>	343	Uncommon	07%
<i>Stylidium megocarpum</i>	343	Uncommon	07%
<i>Stylidium diversifolium</i>	343	Uncommon	07%
<i>Stylidium petiolare</i>	343	Uncommon	07%
<i>Stylidium schoenoides</i>	343	Uncommon	17%
<i>Stypandra glauca</i>	054E	Rare	03%
<i>Styphelia tenuiflora</i>	288	Uncommon	07%
<i>Synaphea petiolaris</i>	030	Uncommon	17%
<i>Tetralia capillaris</i>	032	Uncommon	07%
<i>Tetarrhena laevis</i>	031	Uncommon	14%
<i>Tetralthea hirsuta</i>	182	Rare	03%
<i>Tetralthea setigera</i>	182	Common	34%
<i>Thelymitra crinita</i>	066	Uncommon	07%
<i>Thomasia rynchocarpa</i>	223	Rare	03%
<i>Thryptomene saxicola</i>	273	Rare	03%
<i>Thysanotus manglesianus</i>	054F	Uncommon	14%
<i>Trachymene pilosa</i>	281	Rare	03%
<i>Trichocline spathulata</i>	345	Uncommon	14%
<i>Tripterococcus brunonis</i>	202	Rare	03%
<i>Trymalium floribundum</i> ssp <i>trifidum</i>	215	Uncommon	07%
<i>Trymalium ledifolium</i> var <i>rosmarinifolium</i>	215	Uncommon	17%
<i>Viminaria juncea</i>	165	Uncommon	07%
<i>Xanthorrhoea gracilis</i>	054D	Common	38%
<i>Xanthorrhoea preissii</i>	054D	Common	79%
<i>Xanthosia candida</i>	281	Common	21%
<i>Xanthosia heugelii</i>	281	Uncommon	07%
<i>Xylomelum angustifolium</i> (range extension)	090	Rare	03%
<i>Xylomelum occidentale</i>	090	Common	21%
<i>Zantedeschia aethiopica</i>	035	Uncommon	07%

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