DETERMINATION OF ECOLOGICAL WATER REQUIREMENTS FOR WETLAND AND TERRESTRIAL VEGETATION – SOUTHERN BLACKWOOD AND EASTERN SCOTT COASTAL PLAIN.

Baseline Vegetation Monitoring Results & Monitoring Protocol

A Report to the DoW

R. Loomes, R. Froend & M. Bertuch

CEM report no. 2005-07

ECU Joondalup

March 2006

CENTRE *for* ECOSYSTEM MANAGEMENT
EDITH COWAN UNIVERSITY

ECU UNIVERSITY
EDITH COWAN

Table of Contents

Project context

The Department of Water (DoW) is undertaking groundwater allocation planning work in the South West (Bunbury-Augusta) region. As part of the allocation process, the ecological values of the region must be identified and Ecological Water Requirements (EWRs) and Environmental Water Provisions (EWPs) set for groundwater dependent ecosystems.

A range of wetland and terrestrial vegetation mapping, classification and evaluation projects have been undertaken in the south-west in the past. In an attempt to update some of this information a wetland mapping, classification and evaluation project is currently underway. This EWR project will link in with the mapping project, recommending EWRs for identified priority wetlands. The project will also build on recent terrestrial vegetation mapping, selecting possible 'criteria sites' and proposing intermediary EWRs.

This EWR study is one of several being undertaken as input into the Bunbury-Augusta allocation planning work. It is aimed at determining quantitative criteria that, if adhered to, will enable priority wetland ecosystems and terrestrial vegetation to be maintained at a low level of risk. The criteria will be used by the DoW as inputs into groundwater modelling, which will assist in making an assessment of sustainable yield and aid in the determination of EWPs as part of the formal allocation process.

Preliminary EWRs have been proposed for likely groundwater-dependent ecosystems within the study area as part of a broader regional study undertaken by URS (2004). However, the EWRs proposed were generic and it was recognised that site-specific work would be required before the proposed criteria could be confidently used in any allocation planning or assessment work. This EWR study builds on the URS study and establish site-specific water regime criteria for selected wetlands and representative phreatophytic vegetation within the eastern Scott and southern Blackwood area.

This EWR study addressed the following;

1. Identification of phreatophytic vegetation criteria sites.
2. Establishment of wetland and terrestrial vegetation transects and baseline monitoring.
3. Proposal of ecological management objectives.
4. Determination of ecological water requirements.
5. Description of possible impacts due to water level decline.
6. Proposal of monitoring regimes.

The results of baseline monitoring and the proposed monitoring regimes are presented in this report (see Froend and Loomes (2005) for tasks 1-5).

Baseline Vegetation Monitoring

Background

A number of reasons for the implementation of a monitoring program have been identified and include: to characterise variations in responses of ecosystems to natural variability in the environment; to collect baseline data on an ecosystem as part of the inventory process; to record ecological changes occurring as result of specific natural or anthropological events; to measure progress towards set objectives of a management program and; to audit performance of management agencies and land users (Bunn, Boon, Brock, & Schofield, 1997; Finlayson & Mitchell, 1999). All of the above reasons, particularly the latter three, are relevant to the monitoring of wetland and terrestrial vegetation of the Southern Blackwood and Eastern Scott Coastal Plain study area.

In this section the results of base-line monitoring conducted across the transects established at previously identified wetland and terrestrial vegetation criteria sites are presented. Monitoring was undertaken over spring/ summer 2005 to capture the peak flowering period.

Approach

During the spring/ summer vegetation survey, two 5 x 5 m sub-plots were established within each quadrat, and marked with galvanised steel posts for assessment of all understorey plants (Figure 1). Sub-plots were located in the bottom right and top left-hand corners of each 20 x 20 m plot.

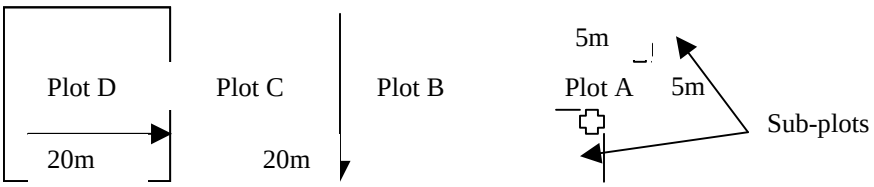

Figure 1: Standard set-up of sub-plots on monitoring transects at wetland and terrestrial sites.

Within each 20 x 20 m quadrat, all trees were tagged at breast height (approx. 1.5 M) with a numbered galvanised tag. For each tree within each plot the species, diameter at tag height and crown condition was recorded. In the case of individual tree with multiple stem, all stems were measured at the same height as the position of the tag or at breast height. In addition to tracking growth and vigour of trees in the future, stem diameters also permit size class analysis of populations. Crown assessments were carried out using a subjective three part scale where a score was recorded for crown density, dead branches and epicormic growth. Using diagrams for comparison, a score was given for each component (9, 7, 5, 3, 1 for crown density and dead branches and 5, 4, 3, 2, 1 for epicormic growth) (Ladd, 1996) and these scores totalled to give a health assessment score for each tree. Tree health was described as poor (1-8), moderate (9-16) or good (17-23). In addition, within each 5 x 5 m plot all species were identified and thier cover estimated using the Domin-Krajina scale of cover and abundance (Kent & Coker, 1992). This technique allows comparison of changes in the relative importance of individual species within each plot over time.

Results

Baseline vegetation monitoring commenced in November 2005 however, due to time constraints monitoring at ten of the 24 sites was completed in January and February 2006. Tables documenting the health and DBH measurements of dominant tress species and the cover and abundance values of all species within monitoring plots are presented in Appendices 1 and 2.

Lake Jasper – South (wetland 1a)

The transect at Lake Jasper south was burnt in the exensive regional bushfires of summer 2004/05. As a result all trees scored a relatively poor health value (11-13, mean 11.6)) during baseline monitoring, despite vigourous resprouting of tree and understorey species across the site (Table 1). Plot A was dominated by large, mature *Banksia littoralis* with a small number of smaller *Melaleuca preissiana* also occurring. The understorey of sub-plot A1 was dominated by *Anigozanthos flavidia* (red kangaroo paw), an unidentified native sedge and two other unidentified species (Appendix 2.1.2). This plot was the most species rich at the site with 25 native species and six exotics recorded. Sub-plot A2 was dominated by *Taxandria inundata*, a large shrub species, with *A. flavidus* and the sedge species, *Lepidosperma longitudinale*. The plot was relatively species poor containing only 13 native species.

Plot B was dominated by small to moderate sized *M. preissiana* and two larger *B. littoralis* of moderate health (11-12, mean 11.2). The understorey of sub-plot B1 was dominated by sedges and small shrubs with a total of 20 native and three exotic species recorded. Sub-plot B2 supported fewer species, with 15 natives and one exotic. The understorey was dominated by *A. flavida* and an unidentified creeper.

Small to moderate sized *B. littoralis* dominated plot C with two small *M. preissiana* also occurring. All trees were of moderate health (11-13, mean 11.5). Young *Agonis flexuosa* were common in the understorey of sub-plot C1 with *A. flavidus* and *Xanthorrhoea brunonis.* Seventeen species, including one exotic, were recorded in the plot. Sub-plot C2 was dominated by an unidentified trailing-herb and *Xanthorrhoea preissii*. It supported 23 native species and one exotic.

The overstorey of Plot D was dominated by two moderate to large, multi-stemmed *M. preissiana* of moderate health (11-12, mean 11.5). Sub-plot D1 comprised young *A. flexuosa*, *Xanthorrhoea brunonis*. and *T. inundata* and 13 other native species. The understorey of sub-plot D2 was dominated by *T. inundata* and an unidentified herb. Tweny native species and two exotics were recorded in the plot.

Table 1: Lake Jasper south - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	25	13	-	23	15	-	17	24	-	15	22
Diameter range[2]	M.p.	6.0 - 7.5			3 - 16.4			3.4 - 8.1			3.6 - 46.4		
	B.l.	24 - 43.2			14.3 - 28.4			<2 - 18.2			-		
Health Mean[3]		11.6			11.2			11.5			11.5		
Health Range		11 - 13			11 - 12			11 - 13			11 - 12		
Density[4]	M.p.	2			7			2			2		
	B.l.	6			2			4			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Lake Jasper – East (wetland 1b)

Although the transect at Lake Jasper East was also burnt in the exensive regional bushfires of summer 2004/05, the trees generally scored higher health values (10-19) than the southern transect due to the later monitoring period (Table 2).

The majority of Plot A was inundated during the February 2006 assessment suggesting that the area would also be underwater for a large part of the year. This was supported by the dominance of *Baumea articulata* and *B. juncea* across the plot (Appendix 2.1.2) with *B. articulata* extending into deeper water beyond the plot. No common wetland trees were recorded in plot A. Other wetland species tolerant of inundation, including *Villarsia parnissifolia* and *Taxandria inundata*, were also recorded in sub-plot A1, while *B. articulata* and *B. juncea* were the only species recorded in sub-plot A2.

Plot B was dominated by small to very large *M. preissiana* with two large *Eucalyptus megacarpa* and a single *B. littoralis*, all of moderate to good health (12-19, mean 13.7). The understorey of sub-plot B1 was dominated by *B. articulata* and *B. juncea* with the large shrubs, *T. inundata* and *Callistachys lanceolata* also recorded. The mid point of plot B represented the transition from mesic to more terrestrial species which was reflected by greater species diversity in sub-plot B2 (Table 2). The understorey of B2 was dominated by the fern *Pteridium esculatum*, with *M. reidlei*, *Opercularia hispidula* and *X. preissii* also common.

Three moderately sized *E. megacarpa* and a single small *B. littoralis*, all of moderate to good health (13-18, mean 15), formed the overstorey of Plot C. *Xanthorrhoea brunonis* dominated the understorey of sub-plot C1 with *P. esculatum* and a number of small shrub and herb species, including *Pultenaea reticulata*, and the sedge *Anarthria prolifera*. The species compostion of sub-plot C2 was similar to C1, dominated by *M. reidlei* and *P. esculatum* with *P. reticulata*.

The overstorey of plot D was dominated by 14 small to moderately sized *Banksia attenuata* and two small to moderately sized *E. megacarpa*, all of moderate to good health (10-19, mean 15.8). *Macrozamia reidleii* and *X. preissii*. dominated the understorey of sub-plot D1 with *X. brunonis* and *A. prolifera* also common. The dominance of these species continued across sub-plot D2.

Table 2: Lake Jasper east - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	9	3		6	16		18	20		19	18
Diameter range[2]	M.p.	-			<2 - 104			-			-		
	B.l.	-			10.3			15.6			-		
	B.a.	-			-			-			<2.0 – 29.8		
	E.mc.	-			43.8 – 79.4			30.9 – 43.1			2.6 – 45.1		
Health Mean[3]		-			13.7			15			15.8		
Health Range		-			12 - 19			13 - 18			10 - 19		
Density[4]	M.p.	-			4			-			-		
	B.l.	-			1			1			-		
	B.a.	-			-			-			14		
	E.mc.	-			2			3			2		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis; B.a. = Banksia attenuata; E.mc. = Eucalyptus megacarpa.*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Jangardup Rd. (wetland 2)

The majority of this transect was also burnt during the 2005 bushfires. Athough vegetation was resprouting vigoursly at the time of monitoring, the first 15m of plot A was inundated to a depth of 0.5 m and remained sparsely covered, with the exception of the dense woody shrubs found on higher ground. The remainder of the plot was dominated by young *Eucalyptus marginata* of moderate health (9-14, mean 12.4) (Table 3). Sub-plot A1 was dominated by the shrub species *Astartea juniperina* and a number of sedges (Appendix 2.1.3). The plot was relatively species poor supporting only 12 shrub and sedge species. The sedge *Anarthria prolifera* dominated sub-plot A2 with shrub species *Pericalymma ellipitcum*, *Taxandria parviceps* and *M. thymoides* also common. This plot supported 24 species, the majority of which were either shrubs or sedges.

Plot B contained a small number of young *E. marginata*, also of moderate health (12-15, mean 13.8). Sub-plot B1 was dominated by *A. prolifera* and other sedge species including *A. scabra* and *Evandra aristata*. A further 25 species were recorded in this plot. *Anarthria scabra* was also the dominant species in sub-plot B2. Shrubs species, including Kunzea recurva were also common along with other sedges. A total of 24 species were recorded in this plot.

A single multi-stemmed *M. preissiana* of poor health occurred in Plot C (8). Sub-plot C1 was also dominated by sedges and shrubs, including *A. prolifera*, *P. ellipitcum* and *K. recurva*. A further 19 species occurred in this plot. *Taxandria parviceps*, *A. scabra*, *K. micrantha* and an *Acacia* sp. were common in C2, where a total of 21 species were recorded.

No trees were recorded in plot D. Sub-plot D1 was dominated by *A. scabra* with a further 24 species, predominately shrubs, noted. *Anarthria scrabra* also dominated D2 with *T. parviceps*. A total of 17 species were recorded in this plot.

Table 3: Jangardup Rd - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	12	24	-	28	24	-	22	21	-	25	17
Diameter range[2]	M.p.	-			-			5 - 13			-		
	E.m.	3.4 - 14.5			<2 - 10			-			-		
Health Mean[3]		12.4			13.8			8			-		
Health Range		9 - 14			12 - 15			8			-		
Density[4]	M.p.	-			-			1			-		
	E.m.	11			5			-			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackpoint Rd (wetland 3)

The majority of plots A and B at this site were inundated to depths of up to 0.5 m at the time of baseline monitoring, as was much of the surrounding area. More than one third of all species recorded across the transect were sedges.

One very large, multi-stemmed *M. preissiana* in good health (19) dominated plot A. Sub-plot A1 was completely inundated and dominated by the shrub species *Taxandria* sp. and *Hakea certophylla* and numerous sedge species. Only 10 species, mostly sedges, were recorded in this plot (Table 4). A2 was more species rich, supporting 24 species, of which *P. ellipitcum*, *H. certophylla* and the sedge *Xyris roycei* were dominant (Appendix 2.1.4).

There were no trees recorded in plot B. *Pericalymma ellipitcum* and *H. certophylla* were dominant in sub-plot B1 along with the sedge species, *Platychorda applanta*. A further nine species were recorded in this plot. The domination of *P. ellipitcum* and *H. certophylla* continued across B2, with sedge, *Mesomelaena tetragona*, also common. Seventeen species were recorded in this plot.

Moderate to large *M. preissiana* of moderate health (7-16, mean 12.4) dominated the extremely dense vegetation on higher ground within plot C. A single *E. marginata* was

also recorded. Sub-plot C1 was dominated by *M. preissiana*, along with the shrub species, *Beaufortia sparsa* and *T. parviceps*, and *A. scabra*. A further 14 species were recorded in this plot. Species richness was higher in C2, which supported 29 species, including dominant shrubs, *P. ellipitcum* and *T. parviceps.*

Numerous small to moderately sized *M. preissiana* of moderate health and two multi-stemmed *E. marginata* in good health (mean 11.5), formed the overstorey of Plot D. Sub-plot D1 is dominated by very dense *A. scabra* and *M. preissiana* with *T. parviceps* and *B. sparsa*. The density of these species has probably prevented others establishing and kept species richness to 13. *Melaleuca preissiana* and *T. parviceps* continue to dominate across D2 however, as they are not as prolific, the total number of species is much higher at 25.

Table 4: Blackpoint Rd - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	10	24	-	12	17	-	17	29	-	13	25
Diameter range[2]	M.p.	7.8 - 35.7			-			5 - 50			<2 - 27.3		
	E.m.	-			-			17			<2 - 12.6		
Health Mean[3]		19			-			12.4			11.5		
Health Range		19			-			7 - 16			7 - 19		
Density[4]	M.p.	1			-			14			17		
	E.m.	-			-			1			2		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Pneumonia Rd (wetland 4)

A significant proportion of vegetation across this transect and the surrounding area was inundated at the time of monitoring, especially in plots C and D. A large number of *M. preissiana* dominated the overstorey of plot A with one small *E. marginata* also recorded. All trees were of moderate health (9-15, mean 14.1) (Table 5). *Pericalymma ellipitcum* was very dominant in sub-plot A1 with *M. preissiana* (Appendix 2.1.5). A further 18 species, mostly sedges and shrubs, were also recorded in this plot. The sedge species, *Desmocladus castanues*, was dominant in A2 with *P. ellipitcum*, a second sedge and *M. preissiana*. A total of 24 species were recorded in this plot.

Small to moderately sized *M. preissiana* of moderate health and two small *B. littoralis*, also of moderate health (13-17, mean 13.7) formed the overstorey in plot B. Sub-plot B1 was dominated by the shrubs *T. linearifolia* and *Hakea ceratophylla* and an unidentified sedge. A further 17 species including a Priority 4 (P4) species, *M. basicephala*, were identified in this plot. *T. linearifolia* continued to dominate across B2 with the herb, *Dampiera trigona* and sedge, *X. roycei*. A total of 23 species were recorded in this plot.

Melaleuca preissiana of small to moderate size and moderate health (11.15, mean 12.7) formed the overstorey in plot C. *P. ellipitcum* was very prolific in C1 with *T. linearifolia* and a sedge species. A further 13 species including the P4 species, *M. basicephala*, were identified in this plot. Sub-plot C2 was also dominated by *P. ellipitcum* and *T. linearifolia*. A total of 29 species were recorded.

Plot D was dominated by a number of small *M. preissiana* of moderate health (11.15, mean 12). *P. ellipitcum* was very domiant in sub-plot D1. The P4 species and another 10 species were recorded. The domination of *P. ellipitcum* continued in D2. A further 26 were noted in this plot.

Table 5: Pneumonia Rd - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	20	24	-	20	23	-	16	29	-	12	27
Diameter range[2]	M.p.	<2 - 15.3			2 - 21			<2 - 22.6			<2 - 12		
	E.m.	<2 - 3.4			-			-			-		
	B.l.	-			<2 - 7			-			-		
Health Mean[3]		14.1			13.7			12.7			12		
Health Range		9 - 15			13 - 17			11 - 15			11 - 15		
Density[4]	M.p.	31			12			12			10		
	E.m.	1			-			-			-		
	B.l.	-			2			-			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis;* E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackpoint/ Fouracres Rd (wetland 5)

Plots C and D on this transect were largely inundated during the monitoring period. The overstorey of Plot A was formed of moderately sized *E. marginata* of poor to moderate health (8-17, mean 11.6) (Table 6). Sub-plot A1 was dominated by *P. ellipitcum* and three sedge species, *A. scabra, A. prolifera* and *M. tetragona* (Appendix 2.1.6). A further 27 species were noted in this species rich plot. *A. scabra* was again dominant in A2 along with *E. marginata* and *T. parviceps*. A total of 29 species were recorded in this plot.

A single small *E. marginata* of moderate health occurred in plot B (15). *P. ellipitcum* was dominant in the understorey of B1 along with *T. parviceps*, *M. tetragona* and *A. prolifera*. A further 25 species were recorded in this plot. *P. ellipitcum, T. parviceps* and *A. prolifera* were also dominant in B2, where a total of 20 species were identified.

Four small to moderately sized *M. preissiana* of poor to moderate health dominated the overstorey of plot C (7-13, mean 9.5). A high proportion of species in the understorey of this plot were sedges. In sub-plot C2 *P. ellipitcum* was again dominant with *A. prolifera*,

Beaufortia sparsa and an unidentified sedge. This species rich plot supported a total of 31 species. C2 was dominated by *P. ellipitcum* and *M. tetragona* with only 10 further species recorded.

Small, multi-stemmed *M preissiana* of poor to moderate health (7.13, mean 10.8), fomed the overstorey in plot D. As with plot C, a high proportion of species in this plot were sedges. *P. ellipitcum* and *X. preissii*. were common in the understorey of D1. Twenty species were recorded in this plot. D2 was dominated by *P. ellipticum, A. proliera, X. preissii* and *B. sparsa.* A further 25 species were identified in this plot.

Table 6: Blackpoint/ Fouracres Rd - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	30	29	-	28	20	-	31	12	-	23	29
Diameter range[2]	M.p.	-			-			5.2 - 46			4.2 - 22.5		
	E.m.	<2 - 41.2			3.1 - 8.6			-			-		
Health Mean[3]		11.6			15			9.5			10.8		
Health Range		8 - 17			15			7 - 13			7 - 13		
Density[4]	M.p.	-			-			4			5		
	E.m.	9			1			-			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackpoint Rd – base of dunes (wetland 6)

Although this site was not inundated during the monitoring period, extensive areas of surface water were noted during winter 2005. Small *M. rhaphiophylla* and *B. littoralis* of poor to good health (5-13, mean 10.8) formed the relatively sparse overstorey in plot A (Table 7). The understorey across sub-plot A1 was fairly dense and dominated by shrubs and sedges including *A. juniperina* and *Hypolaena pubescens*. A total of 22 species were recorded in this sub-plot (Appendix 2.1.7). The composition of the understorey in A2 was similar to A1 however, *T. parvicpes* became dominant with an unidentified sedge species. A further 16 species were recorded in this plot.

A number of *M. rhaphiophylla* and *B. littoralis* saplings of moderate health (13) were noted in plot B. All trees were. The understorey of sub-plot B1 was dominated by *Taxandria linearifolia* and the sedge species *Lepidosperma longitudinale* with a further 22 species, mostly sedges and shrubs, also identified. Species composition in B2 was very similar however, *A. juniperina* became co-dominant in the understorey. Twenty four species were recorded in this plot.

Melaleuca rhaphiophylla saplings and larger individuals dominated plot C along with a number of *B. littoralis* saplings. Trees ranged from moderate to good health (10-18, mean

16.4). The understorey of sub-plot C1 was dominated by *A. juniperina* and *L. longitudinale* with a further 18 species, mostly shrubs and sedges, also recorded. The domination of *L. longitudinale* continued across sub-plot C2 where *T. linearifolia* and numerous sedge and shrub species were also noted. A total of 20 species were recorded.

Small to moderately sized *M. rhaphiophylla* and *B. littoralis* saplings, all of moderate to good health (10-20, mean 14.5), continued to dominate the overstorey across plot D. In the understorey of sub-plot D1, *L. longitudinale* and *T. linearifolia* were again dominant along with the large shrub *M. lateritia*. A further 16 species were recorded. Species composition in D2 was very similar with one less species noted.

Table 7: Blackpoint Rd base of dunes - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	22	18	-	24	24	-	20	20	-	19	18
Diameter range[2]	M.r.	<2 - 15.7			<2			<2 - 35.5			<2 - 35		
	B.l.	<2 - 3.5			<2			<2 - 5			<2 - 6.5		
Health Mean[3]		10.8			13			16.4			14.5		
Health Range		5 - 13			13			10 - 18			10 - 20		
Density[4]	M.r.	11			27			8			7		
	B.l.	2			8			7			3		

[1]Overstorey species – B.l.= *Banksia littoralis;* M.r. = *Melaleuca rhaphiophylla*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackpoint Rd – dunes (wetland 7)

Although the overstorey of this site was recovering well from the 2004/05 bushfires the understorey remained relatively sparse and species poor. The overstorey of Plot A comprised a large number of small to large *M. preissiana* of poor to good health (5-17, mean 13) (Table 8). The understorey of sub-plot A1 was dominated by the shrubs *T. juniperina* and *Eutaxia virgata* and an unidentified sedge (Appendix 2.1.8). A futher 12 species were recorded. Species composition was very similar in A2 with *T. juniperina* and *E. virgata* again dominant in the understorey. Only 13 species were recorded in sub-plot A2.

Six small to large *M. preissiana* of moderate to good (9-18, mean 15.5) health formed the overstorey in plot B. Species poor sub-plots B1 and B2 (12 and 11 species respectively) were also dominated by *T. juniperina* and *E. virgata* along with the large shrub, *Kunzea spathulata.*

The overstorey of plot C comprised small to large *M. preissiana* and a single *B. littoralis* sapling, all of moderate to good health (11-18, mean 15.1). The understorey of sub-plots

C1 and C2 were also species poor (nine and 11 species respectively) with *T. juniperina*, *E. virgata* and *K. spathulata* continuing to dominate.

Three moderately sized *M. preissiana* of moderate to good health (13-18, mean 16), formed the overstorey in plot D. Species composition was similar to that described across the rest of the transect with *E. virgata* and *K. spathulata* again dominant in the understorey of sub-plots D1 and D2. Eleven and seven species were recorded in D1 and D2 respectively.

Table 8: Blackpoint Rd dunes - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	15	13	-	12	11	-	9	11	-	11	7
Diameter range[2]	M.p	2.4 - 44.2			7.7 - 64			6.2 - 33.8			23 - 38.2		
	B.l.	-			-			<2.0			-		
Health Mean[3]		13			15.5			15.1			16		
Health Range		5 - 17			9 - 18			11 - 18			13 - 18		
Density[4]	M.p.	42			6			13			3		
	B.l.	-			-			1			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Darradup Rd – east (wetland 8y)

This site had been burnt within the 12 month period prior to monitoring however, all trees were recovering well and the understorey was re-establishing. Small, multi-stemmed *M. preissiana* of good health (16-18, mean 16.6) formed the overstorey in plot A (Table 9). *Anarthria scabra* was dominant across both sub-plots A1 and A2, with *A. juniperina* also common in A2 (Appendix 2.1.9). Twenty species were recorded in A1 and 23 in A2.

Small to moderate sized *M. preissiana* and small *E. marginata*, all of moderate health (9-16, mean 13.9), were dominant across plot B. *A. scabra* continued to dominate the understorey, with *A. juniperiana* and *M. preissiana* also common in sub-plot B2. Twenty five species were identified in B1 and 24 in B2.

Moderately healthy (9-13, mean 13.2), multi-stemmed *M. preissiana* formed the overstorey in plot C. The shrub species, *Hypocalymma angustifolium*, was dominant in sub-plot C1 with *A. juniperiana*. A further 24 species were identified in this plot. *A. scabra* was dominant in C2 with *M. preissiana*. A total of 27 species were recorded in this plot.

Plot D was dominated by small to moderately sized *M. preissiana* of low to moderate health (7-13, mean 9.5). Sub-plot D1 was dominated by *Dasypogon bromeliifolis* and *H.*

angustifolium and supported a further 17 species. *A. juniperiana* and *H. angustifolium* were common in D2. A total of 24 species were recorded in this plot.

Table 9: Darradup Rd east - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	20	23	-	25	24	-	26	27	-	19	24
Diameter range[2]	M.p.	<2 - 15.3			2.5 - 35.2			3.5 - 27.8			<2 - 43.8		
	E.m.	-			<2 - 9.3			-			-		
Health Mean[3]		16.6			13.9			13.2			9.5		
Health Range		16 –18			9 - 16			9 - 13			7 - 13		
Density[4]	M.p.	7			4			5			8		
	E.m.	-			8			-			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Darradup Rd – west (wetland 8x)

The understorey at this site was generally very dense with the large shrub, *T. parviceps*, the dominant species across the monitoring transect. There were however, very few trees present across the wetland. Two small *M. preissiana* of poor to moderate health (6-10, mean 8) occurred in plot A (Table 10). *T. parviceps* was dominant in sub-plots A1 and A2 with *B. sparsa* also common in A1. A1 supported 26 species and A2, 20 (Appendix 2.1.10).

One small *B. littoralis* in good health (17) and one *M. preissiana* of moderate health (9) formed the sparse overstorey in plot B. *T. parviceps* continues to dominate across sub-plots B1 and B2, with *Evandra aristata*, a sedge, also common in B1 and *D. bromeliifolius* and the large srub, *Homalospermum firmum*, common in B2. Eighteen species were recorded in B1 and 24 in B2.

Two small, unhealthy *M. preissiana* (5) occurred in plot C. *T. parviceps* again dominated the understorey of both sub-plots, with *D. bromeliifolius* and *B. sparsa* also common in C1 and *H. firmum* in C2. C1 supported 20 species, C2, 21.

Small to moderately sized *M. preissiana* of poor to moderate health (7-13, mean 9.6) occurred in plot D. Sub-plot D1 was dominated by *T. parviceps*, with various sedge species and herbs co-dominant in D2. Twenty species were recorded in D1, 22 in D2.

Table 10: Darradup Rd west - summary of original transect data; diameter, health and density of overstorey species.

	Spec.	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	26	20	-	18	24	-	20	21	-	20	22
Diameter range[2]	M.p.	5.8 - 15.4			12			5.5 - 6.6			8.8 - 32.4		
	B.l.	-			3 - 3.5			-			-		
Health Mean[3]		8			13			5			9.6		
Health Range		6 - 10			9 - 17			5			7 - 13		
Density[4]	M.p.	1			1			2			4		
	B.l.	-			1			-			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackwood River Crossing (wetland 9)

The vegetation across the wetland basin at this site was dominated by dense *P. ellipticum* with emergent *M. preissiana* and *B. littoralis*. Due to the density of the *P. ellipticum* the site was very species poor.

Three small to very large *M. preissiana* of moderate to good health (9-17, mean 12.7) formed the overstorey of plot A (Table 11). Sub-plot A1 supported nine species of sedges and shrubs, including *P. ellipticum*. Ten species, of similar composition formed the understorey of A2 (Appendix 2.1.11).

A single multi-stemmed *M. preissiana* of moderate health (14) was recorded in plot B. *P. ellipticum* continued to dominate the understorey in sub-plots B1 and B2, with sedges, shrub and herb species also recorded. Nine species were recorded in B1 and six in B2.

The overstorey of plot C was also formed of one multi-stemmed *M. preissiana* of moderate health (11). *P. ellipticum* was slightly less dense in sub-plot C1 with an unidentified sedge also common. Ten species were recorded in both plots with sedges and shrubs remaining dominant.

No trees were recorded in plot D. *P. ellipticum* and an unidentified sedge continued to be dominant in the understorey of sub-plots D1 and D2, with five and nine species recorded respectively.

Table 11: Blackwood River Crossing - summary of original transect data; diameter, health and density of overstorey species.

	Spec.	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	9	10	-	9	6	-	10	10	-	5	9
Diameter range[2]	M.p.	3.6 - 86.2			10.8 - 46			5 - 10.7			-		
Health Mean[3]		12.7			14			11			-		
Health Range		9 - 17			14			11			-		
Density[4]	M.p.	3			1			1			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Brockman Highway (Milyeanup) (wetland 10)

As the wetland basin at this site was relatively narrow only three plots were established. The vegetation was dominated by very dense shrubs and sedges with *E. rudis* and *B. littoralis* occurring on the wetland fringes.

The overstorey of plot A was dominated by small to moderate *E. rudis* and small *B. littoralis* of poor to moderate health (3-14, mean 10.1) (Table 12). The understorey of sub-plot A1 was dominated by the fern *Pteridium esculentum* with *T. linearifolia* and a number of sedge and shrub species (Appendix 2.1.12). A2 was dominated by *T. linearifolia* and the sedge, *Lepidosperma tetraquetrum* with three other sedge species also very prominent. Seventeen species were recorded in A1 and ten in A2.

No trees were recorded in plot B. Sub-plots B1 and B2 were dominated by *T. linearifolia*, *L. tetraquetrum* and unidentified sedge species. Seven species were noted in B1 and 12 in B2.

Plot C represented the transition from wetland to terrestrial vegetation with the overstorey formed of small to large *Corymbia calophylla* and small to moderately sized *Eucalyptus marginata*. All trees were of poor to moderate health (10-17, mean 12.9). *T. linearifolia* and *A. juniperina* were dominant in the understorey of sub-plot C1, with less mesic species forming the understorey in C2. Twelve species were recorded in C1 and 24 in C2.

Table 12: Brockman Highway - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	17	10	-	7	12	-	12	24
Diameter range[2]	B.l.	<2			-			-		
	E.r.	<2 - 35.7			-			-		
	C.c.	-			-			<2 - 78.8		
	E.m.	-			-			<2 - 14.2		
Health Mean[3]		10.1			-			12.9		
Health Range		3 - 14			-			10 - 17		
Density[4]	B.l.	2			-			-		
	E.r.	14			-			-		
	C.c.	-			-			28		
	E.m.	-			-			10		

[1]Overstorey species –B.l = *Banksia littoralis;* C.c. = *Corymbia calophylla*; E.m. = *Eucalyptus marginata*; E.r. = *Eucalyptus rudis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Stewart Rd Causeway (wetland 11)

This site was burnt during 2004/05 and although vegetation is recovering, it remains relatively sparse. Although there were no trees on the actual transect, a small number of *M. preissiana* and *B. littoralis* to the west of the transect were tagged and recorded as occurring in nearby plots. A priority four species, *Meleleuca basicephala*, was identified on the transect.

Two small to moderately sized *M. preissiana* and a single *B. littoralis* saplings of moderate to good health (10-20, mean 13.7) were associated with plot A (Table 13). The understorey of sub-plots A1 and A2 were dominated by *P. ellipticum, Hakea linearis* and a number of unidentified sedge species (Appendix 2.1.13). Eleven species were recorded in A1 and 10 in A2. *M. basicephala* was recorded in A2.

There were no tree species associated with plot B. The sedge species, *Platychorda applanata,* was dominant in sub-plot A1 with *P. ellipticum* and *H. linearis*. A further nine species were recorded in this plot. *Eutaxia virgata* and *H. linearis* dominated across sub-plot A2 where a total of 6 species were noted.

A single large *M. preissiana* of moderate health (13) was associated with plot C. Sub-plot C1 was dominated by *P. applanata* and *E. virgata* with a further eight species recorded. *P. applanata* continued its dominance across C2, where *P. ellipticum* was also prominent. A total of 11 species were recorded in C2.

A single large *M. preissiana* of moderate health (14) and a single *B. littoralis* sapling in good health (20) were associated with plot D. The understorey of both sub-plots was dominated by *P. ellipticum* with *H. linearis* also common in D1 and *H. ceratophylla* in D2. A total of nine species were recorded in D1 with ten noted in D2.

Table 13: Stewart Rd Causeway - summary of original transect data; diameter, health and density of overstorey species.

	Spec.	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	11	10	-	12	6	-	10	11	-	9	10
Diameter range[2]	M.p.	5.3 - 36			-			44.8			42.2 - 65.5		
	B.l.	<2			-			-			<2		
Health Mean[3]		13.7			-			13			17		
Health Range		10 - 20			-			13			14 - 20		
Density[4]	M.p.	2			-			1			1		
	B.l.	1			-			-			1		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Poison Gully (wetland 12)

Only two plots were established on the transect at Poison Gully due to the shape of the wetland and location of the piezometer and a mand-made sump. A single moderately sized *M. preissiana* of moderate health (9) occurred in plot A. Sub-plot A1 was dominated by *A. scabra* with *Allocasuarina fraseriana* and *T. parviceps* (Appendix 2.1.14). A further 14 species were recorded in this plot. An unidentified sedge was very dominant in A2, restricting the number of species in the plot to seven.

Two small *M. preissiana* of moderate to good health (13-18) and one *B. littoralis* of good health (17) were recorded in plot B. The unidentified sedge species from A2 was also very dominant in sub-plot B1, with *B. sparsa* and *Callistemon glaucus* dominant in B2. Ten species were recorded in B1 and eleven in B2.

Table 14: - Poison Gully - summary of original transect data; diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	17	7	-	10	11
Diameter range[2]	M.p.	9.1 - 16.7			<2 - 19.5		
	B.l.	-			8.8 - 13.2		
Health Mean[3]		9			16		
Health Range		9			13 - 18		
Density[4]	M.p.	1			2		
	B.l.	-			1		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackpoint/ Fouracres Rd terrestrial

Species rich *E. marginata*/ *C. calophylla* woodland occurred across the transect at this site. The overstorey of plot A was formed by *Corymbia calophylla* saplings and small to medium sized *Eucalyptus marginata* and *Banksia grandis* (Table 15). All trees were of moderate health (10-16, mean 13.1). Although a total of 41 tree, shrub, sedge and herb species were recorded in sub-plot A1, the understorey was relatively sparse. The most dominant species included *X. preissii*, *Daviesia inflata* and *Anarthria prolifera* (Appendix 2.2.1). Sub-plot A2 was also species rich supporting a total of 36 species. *X. preissii* was again dominant.

Small to medium sized *C. calophylla* and small *B. grandis*, all of moderate health (11-15, mean 13.9), formed the overstorey in plot B. Sub-plot B1 supported 37 species of which *X. preissii* was the most dominant. Thirty two species were recorded in B2, with *T. parviceps*, *X. preissii* and an unidentified *Acacia* sp. the most common.

The overstorey of plot C was formed by a small number of small to large *E. marginata*, small to medium *C. calophylla* and *B. grandis* saplings, all of moderate health (9-15, mean 11.7). The understorey of sub-plot C1 was relatively species poor, supporting only 23 species, of which none were dominant. The sedge species *Anarthria scabra* and two unidentified *Acacia* sp. dominated C2, which supported a total of 37 species.

Two small to large *E. marginata*, five small *C. calophylla* and six small *B. grandis*, all of moderate health (10-13, mean 11.4), occurred in plot D. *T. parviceps*, *X. preissii* and the two unidentified *Acacia* sp. were the most dominant of the 29 species recorded in sub-plot D1. *Anarthria scabra, Dasypogon bromeliifolius* and an unidentified shrub were dominant in D2, which supported a total of 30 species.

Table 15: Blackpoint/ Fouracres Rd terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	**Plot A**	**A1**	**A2**	**Plot B**	**B1**	**B2**	**Plot C**	**C1**	**C2**	**Plot D**	**D1**	**D2**
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	41	36	-	37	32	-	23	37	-	29	30
Diameter range[2]	E.m.	3.5 - 45			-			<2 - 80.8			20 - 62		
	C.c.	<2			<2 - 26.7			<2 - 29			94.2		
	B.g.	2.7 - 14			<2 - 9.1			<2 - 5			<2 - 13.8		
Health Mean[3]		13.1			13.9			11.7			11.4		
Health Range		10 - 16			11 - 15			9 - 15			10 - 13		
Density[4]	E.m.	2			-			2			4		
	C.c.	13			10			5			1		
	B.g.	9			5			6			4		

[1]Overstorey species – C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*; B.g. = *Banksia grandis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Darradup Rd east terrestrial

The transect at this site was established in *E. marginata*/ *C. calophylla* woodland adjacent to the Darradup East wetland site. Species composition therefore reflected the transition from wetland to terrestrial vegetation.

The overstorey of plot A was relatively open and formed by nine small to medium *E. marginata* and a single *B. littoralis*, all of moderate health (10-14, mean 12.4) (Table 16). A number of *Allocasuarina fraseriana* were also recorded across the plot. The understorey of sub-plot A1 supported 25 species of trees, shrubs and sedges and was dominated by *T. parviceps* and *A. scabra* (Appendix 2.2.2). *Anarthria scabra* was also dominant in A2, in which 22 species were recorded.

Nineteen small to medium sized *E. marginata* and a single large *C. calophylla*, of poor to moderate health (8-16, mean 12.5), occurred across plot B with a number of *A. fraseriana*. *Taxandria parviceps* and the shrub *Adenanthos meisneri* dominated the understorey of sub-plot B1, which supported a further 24 species. Twenty eight species were recorded in B2, of which *A. scabra* and *T. parviceps* were dominant.

Thirty small to medium sized *E. marginata*, a single multi-stemmed *C. calophylla* and a single *M. preissiana*, also multi-stemmed occurred in plot C with *A. fraseriana* and *Nutysia floribunda*. All trees were of poor to moderate health (8-16, mean 12.9). *Taxandria parviceps* was dominant in the understorey of sub-plot C1 while no individual species dominated C2. Thirty three species were recorded in C1 and 26 in C2.

Forty five small to medium *E. marginata* and 46 small to medium *C. calophylla*, all of poor to moderate health (9-16, mean 13.7), occurred across plot D with *A. fraseriana* and *N. floribunda*. *T. parvicpes* and *Lindsaea linearis*, a fern, were dominant in Sub-plot D1 which supported a further 26 species. No individual species dominated the 29 recorded in D2.

Table 16: Darradup Rd east - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	25	22	-	26	28	-	33	26	-	28	29
Diameter range[2]	E.m.	7.7 - 36			2.3 - 49.6			<2 - 33.8			<2 - 41		
	C.c.	-			52			3.8 - 51.8			<2 - 45		
	B.l.	13.4			-						-		
	M.p.	-			-			16 - 58.8			-		
Health Mean[3]		12.4			12.5			12.9			13.7		
Health Range		10 - 14			8 - 16			8 - 16			9 - 16		
Density[4]	E.m.	9			19			30			45		
	C.c.	-			1			1			46		
	B.l..	1			-			-			-		
	M.p.	-			-			1			-		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; B.l.= *Banksia littoralis;* C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackwood River Crossing terrestrial

The transect at this site was established in *E. marginata*/ *C. calophylla* woodland adjacent to the Blackwood River Crossing wetland site. Small to medium shrubs and terrestrial sedges were generally dominant throughout the understorey.

The overstorey of plot A was formed by small to medium *E. marginata*, small to large *C. calophylla* and a single medium *B. grandis*, all of moderate to good health (10-19, mean 15). Sub-plot A1 supported 28 species of which the small shrub, *Hibbertia hypercoides* and *L. linearis* were dominant (Appendix 2.2.3). *Hibbertia hypercoides*, *T. parviceps* and *Lomandra purpurea* dominated A2, which supported a further 26 species.

Five small to medium *E. marginata* and 23 small to large *C. calophylla*, all of moderate to good health (11-18, mean 13.8), formed the overstorey of plot B. *T. parviceps* and a *Lomandra* sp. dominated the understorey of A1, in which 37 species were recorded. *T. parviceps* and *D. bromeliifolius* were dominant in B2 which supported a further 28 species.

Small to medium *E. marginata* and small *C. calophylla* formed the overstorey in plot C along with single *B. littoralis* and *B. grandis*. Trees health ranged from poor to good (9-20, mean 14.5). The sedge species, *Mesomelaena tetragona*, a small tree, *Xylomelon occidentale*, and an unidentified shrub were dominant in the understorey of C1. *T. parviceps* and *D. bromeliifolius* were the most dominant of the species in C2. Thirty five species were recorded in sub-plot C1 and 29 in C2.

Small to very large *C. calophylla* dominated the overstorey in plot D along with small *B. grandis* and a single medium sized *E. marginata*. Tree health ranged from moderate to good (13-17, mean 14.4). *T. parviceps* was dominant in the understorey across both sub-plots. Sub-plot D1 supported 33 species, D2 31.

Table 17: Blackwood River Crossing terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	28	29	-	37	30	-	35	29	-	33	31
Diameter range[2]	B.g.	10.5			-			<2 - 7.8			3.7 - 5.3		
	E.m.	3.4 - 44			3.5 - 51.5			6.4 - 72.2			22.4		
	C.c.	<2 - 124			<2 - 87			<2 - 9			<2 - 110		
	B.l.	-			-			3.2			-		
Health Mean[3]		15			13.8			14.5			14.4		
Health Range		10 - 19			11 - 18			9 - 20			13 - 17		
Density[4]	B.g.	1			-			2			2		
	E.m.	12			5			8			1		
	C.c.	9			23			19			15		
	B.l.	-			-			1			-		

[1]Overstorey species – B.l.= *Banksia littoralis;* C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*; B.g. = *Banksia grandis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Brockman Highway (Milyeanup) terrestrial

The transect at this site was established in *E. marginata*/ *C. calophylla* woodland adjacent to the Brockman Highway wetland site. Only three plots were established as the transect was located between the wetland and a forestry access track.

The overstorey of plot A was formed by small to medium *E. marginata* and *C. calophylla* with small *B. grandis* and a single small *B. littoralis*, all of moderate to good health (11-20, mean 16) (Table 18). A herb, *Platysace tenuissima, M. tetragona* and an unidentified shrub were dominant in the understorey of sub-plot A1 (Appendix 2.2.4). *Opercularia hispidula*, an herb, *Lomandra* sp., a grass, and the unidentified shrub from A1 were dominant in A2. Thirty three species were recorded in A1, 26 in A2.

Small *C. calophylla* and *B. grandis* and small to large *E. marginata*, all of moderate to good health (12-18, mean 15.4) formed the overstorey of plot B. The understorey of sub-plot B1, which supported a total of 33 species, was dominated by *P. esculentum*. Twenty six species were recorded in B2. *X. occidentale, M. riedlei* and *H. pubescens* were dominant in the understorey of this sub-plot.

Small to medium *C. calophylla* and *E. marginata* formed the overstorey of plot C with a number of small *B. grandis*. Tree health in the plot ranged from moderate to good (9-19,

mean 14.4). The understorey of sub-plot C1 was made up of herbs, shrubs and sedges, none of which were dominant. An unidentified shrub dominated C2. Twenty eight species were recorded in sub-plot C1 and 32 in C2.

Table 18: Brockman Highway terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	38	38	-	33	26	-	28	32
Diameter range[2]	B.g.	<2 - 4.8			<2 - 14.4			<2 – 8.6		
	B.l.	4.8			-			-		
	C.c.	<2 - 22.5			<2 - 12.5			<2 – 57.1		
	E.m.	<2 - 59.6			<2 – 71.6			<2 – 32.2		
Health Mean[3]		16			15.4			14.4		
Health Range		11 - 20			12 – 18			9 - 19		
Density[4]	B.g.	14			17			9		
	B.l.	1			-			-		
	C.c.	15			10			21		
	E.m.	14			7			34		

[1]Overstorey species –B.l.= *Banksia littoralis;* C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*; B.g. = *Banksia grandis*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Poision Gully terrestrial

The transect at this site was established in *E. marginata*/ *C. calophylla* woodland adjacent to the Poison Gully wetland site. *Banksia grandis, B. attenuata* and *A. fraseriana* also occurred in the overstorey. Vegetation graded from mesic to xeric with elevation along the transect.

The overstorey of plot A was formed by eight small to medium *E. marginata* of moderate health (9-16, mean 11.4) (Table 19). Although sub-plot A1 was species poor (13 species only), the understorey was relatively dense due to the prevalence of *D. bromeliifolius, A. scabra* and *Pultenaea reticulata* (Appendix 2.2.5). These species continued to dominate across B2, despite an increase in species richness to 27.

Small to medium *E. marginata, C. calophylla* and *B. grandis*, all of moderate to good health (11-17, mean 14.3), formed the overstorey in plot B. *A. scabra* was the most dominant species in the understorey of sub-plot B1, which supported a further 34 species. *D. bromeliifolius* and *P. reticulata* were prominent in B2. A total of 27 species were recorded in this plot.

Small to large *E. marginata* and *C. calophylla* and small *B. attenuata* and *B. grandis* were recorded in plot C. All trees were of moderate health (11-16, mean 13.8). Sub-plots

C1 and C2 were both species rich, supporting 39 and 38 species respectively. *A. scabra* continued to be dominant in the understorey of both plots with *X. preissii* and the shrub *Melaleuca thymoides*.

The overstorey of plot D was formed by small to medium *E. marginata, C. calophylla* and *B. attenuata* with small *B. grandis*. Tree health ranged from low to moderate (8-17, mean 12.8). *A. scabra* and *M. thymoides* were prominent in the understorey of both sub-plots with *Adenanthos meisneri* also dominant in D2. Thirty nine species were recorded in D1 and 26 in D2.

Table 19: Poison Gully terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	13	27	-	35	27	-	39	38	-	39	26
Diameter range[2]	E.m.	<2 - 36.2			<2 - 63.3			<2 - 81			<2 - 61		
	C.c.	-			23 - 27.9			24 - 60			8.4 - 24.7		
	B.g.	-			3.8 - 11.7			<2 - 8.8			<2 - 8		
	B.a.	-			-			<2 - 6			<2 - 22.5		
Health Mean[3]		11.4			14.3			13.8			12.8		
Health Range		9 - 16			11 - 17			11 - 16			8 - 17		
Density[4]	E.m.	8			7			13			18		
	C.c.	-			2			2			15		
	B.g.	-			2			12			16		
	B.a.	-						8			5		

[1]Overstorey species – C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*; B.g. = *Banksia grandis*; B.a. = *Banksia attenutata*.
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Stewart Rd terrestrial

This transect was established in dense *E. marginata*/ *C. calophylla* woodland. The site has been logged in the past but appeared have undergone a recruitment event in recent year as indicated by the high number of seedlings and saplings recorded across the transect.

The overstorey of plot A was formed by a large number of small to medium *E. marginata* and *C. calophylla* with an equally large number of saplings/ seedlings recorded. Tree health ranged from poor to moderate (7-16, mean 12.1) (Table 20). Shrub species including *Patersonia umbrosa, Grevillea quercifolia* and *Hakea amplexicaulis* were dominant in the understorey of sub-plot A1 (Appendix 2.2.6). *P. umbrosa* was also prevalent in A2 with *T. parvicpes* and *Lomandra* sp. A total of 39 species were recorded in A1 and 32 in A2.

The composition and health of the overstorey in plots B, C and D were very similar to plot A, with a large number of mature and juvenile *E. marginata* and *C. calophylla* recorded. Tree health ranged from poor to good (B: 7-18, mean 13.2; C: 3-17, mean 13.1; D: 3-16, mean 12.3).

The understorey of both sub-plots B1 and B2 was dominated by *T. parviceps, P. umbrosa* and other shrub species. Thirty seven species were recorded in B1 and 24 in B2. Although species composition varied across plots C and D, *T. parviceps, P. umbrosa* and other shrub species remained dominant in the understorey. Thirty three species were recorded in sub-plot C1, 28 in C2, 27 in D1 and 29 in D2.

Table 20: Stewart Rd terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	39	32	-	37	24	-	33	28	-	27	29
Diameter range[2]	E.m.	<2 – 48			<2 – 45.0			<2 - 42.5			<2 – 46.4		
	C.c.	<2 – 18			<2 – 19.4			<2 – 32.5			<2 – 49.7		
Health Mean[3]		12.1			13.2			13.1			12.3		
Health Range		7 - 16			7 – 18			3 - 17			3 - 16		
Density[4]	E.m.	68 + 54 seedlings/ saplings			50 + 79 seedlings/ saplings			30 + 73 seedlings/ saplings			40 + 38 seedlings/ saplings		
	C.c.	22 + 66 seedlings/ saplings			32 + 56 seedlings/ saplings			41 + 27 seedlings/ saplings			51 + 63 seedlings/ saplings		

[1]Overstorey species – C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Darradup Rd north terrestrial

This transect was also established in dense *E. marginata*/ *C. calophylla* woodland. The area has been logged in the past but appeared have undergone a recruitment event in recent year as indicated by the high number of seedlings and saplings recorded across the transect.

The overstorey of plot A was formed by a large number of small to medium *E. marginata* and *C. calophylla* ranging in health from poor to good (5-20, mean 12.5) (Table 21). The understorey in sub-plot A1 was relatively open with the most dominant species including *Kingia australis, T. parviceps* and *H. amplexicaulis* (Appendix 2.2.7). A further 27 species were recorded in this plot. *T. parviceps* also dominated the understorey in A2 with an unidentified shrub and a number of grass and shrub species. A total of 29 species were recorded.

The composition and health of the overstorey in plots B, C and D were very similar to plot A, with a large number of mature and juvenile *E. marginata* and *C. calophylla*

recorded. Tree health ranged from poor to good (B: 4-17, mean 11.4; C: 9-15, mean 12.3; D: 5-16, mean 12.2).

Taxandria parviceps and the unidentified shrub continued to dominate the understorey across all sub-plots in plots B, C and D. Although *K. australis* was common in B1 all other species were relatively sparse across the sub-plots despite relatively high species richness. A total of 26 species were recorded in B1 and 35 in B2. Thirty six and 31 species were recorded in C1 and C2 respectively, with D1 and D2 each supporting 37 species.

Table 21: Darradup Rd north terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	30	29	-	26	35	-	36	31	-	37	37
Diameter range[2]	E.m.	<2 – 49			<2 – 42.5			< 2 – 66.2			<2 – 100		
	C.c.	<2 – 48.9			< 2 – 30			<2 – 54.9			<2 – 48 .1		
Health Mean[3]		12.5			11.4			12.3			12.2		
Health Range		5 – 20			4 – 17			9 - 15			5 – 16		
Density[4]	E.m.	29 + 95 seedlings/ saplings			19 + 89 seedlings/ saplings			32 + 41 seedlings/ saplings			45 + 87 seedlings/ saplings		
	C.c.	24 + 18 seedlings/ saplings			28 + 41 seedlings/ saplings			10 + 20 seedlings/ saplings			20 + 47 seedlings/ saplings		

[1]Overstorey species –C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Jack Track

This transect was established in open *E. marginata* woodland however, the understorey vegetation was very dense and supported a number of shrub and sedge species. *Nutysia floribunda* and *A. fraseriana* were also present in the overstorey at this site.

A single medium *E. marginata* of good health (17) occurred in plot A (Table 22). The understorey of sub-plot A1 was dominated by *P. ellipticum* and *A. scabra* and supported a further 25 species of shrubs and sedges (Appendix 2.2.8). A2 was dominated by *A. scabra* with a total of 25 species of shrub and sedge recorded.

The overstorey of plot B was formed by three small to medium *E. marginata* of moderate to good health (15-17, mean 16.6). *A. scabra* and *P. ellipticum* continued to dominate the understorey in B1 with *M. thymoides* and the small shrub *Sphenotoma gracile. Anarthria prolifera, M. thymoides* and a shrub, *Needhamiella* sp. were dominant in B2. A total of 35 species were recorded in both sub-plots.

Small to medium *E. marginata* of moderate to good health (15-17, mean 16.6) formed the overstorey in plot C. The dense understorey of C1 was dominated by *A. scabra* and *Needhamiella* sp. and unidentified shrub species with a further 24 species recorded. *A. scabra* was also dominant in C2 with *A. prolifera* and *M. thymoides*. A total of 29 species were recorded in this plot.

A number of small to medium *E. marginata* of moderate to good health (11-19, mean 15.3) also formed the overstorey of plot D. The understorey of D1 was dominated by *M. thymoides* and *A. prolifera* with a further 26 species recorded. *X. preissii* and *A. scabra* dominated the understorey of D2. A total of 24 species were recorded in this plot.

Table 22: Jack Track - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	27	25	-	35	35	-	27	29	-	28	24
Diameter range[2]	E.m.	13.8			<2 - 55			<2 - 67.7			<2 - 19		
Health Mean[3]		17			16.6			17.7			15.3		
Health Range		17			15 - 17			15 - 19			11 - 19		
Density[4]	E.m.	1			3			7			29		

[1]Overstorey species – E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Scott Rd

The transect at this site ran from open *E. marginata* woodland downslope towards a *M. preissiana* woodland. The understorey was very dense across most of the site.

Medium *E. marginata* and small to large *C. calophylla,* all of moderate to good health (10-20, mean 13.8), formed the overstorey of plot A (Table 23). *T. parviceps* and *A. scabra* were dominant in the understorey of sub-plots A1 and A2 with *A. prolifera* also common in A1 (Appendix 2.2.9). A total of 33 species were recorded in A1 with 28 recorded in A2.

The overstorey across plot A was formed by small to medium *E. marginata* and *C. calophylla*, of poor to moderate health (5-15, mean 12.7). *Taxandria parviceps, A. scabra* and *A. prolifera* continued to dominate the understorey across sub-plots B1 and B2 with a total of 23 and 22 species were recorded in B1 and B2 respectively.

A single medium *E. marginata* and small to medium *C. calophylla* and *M. preissiana* formed the overstorey of plot C. Tree health ranged from poor to moderate (8-14, mean 10.7). *T. parvicpes, A. scabra* and *A. prolifera* were prominient in the understorey of C1,

which supported a further 24 species. The dominance of *T. parviceps* continued across C2 with the grass, *Johnsonia lupinia* also common. C2 supported a total of 15 species.

Small to medium *E. marginata* and *M. preissiana* and a single *C. calophylla*, ranging in health from poor to good (5-19, mean 14.4), formed the overstorey across plot D. *T. parviceps, J. lupinia* and *X. preissii* were dominant in the understorey of both sun-plots. D1 supported a total of 11 species with 22 recorded in D2.

Table 23: Scott Rd - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	Plot A	A1	A2	Plot B	B1	B2	Plot C	C1	C2	Plot D	D1	D2
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	33	28	-	23	22	-	26	15	-	11	22
Diameter range[2]	E.m.	39.8 - 45			<2 - 53			45.3			7 - 62.8		
	C.c.	<2 - 120			<2 - 72.2			2.7 - 45.5			46.7		
	M.p.	-			-			<2 - 60.4			4.8 - 40.5		
Health Mean[3]		13.8			12.7			10.7			14.4		
Health Range		10 - 20			5 - 15			8 - 14			5 - 19		
Density[4]	E.m.	2			15			1			4		
	C.c.	13			3			6			1		
	M.p.	-			-			4			6		

[1]Overstorey species – M.p. = *Melaleuca preissiana*; C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Blackpoint Rd terrestrial

The transect at this site was established in *E. marginata*/ *C. calophylla* woodland adjacent to the Blackpoint Rd wetland site. *Banksia grandis* also occurred in the overstorey.

Small to medium *C. calophylla* and small to large *E. marginata*, all ranging in health from poor to good (7-19, mean 14.3) formed the overstorey of plot A (Table 24). The shrub species *Petrophile diversifolia* and *Acacia browniana* were dominant in the understorey of sub-plot A1, which supported a total of 28 species (Appendix 2.2.10). *P. diversifolia* was also dominant in A2 with the grass *Patersonia umbrosa*. A total of 26 species were recorded in this plot.

The overstorey of plot B was formed by small to large *C. calophylla* and *E. marginata*, all of moderate health (8-16, mean 14). *P. diversifolia, X. preissii* and *L. linearis* were prominent in the understorey of sub-plot B1, which supported a total of 30 species. The understorey of B2 was dominated by *A. prolifera* and *T. parviceps*. A total of 31 species were recorded in this plot.

Small to large *E. marginata* and *C. calophylla*, all of moderate health (9-15, mean 13.3), formed the overstorey across plot C. *T. parviceps* and *X. preissii* were dominant in the

understorey of C1 and *T. parviceps* and *A. browniana* in C2. A total of 33 species were recorded in C1 and 38 in C2.

Small to medium *C. calophylla* and small to large *E. marginata*, all ranging in health from poor to moderate (6-14, mean 12.6) formed the overstorey of plot D. The understorey of sub-plot D1 was dominated by *X. preissii* and *A. browniana* with a further 37 species recorded in the plot. *T. parviceps* and *P. diversifolia* were prominent in D2, in which a total of 41 species was recorded.

Table 24: Blackpoint Rd terrestrial - summary of original transect data including species richness and diameter, health and density of overstorey species.

	Spec	**Plot A**	**A1**	**A2**	**Plot B**	**B1**	**B2**	**Plot C**	**C1**	**C2**	**Plot D**	**D1**	**D2**
Plot size (m)		20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5	20x20	5x5	5x5
No. species		-	28	26	-	30	31	-	33	38	-	39	41
Diameter range[2]	E.m.	<2 - 73			<2 - 61.7			<2 - 67.6			2 - 60		
	C.c.	<2 - 50			<2 - 54			<2 - 83			2.7 - 47.4		
Health Mean[3]		14.3			14			13.3			12.6		
Health Range		7 - 19			8 - 16			9 - 15			6 - 14		
Density[4]	E.m.	21			14			2			5		
	C.c.	32			17			16			16		

[1]Overstorey species – C.c. = *Corymbia calophylla*; E.m.= *Eucalyptus marginata*
[2]Diameter Range is the range in individual stem diameters (cm) at breast height (1.3m).
[3]Mean health rating for all overstorey species.
[4]Density is number of trees in each plot.

Proposed Monitoring Regimes

Background

Monitoring is defined as the collection of specific information for management purposes in response to hypotheses derived from assessment activities, and the use of these results for implementing management (Finlayson, 2003). A number of reasons for the implementation of a monitoring program have been identified and include:

- To characterise variations in responses of ecosystems to natural variability in the environment;
- To collect baseline data on an ecosystem as part of the inventory process;
- To record ecological changes occurring as result of specific natural or anthropological events;
- To measure progress towards set objectives of a management program and;
- To audit performance of management agencies and land users (Bunn et al., 1997; Finlayson & Mitchell, 1999).

All of the above reasons, particularly the latter three, are relevant to the monitoring of wetland and terrestrial vegetation of the Southern Blackwood and Eastern Scott Coastal Plain.

Parameters

Monitoring parameters that reflect the ecological values, environmental condition and health of GDEs and have a defined relationship with groundwater levels, need to meet a number of criteria, namely that they:

- *Consider the 'lag' effects between depressed groundwater levels and environmental condition and/or health:*
  - response of parameters influenced by depressed groundwater levels can take a long time and further reductions may be permitted before the impacts of previous changes are realised. As such, rapid response type parameters are favoured, as they provide advanced warning of significant stress or degradation on the system in question as well as providing the opportunity to determine whether intervention or further investigation is required (van Dam, Camilleri, & Finlayson, 1998). However, some GDE values may have to be measured through parameters with a greater 'lag' effect (e.g. phreatophytic vegetation community composition);
- *Have a defined relationship with groundwater levels:*
  - there needs to be confidence that a measured response within a parameter reflects depressed groundwater levels rather than other influencing factors, such as long-term climatic variability, extended wet or dry periods, temperature effects and/or a myriad of other abiotic/biotic factors;
- *Characterise risk to the environment:*
  - parameters should identify, where possible, whether impacts to environmental values are short term or long term, reversible or irreversible and/or minor or major;

- *Are cost-effective and practical:*
  - parameters should be inexpensive enough to measure, and;
- *Have early warning capabilities:*
  - the time from which a parameter indicates there is a potential change within a value, to the time that actual change occurs (lead-time), should be sufficient to provide the opportunity to implement appropriate management response (similar to the 'lag' effect of a parameter). Generally, the better the warning (the longer the period between potential change and actual change) the lower the accuracy of the parameter in portraying a response specific to a given stressor (i.e. depressed groundwater levels). A balance between these characteristics (lead-time and accuracy), should be considered to provide the most appropriate and cost-effective parameters. Further characteristics of early warning indicators and considerations which need to be taken into account when deciding on environmental, physical and/or chemical indicators are detailed in van Dam (1998).

Within wetlands overstorey species have many important ecological functions and tend to persist in highly disturbed plant communities, making them useful long-term indicators of environmental condition and health. Emergent macrophytes are well suited as short-term indicators as they form dominant communities in wetlands, perform important ecological functions and are highly responsive to inter-annual variability in wetland surface levels. Invasive exotic species and annual exotic grasses are relatively quick to colonise disturbed areas and may be useful as short-term indicators of disturbance within wetland vegetation communities. Plant species can also be used to reflect water quality (i.e. eutrophic or saline conditions).

Froend and Zencich (2002) provide details on specific parameters from which terrestrial vegetation response to water regime can be correlated/ associated. The abundance (area), character (composition, floristic richness and structural diversity) and condition (collective vigour) of phreatophytic terrestrial vegetation can be measured at a community level.

Parameters which can be used to measure the above indicators for wetland and terrestrial vegetation include:

- Species diversity of plant communities;
- Cover and abundance of indicator plant species;
- Species evenness over time;
- Weediness index overtime;
- Regeneration index over time;
- Canopy fullness/density of indicator species;
- Community distribution/zonation change or distribution of indicator plant species along a gradient;
- Size (height) and age structure (dbh) of a local population;
- Canopy health.

When monitoring vegetation it is important to measure environmental variables that will influence vegetation communities, namely:

- Groundwater levels and fluctuating water regimes (duration of wet/dry phases, seasonality etc);
- Water quality (nutrient concentrations, salinity, toxicants);
- Soil water retention capacity and soil stratigraphy (water retention layers);
- Climatic information (rainfall and maximum temperatures during summer/early autumn);
- Frequency of fire disturbance (measured by recording the presence or absence of fire ephemeral native legumes).

The relationship between the monitoring parameters and the parameter crietria are outlined in Table 25.

Hypotheses

The formulation of a testable hypothesis is critical to the effectiveness of a monitoring program. Finlyson and Mitchell (1999) explain that monitoring is underpinned by the assumption that there is a specific reason for the collection of data, and the assumption should be clearly stated and presented as a hypothesis, subsequently tested and the information assessed and fed back into the management process. Management performance and accountability are also critical to effective monitoring and should be monitored alongside ecological parameters (Finlayson & Mitchell, 1999). An iterative relationship between monitoring and management should exist, resulting in an adaptive management program, where monitoring data provides a check on the progress of management and if necessary, the management program can be amended to ensure objectives are being met (Bunn et al., 1997). A strong relationship between monitoring and research should also be encouraged in order to refine and extend scientific knowledge of the ecosystem (Bunn et al., 1997).

The critical importance of monitoring objectives, stated as clear and testable hypotheses, to the effectiveness of a monitoring program, has been emphasised by number of authors (see Bunn et al., (1997); Finlayson and Mitchell (1999) and Finlayson (2003)). For each GDE clear identification and definition of monitoring objectives should be developed and expressed and testable hypotheses. These hypotheses should relate the loss of environmental values of a specific GDE to the groundwater regime and should incorporate monitoring parameters as compliance criteria. For instance, if a wetland has diverse littoral and fringing vegetation in good condition, supporting a diverse macroinvertbrate community and providing habitat for water birds, an appropriate hypothesis may be:

> *Increasing depth to groundwater will lead to a change in the structure, condition and vigour of littoral and fringing vegetation resulting in the decline of habitat values.*

The ‘change in structure, condition and vigour’ can be measured using relevant parameters (i.e. species diversity, species cover and abundance, vegetation structure, community distribution etc.). However, what constitutes a ‘change’ resulting in a loss of values will depend on the current condition of the littoral and fringing vegetation which led to the assignment of habitat values.

Table 25: Relationship of monitoring parameters to parameter criteria.

GDE Component Monitoring parameter	'Lag' effect	Relationship with GW levels	Risks to environment characterised	Cost-effectiveness	Early warning capabilities
VEGETATION					
species diversity	relatively long to very long	partly related to strongly related	long-term, reversible, minor to major impact	high	low
species cover and abundance	relatively long to very long	partly related to strongly related	long-term, reversible, minor to major impact	high	low
species evenness	relatively long to very long	partly related	long-term, reversible, minor to major impact	high	low
weediness index	relatively short to relatively long	partly related	short-term to long-term, reversible*, major impact	high	low
regeneration index	relatively short to relatively long	partly related	short-term to long-term, reversible*, major impact	high	low to high
canopy fullness/ density of indicator species	relatively short to relatively long	partly related	long-term, reversible, major impact	high	low to high
community distribution/zonation or distribution change	relatively short to very long	partly related to strongly related	short-term to long-term, reversible*, major impact	high	low to high
canopy health	annual species: very short to relatively short perennial/tree species: relatively long to very long	strongly related	annual species: short-term, reversible, minor impacts perrenial/tree species: short-term to long-term, reversible*, minor to major impacts	high	annual species: high perennial/tree species: low
ENVIRONMENTAL PARAMETERS					
groundwater levels	very short to relatively short	directly related	short-term to long-term, reversible, minor to major impact	high	high
water quality	relatively short	strongly related	short-term to long-term, reversible, minor to major impact	high	low to high

soil moisture	relatively short	strongly related	short-term to long-term, reversible to irreversible, minor to major impact	low to high	low
climatic information (particularly rainfall)	relatively short to very long	strongly related	short-term to long-term, reversible to irreversible, minor to major impact	low to high	high
records of past fire events	na	indirectly related	short-term to long-term, reversible to irreversible, minor to major impact	low to high	na

Approach

Monitoring objectives

This section of the report presents a proposed vegetation monitoring regime for wetland and terrestrial criteria sites identified/ described in V & C Semeniuk Research Group (2005) and Froend and Loomes (2006). Initially overarching monitoring objectives are identified to provide general direction for the entire program. Monitoring objectives applicable at site level are then developed based on previously identified management objectives (V & C Semeniuk Research Group, 2005; Froend & Loomes, 2006). Although it is possible to develop testable hypotheses for each monitoring objective, it is more expedient to develop an 'all-encompassing' hypothesis for each site based on identified ecological values.

Monitoring program

Parameters that address each monitoring objective are identified and the timing and frequency of monitoring considered in the development of a monitoring program. To assist in the monitoring of ecological health at each site, the frequency of ground/ surface water monitoring is also considered.

Results

Monitoring objectives

The suggested overarching monitoring objectives for wetland and terrestrial vegetation criteria sites of the study area are as following;

1. To forecast ecosystem response to a changing groundwater regime.
2. To ensure an early-warning system for critical GDE components.
3. To improve understanding of GDE response to changing groundwater regime.

To address these at a site level the following monitoring objectives are recommended;

- To detect changes in species composition related to water regime change.
- To detect changes in species distribution related to water regime change.
- To detect changes in species richness related to water regime change.
- To detect changes in species mortality related to water regime change.
- To detect changes in species condition and vigour related to water regime change.
- To detect changes in community structure related to water regime change.
- To detect changes in water regime.

Although it is possible to develop testable hypotheses for each of the above monitoring objectives, a single all-encompassing hypothesis for each site may prove less complicated. Therefore only three hypotheses have been developed based on the ecological values of criteria sites.

The following wetlands/ wetland sites are known to support unaltered groundwater dependent flora and fauna assemblages (V & C Semeniuk Research Group, 2005);

- Lake Jasper East
- Blackpoint Rd (site 3)
- Pneumonia Rd
- Blackpoint Rd (site 6)
- Darradup Rd West
- Stewart Rd
- Longbottom Rd
- Brockman Highway
- Poison Gully

The following hypothesis should be applied to monitoring at these sites;

> *Increasing depth to groundwater will lead to a change in the structure, condition and vigour of littoral and fringing vegetation resulting in the decline of habitat values.*

The remaining wetlands/ wetland sites are not thought to support groundwater dependent fauna however all support unaltered flora assemblages;

- Lake Jasper South
- Blackpoint Rd (site 7)
- Darradup Rd East

– Jangardup Rd.

The following hypothesis should be applied to monitoring at these sites;

Increasing depth to groundwater will lead to a change in the structure, condition and vigour of littoral and fringing.

Although it is probable that all terrestrial sites support fauna it is unlikely that any species exhibit more than a very low level of groundwater dependence. Therefore the following hypothesis should be applied to monitoring at these sites;

Increasing depth to groundwater will lead to a change in the structure, condition and vigour of phreatophytic vegetation.

Monitoring program

Monitoring parameters that best address each of the monitoring objectives presented in the previous section are outlined in Table 26. Some of these parameters were assessed in the results of the base-line vegetation monitoring undertaken in 2005/06, however others such as species evenness and diversity can only be assessed over time, thereby requiring a second year's data at the very least. The weediness index was not assessed due to the number of species that remain unidentified. Although not presented in the results, species distribution, regeneration index, community distribution/ zonation and size and age structure of trees can be assessed using the field data collected under the base-line program. Therefore it is recommended that the field work component of the monitoring approach outlined in section 1 of this report and applied in the base-line monitoring, be retained and data assessed to address all parameters identified in Table 26.

Table 26: Monitoring objectives and relevant monitoring parameters.

Monitoring objective	Monitoring parameters
To detect changes in species composition related to water regime change	- species diversity - species cover and abundance
To detect changes in species distribution related to water regime change	- species evenness - species distribution
To detect changes in species richness related to water regime change	- species diversity
To detect changes in species mortality related to water regime change	- canopy health - species cover and abundance
To detect changes in species condition and vigour related to water regime change	- regeneration index - canopy health
To detect changes in community structure related to water regime change	- community distribution/ zonation - weediness index - size and age structure of tree populations
To detect changes in water regime	- ground and surface water levels

It is further suggested that monitoring continue to be undertaken in late spring. This should ensure all sites are accessible and that surface water levels in wetlands have declined sufficiently to allow field work to be completed. Spring is also the peak flowering period facilitating plant identification.

Monitoring of ground and surface water levels at each site represents the best 'early warning' signal of potential impacts of changing water regimes on ecosystem health. As the frequency of monitoring at criteria sites should be sufficient to detect seasonal fluctuations it should be undertaken on a seasonal basis at the very least, although monthly monitoring is recommended. As piezometers installed in winter/ spring could not be dug deeper than the existing water table, they were not deep enough to access summer/ autumn water tables. Therefore it is recommended that all piezometers be re-dug/ re-established during late autumn before break-of-season rains when levels are at their lowest. It is also recommended that surface water monitoring on the eastern side of Lake Jasper continue on a monthly basis.

Appendices

Appendix 1: Baseline monitoring – tree data

1.1 Wetlands

1.1.1 Lake Jasper - south

Plot	Species	Tag Number	DBH	Health
A	*Banksia littoralis*	449	24.0	11
		450	41.6, 37.1	11
		451	38.4	11
		452	33.7	11
		455	27.3, 40.5	13
		456	43.2	13
	Melaleuca preissiana	453	6.0	11
		454	7.5	11
B	*Banksia littoralis*	463	28.4, 21.0	12
		465	17.0, 14.3	12
	Melaleuca preissiana	457	5.4, 4.0, 3.5	11
		458	6.8, 8.2, 3.1	11
		459	5.3, 3.0	11
		460	8.0, 7.3	11
		461	5.3	11
		462	14.3, 11	11
		464	16.4, 15.7, 13.8	11
C	*Banksia littoralis*	466	2.0, <2.0, <2.0	12
		467	14.9, 17.1, 18.2, 17.0	13
		470	14.0, 15.2, 8.4	11
		471	13.8, 9.3, 6.5	11
	Melaleuca preissiana	468	8.1	11
		469	5.2, 3.4	11
D	*Melaleuca preissiana*	472	18.0, 19.7, 16.5	11
		473	9.4, 4.2, 6.3, 14.2, 6.5, 3.6, 11.3, 10.8, 25.5, 12.4, 8.6, 4.4, 9.5, 9.1, 3.8, 46.4	12

1.1.2 Lake Jasper - east

Plot	Species	Tag Number	DBH	Health
A	No trees			
B	*Melaleuca preissiana*	601	104.0	16
		602	100.0, 9.0	17
		NT	<2.0	18
		606	7.0	12
	Banksia littoralis	603	10.3	19
	Eucalyptus megacarpa	604	79.4	12
		605	43.8	11
C	*Banksia littoralis*	609	15.6	18
	Eucalyptus megacarpa	607	36.2	13
		608	43.1	16
		610	30.9	13
D	*Eucalyptus megacarpa*	611	45.1	10
		619	2.6	16
	Banksia attenuata	NT	<2.0	16
		612	25.3	16
		613	13.4, 13.3	18
		NT	<2.0	17
		NT	<2.0	16
		NT	<2.0	17
		614	7.4	16
		615	24.0	19
		616	23.8, 29.8	17
		617	10	14
		618	20.0	13
		NT	<2.0	16
		NT	<2.0	16
		NT	<2.0	16

1.1.3 Jangardup Road

Plot	Species	Tag Number	DBH	Health
A	*Eucalyptus marginata*	264	11.4	12
		265	7.4	12
		266	10.6, 13.0	12
		267	14.5, 7.8	13
		268	7.6	13
		269	7.2	12
		270	9.5	12
		271	8.5	13
		272	4.4	14
		273	8.5	9
		NT	3.4	14
B	*Eucalyptus marginata*	NT	3.0	13
		274	8.0, 8.2	14
		275	9.0 , 8.0, 10.0, 4.0	15
		NT	<2.0	12
		276	10.0, 9.2, 6.0	15
C	*Melaleuca preissiana*	26	12.0, 13.0, 6.0, 10.0, 5.0, 12.0, 13.0	8
D	No Trees			

1.1.4 Black Point Road

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preissiana*	235	12.5, 35.2, 35.7, 15.6, 25.5, 7.0, 11.4, 9.0, 6.5, 25.2, 21.4, 29.8, 31.4, 7.8, 28.6, 16.4, 5.6, 27.8	19
B	No Trees			
C	*Melaleuca preissiana*	236	38.3, 26.2	15
		237	24.7	14
		238	33.8	16
		239	6.8, 5.0, 16.0	13
		240	4.0	9
		241	25.8	13
		242	10.5	9
		243	13.6	11
		244	8.6	7
		245	11.0, 21.0	9
		246	50.0	13
		247	45.0	15
		248	12.8	16
		249	37.0, 5.8, 10.0	13
	Eucalyptus marginata	250	17.0	12
D	*Melaleuca preissiana*	251	9.0, 6.0, 9.5, 13.2	7
		252	10.3	11
		253	8.2	9
		254	15.8, 19.7, 8.0	15
		255	4.2	9
		256	4.3, 8.5, 6.0, 8.1	9
		NT	<2.0	13
		NT	<2.0	13
		257	25.5	13
		258	9.5	7
		259	9.8, 27.3, 14.5, 7.0	11
		260	8.0	9
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		261	2.1, 1.5	13
		NT	<2.0	13
	Eucalyptus marginata	262	13.0, 9.1, 8.7, 9.2, 11.0, 7.0, 7.0, 4.7, <2.0, 11.5, <2.0, <2.0, <2.0	19
		263	12.6, 3.3, 5.0, 12.2, <2.0, <2.0, <2.0, <2.0	15

1.1.5 Pneumonia Rd

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preissiana*	27	8.1, 1.4	13
		28	1.7	15
		29	4.0	9
		30	8.0	13
		31	15.3, 12.6	15
		32	9.2, 6.2, 2.0	15
		33	7.6	13
		34	<2.0	15
		35	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		36	3.0	15
		37	2.5	15
		38	14.8, 9.6	13
		NT	<2.0	15
		39	6.8	13
		40	<2.0, 8.5	13
		41	4.6, 5.2	13
		42	5.5, 2.5	13
		43	8.2, 5.0, 2.4, 2.1	13
		44	<2.0, <2.0	13
		45	9.4, <2.0,	13
		46	7.1, 7.5	15
		47	8.2, 10.1	15
		48	3.2, <2.0	15
		NT	<2.0	15
		49	3.0, <2.0, <2.0, <2.0, <2.0, <2.0	15
	Eucalyptus marginata	50	3.4, <2.0	15
B	*Melaleuca preissiana*	51	2.4	15
		52	15.5, 21.0	15
		53	5.8, 1.5, 2.0	13
		54	8.6	13
		55	11.0	13
		56	9.7	13
		57	6.2	13
		58	2.0	15
		59	13.6	13
		60	7.9	13
		61	3.0	13
		62	11.0	13
	Banksia littoralis	NT	<2.0	13
		63	7.0, 3.0	17
C	*Melaleuca preissiana*	64	10.5, 9.1	13
		65	22.6	15
		66	5.1	11
		67	8.5	11
		NT	<2.0	13

		NT	<2.0	13
		68	23.2	13
		69	8.0	11
		70	7.5, 4.9	11
		NT	<2.0	15
		NT	<2.0	13
		NT	<2.0	13
D	*Melaleuca preissiana*	71	72.0, 2.5, 3.5	15
		72	8.0,	13
		73	6.7	13
		74	5.6	11
		75	7.0	11
		76	7.3	11
		77	12, 3.0	13
		78	6.5, 5.8	11
		79	9.5	11
		80	9.5, 3.5, 2.1, <2.0, <2.0, <2.0, <2.0	11

1.1.6 Black Point/ Fouracres Rd

Plot	Species	Tag Number	DBH	Health
A	*Eucalyptus marginata*	218	8.0	17
		219	22.2	15
		220	5.0	10
		221	30.7	8
		NT	<2.0	8
		222	19.5, 15.7, <2.0	14
		223	42.0	12
		224	41.2	9
B	*Eucalyptus marginata*	225	8.6, 3.1	15
C	*Melaleuca peissiana*	226	10	9
		227	28.2	9
		228	46.0, 17.7, 8.5	13
		229	10.5, 5.2	7
D	*Melaleuca peissiana*	230	4.8	7
		231	6.8, 6.5, 6.0, 4.2	9
		232	14.0, 4.0, 22.5, 20.5, 5.0, 8.5	13
		233	11.0, 15.0, 12.0, 19.7, 19.8, 6.2	13
		234	14.0	12

1.1.7 Black Point Rd – base of dunes

Plot	Species	Tag Number	DBH	Health
A	*Banksia littoralis*	NT	<2.0	13
		938	3.0, 3.5, 2.3, <2.0, <2.0	5
	Melaleuca rhaphiophylla	936	8.5	10
		937	9.3, 6.3, 10.3, 6.5, 7.9, 3.3, 8.2, 15.7, 10.0, 14.6, 4.2	13
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
		NT	<2.0	11
B	*Banksia littoralis*	NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
	Melaleuca rhaphiophylla	NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
C	*Banksia littoralis*	NT	<2.0	17

		NT	<2.0	17
		NT	<2.0	17
		NT	<2.0	17
		945	5.0	18
		NT	<2.0	17
		NT	<2.0	17
	Melaleuca rhaphiophylla	939	9.0, 4.3, 9.8, 4.3, 5.2, 7.9, 4.0, 3.4, 3.0, 4.0, 6.2, 4.2, 7.0, 5.5, 5.8, 3.0, 3.7, 7.0, 16.5	11
		940	25.8 +21 stems between 5.5 & 7.0cm	12
		NT	<2.0	13
		941	10.8, 7.8, 23.2, 2.0	12
		942	4.2, 4.3, 8.0, 35.5, <2.0, 4.8, 4.0, 6.4, 7.8	11
		943	7.8, 6.2, 6.2	10
		944	25.3, 11.3, 10.0, 7.4, 6.2, 4.1, 6.2, 7.0, 28.8	11
		946	3.0, 4.0, 33.2, 6.0, 17.5, 13.0, 10.5, 10.0, 7.0, 6.5, 3.0	12
D	*Banksia littoralis*	949	6.5, 4.1, 3.0	20
		NT	<2.0	17
		954	3.0, 4.0, 3.5	17
	Melaleuca rhaphiophylla	947	10.5, 4.4, <2.0, <2.0, <2.0	10
		948	9.7, 34.4, 11.0, 6.8, 11.5	13
		950	7.4, 18.5, 4.0, 35.0, 3.0, 3.5	15
		951	21.3, 7.0, 5.2, 19.3, 14.1, 23.5	13
		952	21.8, 26.0, 5.0, 4.5, 7.0, 7.2, 10.0, 4.7, 4.2	14
		953	23.2, 8.7, 5.0, 4.8, 7.3, 7.0, 4.0	13
		955	6.2, 6.3, 5.4, 6.0, 13.0, 7.0, 4.4, 4.0, 14.3	13

1.1.8 Black Point Rd – dunes

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preisiana*	872	13.6	14
		873	19.0	14
		874	8.2	12
		875	18.9	14
		876	15.3, 27.6	14
		877	26.0	15
		878	12.0	11
		879	28.1, 20.5	14
		880	28.8	14
		881	31.4	15
		882	11.3	10
		883	9.5	10
		884	10.5	7
		885	15.5	10
		886	26.6, 31.1	12
		887	21.8, 10.6	14
		888	37.0, 27.3	16
		889	14.6	10
		890	24.5, 18.1	12
		891	8.5, 21.1	12
		892	9.5	10
		893	18.6	12
		894	17.8	12
		895	20.8	13
		896	21.5	13
		897	21.0	15
		898	7.5	10
		899	17.8, 14.1	14
		900	17.3	14
		901	21.0	15
		902	21.5	16
		903	13.7, 21.5	15
		904	9.8, 36.0	16
		905	12.6	13
		906	28.5	15
		907	16.5, 4.8, 2.5, 2.6, 2.4	12
		908	18.8	13
		909	13.5, 15.7, 19.0	17
		910	14.5	5
		911	44.2	15
		912	18.5	14
		913	24.8, 22.0, 30.8	17
B	*Melaleuca priessiana*	914	38.1, 41.8	18
		915	20.4, 15.8	15
		916	30.0, 32.0	17
		917	22.5, 64.0	18
		918	37.6	9
		919	42.8, 7.7	16
C	*Banksia littoralis*	NT	<2.0	18
	Melaleuca preissiana	920	30.2	18
		921	33.8	16

		922	13.0	15
		923	25.3	17
		924	16.4, 6.2	14
		925	17.8	12
		926	21.3	15
		927	14.5	11
		928	18.0	14
		929	33.8	17
		930	32.8, 28.5	17
		931	20.5	13
		932	23.5	15
D	*Melaleuca preissiana*	933	38.2	17
		934	28.6	13
		935	23.0, 32.5	18

1.1.9 Darradup Rd - East

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preissiana*	1	10.9, 12.3, 3.7, 9.4	18
		2	6.7, 7.2, 15.3	18
		3	1.2	16
		4	7.0, 4.4, 4.6	16
		5	8.9, 4.1, 9.2, 5.2, 5.5	16
		NT	<2.0	16
		NT	<2.0	16
B	*Melaleuca preissiana*	6	18.2, 16.1	12
		7	35.2, 27.8, 26.7	12
		8	2.5	9
		9	3.0	9
	Eucalyptus marginata	10	5.0	13
		NT	<2.0	16
		NT	<2.0	16
		NT	<2.0	16
		NT	<2.0	16
		11	9.3	16
		12	8.0	16
		13	6.1	16
C	*Melaleuca preissiana*	14	12.6	11
		15	3.8	9
		16	27.8, 7.9, 3.5, 5.5, 4.5	13
		17	11.7, 10.0, 8.3, 13.8, 8.3	12
		18	7.0, 4.4, 2.7, 5.0, 6.7, 5.2	13
D	*Melaleuca preissiana*	19	43.8, 27.8	7
		20	2.8, 2.0, 10.5	7
		21	5.0	11
		22	9.0	9
		23	8.0, 5.5	11
		24	25.3, 12.3, 8.3, 8.5, 7.8, 8.0	13
		NT	<2.0	9
		25	2.0, 2.5, <2.0, <2.0	9

1.1.10 Darradup Rd - West

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preissiana*	277	15.4, 13.7	10
		278	5.8	6
B	*Banksia littoralis*	279	3.5, 3.0, 3.0	17
	Melaleuca preissiana	280	12.0	9
C	*Melaleuca preissiana*	281	5.5, 6.0	5
		282	6.6	5
D	*Melaleuca preissiana*	283	32.4, 20.5, 11.0, 23.5, 11.4, 26.8	13
		284	18.5	10
		285	8.8	9
		286	11.8	7

1.1.11 Blackwood River Crossing – Longbottom Rd

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preissiana*	585	12.6	9
		590	41.2, 58.0, 7.5, 9.9, 4.8, 9.2, 3.6, 9.3, 7.8, 5.3	17
		591	86.2	12
B	*Melaleuca preissiana*	593	30.0, 10.8, 46.0, 20.5, 19.1	14
C	*Melaleuca preissiana*	596	10.7, 8.0, 5.0, 9.9, 7.5, 6.0, 7.0	11
D	No Trees			

1.1.12 Milyeanup (Brockman Highway)

Plot	Species	Tag Number	DBH	Health
A	*Banksia littoralis*	NT	<2.0	15
		NT	<2.0	15
	Eucalyptus rudis	597	35.7, 18.5	5
		598	7.3	3
		599	28.0	5
		NT	<2.0	3
		600	22.7	3
		NT	<2.0	12
		NT	<2.0	12
		601	35.0, 3.4, 3.0, 2.5, 2.0	9
		602	27.7	12
		603	30.0	12
		604	3.4	14
		605	15.6	14
		NT	<2.0	14
		606	16.8, 34.7	14
B	No Trees			
C	*Corymbia calophylla*	607	74.6	16
		609	5.0	13
		612	78.8	17
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		615	3.0, 4.0, 2.0	14
		NT	2.5, <2.0	16
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		614	7.0	12
		611	5.0	11
		616	14.0	13
		610	4.0	10
		617	13.4	15
		618	6.3	13
		619	13.7	12
		620	11.5	13
		621	13.0	12
		622	9.5	11
		623	7.3	11
		624	6.4	13
		625	14.5	16
		626	11.0	17
		627	9.5	14
	Eucalyptus marginata	613	14.2, 11.4	15
		608	11.0, 14.0	16
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12

		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12

1.1.13 Stewart Rd Causeway

Plot	Species	Tag Number	DBH	Health
A	*Banksia littoralis*	NT	<2.0	20
	Melaleuca preissiana	868	40.6	10
		869	36.0, 5.3, 10.0, 8.0, 8.0, 7.0, 5.4, 12.0	11
B	No Trees			
C	*Melaleuca preissiana*	870	44.8	13
D	*Banksia littoralis*	NT	<2.0	20
	Melaleuca preissiana	871	65.5, 42.2	14

1.1.14 Poison Gully

Plot	Species	Tag Number	DBH	Health
A	*Melaleuca preissiana*	381	16.0, 9.1, 16.7	9
B	*Melaleuca preissiana*	379	13.7, 13.0	17
		380	10.0, 10.0, <2.0, 19.5, 12.1, <2.0	13
	Banksia littoralis	382	13.2, 8.5	18

1.2 Terrestrial sites

1.2.1 Black Point/ Fouracres Rd

Plot	Species	Tag Number	DBH	Health
A	*Corymbia calophylla*	176	13.8	10
		177	22.0, 22.6	15
		178	14.4	12
		179	3.5	11
		181	9.3, 3.0, <2.0	11
		182	36.7	14
		183	5.0, 5.8	12
		184	12.8	13
		185	15.0	13
		187	3.6, <2.0	12
		188	8.7	13
		189	3.0, 4.2	14
		190	4.5	13
	Eucalyptus marginata	180	10.0, 8.1, 3.5, 9.0	12
		186	13.0, 45.0	15
		191	28.0	19
	E. marginata/ C. calophylla seedlings x 6	NT	<2.0	15
	Banksia grandis	192	8.0	13
		193	8.0	13
		194	4.6, 2.7	12
		195	5.0, 5.7	16
		196	6.4	11
		197	5.8	14
		198	10.7, 12.0	12
		199	14.0	14
		200	12.4, 8.1	12
	Corymbia calophylla	NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
B	*Corymbia calophylla*	201	26.7	13
		202	20.4	11
		203	7.2	13
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		204	4.3	13
		205	16.2	13
		NT	<2.0	12
	Banksia grandis	NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		206	9.1	14
C	*Banksia grandis*	NT	<2.0	10
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13

		NT	<2.0	13
		210	5.0, 4.7, 3.2	9
	Eucalyptus marginata	207	80.8	9
		NT	<2.0	15
	Corymbia calophylla	208	27.0	11
		NT	<2.0	13
		NT	<2.0	13
		209	39.0	8
		NT	<2.0	12
D	*Corymbia calophylla*	211	94.2	11
	Eucalyptus marginata	212	62.2	11
		213	45.1	10
		214	20.0	11
	Banksia grandis	215	13.8	12
		216	8.0	12
		217	4.6	10
		NT	<2.0	13
	E. marginata/ C. calophylla	NT	<2.0	13

1.2.2 Darradup Rd East

Plot	Species	Tag Number	DBH	Health
A	*Eucalyptus marginata*	287	28.0, 8.6	11
		288	7.7	13
		NT	<2.0	13
		289	21.5, 21.5	14
		290	21.5	10
		291	29.7	14
		292	20.2	12
		293	36.0	13
	Banksia littoralis	294	13.4	12
B	*Eucalyptus marginata*	295	49.6	14
		296	5.2, 4.3	15
		297	26.8	15
		298	8.0	12
		299	7.0	14
		300	8.7	12
		301	4.5, 4.0	16
		302	4.1	11
		303	9.0	13
		NT	2.3	16
		304	6.3	10
		305	24.5	11
		306	5.0, 5.0, 6.3	10
		307	2.4	9
		308	28.0	13
		309	16.7, 5.3	14
		311	11.4	8
		312	16.5, 13.7, 3.2	13
		313	12.7	9
	Corymbia calophylla	310	52.0	15
C	*Eucalyptus marginata*	314	6.3	9
		315	7.3	8
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		317	45.8	16
		318	8.3	9
		319	17.8	13
		320	19.5	13
		321	14.0	13
		322	7.8	13
		323	3.5	10
		324	14.6	11

		325	10.0	10
		326	22.0	13
		327	24.5	13
		328	14.6	13
		329	33.8	13
		330	7.5	12
		331	5.0	9
		332	12.8	12
	Corymbia calophylla	316	7.4, 3.8, 14.0, 51.8	11
	Melaleuca preissiana	333	16.0, 58.8	13
D	*Corymbia calophylla*	334	10.0, 14.2	12
		340	33.0	14
		343	8.3	16
		345	17.0	13
		346	23.0	13
		349	5.6	11
		355	12.7	11
		358	11.6	13
		360	45.0	14
		364	41.5	14
		367	12.9	10
		369	30.0	12
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		378	4.1	13
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15

		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
	Eucalyptus marginata	335	10.0	12
		336	32.1	12
		337	9.0	13
		338	7.0	9
		339	7.2	9
		341	7.8, 4.6	13
		342	10.5	13
		344	41.0	14
		347	8.6	14
		348	10.2	13
		350	9.6	13
		351	10.4	13
		352	9.9	12
		353	5.4	10
		354	19.3	14
		356	7.4	9
		357	11.0	12
		359	15.2	13
		361	37.0	13
		362	28.2	14
		363	30.3	12
		365	8.3	13
		366	6.2	11
		368	24.0	13
		370	23.5	14
		371	14.0	11
		372	14.7	14
		373	8.6	12
		374	6.4	11
		375	5.7	10
		376	13.0	14
		377	4.8, 3.6	10
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15

1.2.3 Blackwood River Crossing – Longbottom Rd

Plot	Species	Tag Number	DBH	Health
A	*Banksia grandis*	553	10.5	19
	Corymbia calophylla	NT	<2.0	14
		NT	2.5	15
		541	4.3	15
		542	4.0	14
		545	124.0	19
		551	44.5	18
		NT	<2.0	13
		NT	<2.0	14
		NT	2.7	14
	Eucalyptus marginata	NT	3.4	14
		543	55.5	17
		544	33.6	12
		NT	55.0	Dead
		546	32.5	13
		547	9.9, 13.8, 21.0, 24.0	18
		548	44.0	14
		549	23.0	10
		550	14.0, 8.9, 8.0	15
		552	43.8	17
		554	22.2	12
		555	11.0, 22.0, 10.6, 12.7	17
B	*Corymbia calophylla*	NT	2.7	14
		556	3.5	16
		NT	<2.0	14
		557	14.2	13
		NT	<2.0	11
		NT	<2.0	12
		560	87.0	16
		561	5.8	15
		562	3.6	12
		NT	<2.0	14
		NT	<2.0	14
		NT	2.8, <2.0	13
		NT	<2.0	11
		563	18.0, 89.3	18
		564	6.0	15
		NT	2.8	16
		565	10.8	15
		566	8.1	16
		567	13.0	16
		568	8.2	13
		NT	<2.0	12
		NT	<2.0	11
		570	10.6	13
	Eucalyptus marginata	558	11.5, 8.5, 4.7	13
		559	51.5	18
		NT	3.5	11
		NT	37.0	Dead
		569	24.2	12
C	*Banksia grandis*	576	7.8, 3.3, 3.0	13

		NT	<2.0	17
	Banksia litoralis	578	3.2	20
	Corymbia calophylla	574	2.3	13
		577	7.0	12
		NT	<2.0	14
		581	4.7	15
		583	4.5	15
		585	5.0	15
		586	9.0	15
		587	3.7	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
	Eucalyptus marginata	571	31.5	14
		572	35.7	11
		573	39.5	17
		575	17.3, 11.7, 10.7, 17.5, 12.5, 11.2	16
		579	67.8	16
		580	25.4, 6.4	9
		582	60.0, 14.7	14
		584	72.2	21
D	*Banksia grandis*	591	5.3	17
		NT	3.7	11
	Corymbia calophylla	588	9.7	16
		589	110.0	16
		NT	<2.0	13
		592	3.4	13
		593	6.0	15
		594	6.0, 4.0	15
		595	2.7	17
		596	4.0	15
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
	Eucalyptus marginata	590	22.4	14

1.2. 4 Brockman Highway (Milyeanup)

Plot	Species	Tag Number	DBH	Health
A	*Banksia grandis*	635	4.8, 2.5	17
		NT	<2.0	11
		642	3.4, 2.5	18
		NT	<2.0	17
		NT	<2.0	13
		NT	<2.0	15
		646	2.5, 3.4, 2.6	14
		647	2.5, <2.0	12
		NT	2.2	14
		NT	<2.0	16
		NT	2.2, 2.1	18
		649	2.2, <2.0	17
		NT	<2.0	11
		NT	<2.0	11
	Banksia littoralis	643	4.8	21
	Corymbia calophylla	628	7.0	15
		629	6.0	15
		630	12.5	16
		632	22.5	18
		633	11.0	15
		634	5.5	16
		636	6.0	14
		NT	<2.0	16
		NT	<2.0	16
		NT	<2.0	16
		640	8.2	13
		641	7.4, 5.9	17
		644	9.0	21
		645	8.4	16
		NT	<2.0	18
	Eucalyptus marginata	631	13.5, 20.3	17
		637	13.6, 11.2	17
		638	11.0	15
		639	22.3, 27.2, 15.8, 13.7, 17.3, 13.0, 15.1, 14.9	16
		NT	<2.0	17
		NT	<2.0	16
		NT	<2.0	16
		NT	<2.0	14
		NT	<2.0	17
		NT	<2.0	17
		NT	<2.0	17
		NT	<2.0	17
		648	4.0, 4.2	17
		650	15.8, 14.8, 59.6	20
B	*Banksia grandis*	651	10.3	17
		652	6.4	17
		653	11.6	17
		656	7.8, 5.8	17
		659	4.8	14
		NT	2.0, 2.0, <2.0	12

		NT	<2.0	15
		NT	3.0	13
		663	5.0	14
		667	14.4	17
		668	10.0	17
		669	11.8	17
		670	11.2, 9.0	17
		671	9.6, 12.5, 5.4	18
		672	6.0	16
		NT	3.0	16
		NT	3.5, <2.0	16
	Corymbia calophylla	654	8.8	17
		655	3.6	14
		660	12.5	15
		661	10.2	15
		NT	<2.0	15
		NT	<2.0	18
		NT	<2.0	14
		NT	<2.0	14
		673	2.1, 2.0, 2.0	16
		NT	<2.0	14
	Eucalyptus marginata	657	71.6	13
		658	46.0, 12.1	13
		662	53.3	17
		NT	<2.0	14
		664	66.0	16
		665	13.3, 7.8, 34.5	15
		666	120.0	14
C	*Banksia grandis*	674	<2.0, <2.0, <2.0, <2.0, <2.0	15
		678	6.2, 5.5	13
		NT	<2.0	14
		NT	<2.0	11
		686	8.6, 5.7	9
		687	8.2	15
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	15
	Corymbia calophylla	675	5.2	13
		NT	<2.0	13
		NT	<2.0	12
		NT	<2.0	14
		NT	<2.0	16
		NT	<2.0	16
		NT	<2.0	12
		NT	<2.0	14
		689	10.3	18
		690	7.0	19
		NT	<2.0	13
		692	5.7	16
		695	3.4	14
		698	8.2	16
		NT	<2.0	13

		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	14
		NT	<2.0	13
		NT	<2.0	13
		703	57.1	17
	Eucalyptus marginata	676	8.4, 20.8	13
		677	19.0	14
		NT	<2.0	15
		679	10.7, 31.4	14
		680	8.5, 14.3	14
		681	15.7, 16.0	18
		682	14.7, 18.5, 12.1	17
		683	28.5	14
		684	11.0	13
		685	32.0	16
		NT	<2.0	12
		688	9.8	15
		NT	<2.0	15
		691	14.2	16
		693	2.8	14
		694	3.0	17
		NT	<2.0	17
		696	5.2	9
		NT	<2.0	14
		697	6.8	16
		NT	<2.0	14
		NT	<2.0	12
		NT	<2.0	14
		699	6.4	13
		NT	<2.0	14
		700	19.0	15
		NT	<2.0	15
		NT	<2.0	14
		701	9.8	15
		NT	<2.0	13
		NT	<2.0	13
		702	8.2	16
		704	20.8, 3.0	18
		705	23.0, 32.2, 14.2	19

1.2.5 Poison Gully

Plot	Species	Tag Number	DBH	Health
A	*Eucalyptus marginata*	383	11.0, 9.8, 7.3	12
		384	12.6, 9.0	12
		385	36.2	16
		386	3.8, 10.0, 6.1	12
		387	19.2	12
		388	5.0	13
		389	<2.0, <2.0, <2.0, <2.0	9
		390	17.7, 9.8, 17.0, 19.0, 9.6, 18.1, 15.0, 18.9, 9.5, 10.5	16
B	*Eucalyptus marginata*	391	10.0, 9.0	13
		393	5.7, <2.0	15
		395	8.7	11
		396	17.6, 15.2, <2.0, 10.0, 6.1 11.3, 16.0	13
		397	40.6	15
		399	29.5	15
		401	63.3	15
	Corymbia calophylla	392	27.9	14
		402	23.0	15
	Banksia grandis	394	11.7	16
		398	3.8	17
	Banksia attenuata	403	11.1	13
C	*Eucalyptus marginata*	404	40.0	11
		405	21.7	12
		406	21.5	13
		NT	<2.0	12
		408	18.1, 6.8, 6.9	11
		410	17.1	12
		411	81.0	14
		NT	<2.0	14
		413	17.6, 3.4	14
		414	8.7, 7.9	14
		415	16.4, <2.0, 10.7	15
		418	30.0, 6.3, 10.5	16
		420	7.5	13
	Corymbia calophylla	412	60.0	13
		419	24.0	15
	Banksia attenuata	NT	<2.0, <2.0	15
		407	3.3	16
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	16
		NT	<2.0	16
		421	6.0	16
		422	2.3	16
	Banksia grandis	NT	<2.0	15
		409	2.6, <2.0, <2.0	10
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13

		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		NT	<2.0	12
		416	8.8, 4.6, 3.0, <2.0	15
		417	6.4, 5.9	15
D	*Corymbia calophylla*	423	24.7, 8.4	15
		424	21.7	13
		444	17.9, 14.4	14
	Eucalyptus marginata	426	61.5	17
		NT	<2.0	12
		433	17.2, 21.4, 13.0	14
		NT	<2.0	12
		435	29.1	14
		NT	<2.0	12
		NT	<2.0	12
		437	10.1, 12.0	13
		440	10.0, 13.7	12
		441	6.6, 8.8	10
		442	9.0, 6.7	10
		445	11.2	12
		446	15.2, 12.7, 6.8, 11.9	14
		447	8.3, <2.0	12
		448	17.0, 7.7	14
		NT	<2.0	13
		NT	<2.0	13
		NT	<2.0	13
	Banksia attenuata	429	9.3	15
		430	22.5	15
		431	14.1, 5.5, 5.5, 3.0	16
		NT	<2.0	12
		NT	<2.0	12
	Banksia grandis	425	4.6	13
		427	5.6	14
		NT	<2.0	13
		428	8.0, 5.1	14
		432	6.9	13
		434	7.2	10
		3 seedlings		
		436	8.2	12
		438	4.8, 5.0, 7.4	13
		439	3.7, 2.8	12
		443	6.0, 4.0	14
		NT	<2.0	8
		NT	<2.0	12

1.2.6 Stewart Rd

Plot	Species	Tag Number	DBH	Health
A	*Corymbia calophylla*	NT	6.2	13
		NT	10.7	12
		NT	5.7	10
		NT	6.1	11
		NT	5.4	12
		NT	6.2	9
		NT	8.6, 5.5	12
		NT	11.0	12
		NT	7.2	10
		NT	11.7	10
		NT	3.5	7
		NT	7.3	10
		965	18.4	12
		NT	16.9	14
		NT	16.0	11
		NT	9.8	14
		NT	11.3	14
		NT	7.5	14
		NT	10.0	15
		NT	17.2	16
		NT	9.3	11
		NT	8.0	13
	66 Seedlings/saplings	**NT**	**<2**	
	Eucalyptus marginata	956	10.2, 13.7	14
		957	17.8	14
		NT	8.9	13
		NT	11.2	11
		958	15.7	14
		959	17.0	13
		NT	8.2	10
		NT	9.9	10
		NT	7.2	9
		960	17.3	16
		NT	6.5	10
		NT	13.2	15
		NT	8.3	9
		NT	14.5	11
		NT	11.3	12
		961	40.2	13
		NT	12.8	11
		NT	10.5	10
		NT	8.7	11
		962	25.8	14
		NT	8.9	7
		963	17.4	12
		NT	5.5	6
		NT	9.3	7
		NT	13.5	10
		NT	8.5	9
		NT	3.6	11
		964	17.3	13

		NT	14.6	13
		NT	3.2	12
		NT	14.2	13
		966	20.5	14
		969	18.0	12
		NT	6.3, 4.6	9
		NT	11.7	11
		NT	15.0	12
		NT	17.5, 11.0	13
		NT	9.7	13
		NT	10.4	12
		NT	19.4	15
		NT	27.2	15
		NT	13.2	12
		NT	10.5	12
		NT	9.7	13
		NT	11.5	13
		NT	11.0	13
		NT	13.0	13
		NT	13.0, 12.0	14
		NT	5.7	11
		NT	10.7	13
		NT	20.9	14
		NT	17.0	15
		NT	24.3	15
		NT	9.7	10
		NT	9.4	12
		NT	10.7	12
		NT	12.3	11
		NT	7.5	12
		NT	11.5	14
		NT	14.5	14
		NT	6.9	13
		NT	13.5	10
		NT	10.5	12
		NT	4.9	10
		NT	17.9	12
		968	25.5, 7.8	13
		967	9.2, 3.6, 10.4, 48.0	16
		NT	11.0, 15.3	15
	54 Seedlings/saplings	**NT**	**<2**	
B	*Corymbia calophylla*	NT	7.3	10
		NT	7.4	10
		NT	3.2	11
		NT	6.5	10
		NT	6.5	7
		NT	7.5	10
		NT	7.0	10
		NT	12.8	15
		NT	10.3	11
		NT	6.8	11
		NT	6.8	11
		NT	8.8	11

		NT	7.1	13
		NT	11.4	13
		NT	7.2	12
		NT	12.4	12
		975	19.4	13
		NT	4.3, 3.0, 7.2	14
		NT	7.8	11
		NT	11.3	13
		NT	8.9	14
		NT	7.0	13
		NT	12.6	15
		NT	12.5	15
		NT	18.4	13
		NT	16.2	15
		NT	11.6	12
		NT	6.0	13
		NT	9.8	15
		NT	6.3	14
		NT	10.0	13
		NT	6.0	15
	56 Seedlings/saplings	**NT**	**<2**	
	Eucalyptus marginata	NT	7.4, 6.1	10
		970	17.8	14
		NT	8.8	11
		971	45.0	14
		972	21.7	15
		NT	6.0	11
		NT	20.5	14
		973	26.0, 15.8	18
		NT	8.3	13
		NT	5.8	10
		NT	23.8, 26.8	15
		NT	12.7	13
		974	8.6, 36.5, 16.0, 6.8	17
		NT	9.5	12
		NT	13.0	12
		NT	12.5	13
		NT	8.3	14
		NT	11.0	13
		NT	18.8	14
		976	8.3, 28.0, 5.3	15
		NT	22.9	16
		NT	6.7	13
		NT	21.6	Dead
		NT	5.2	15
		NT	15.3	15
		NT	5.8	13
		NT	7.5	13
		NT	7.4	14
		NT	3.6	14
		NT	5.9	13
		NT	5.8	14
		NT	6.6	16

		NT	3.7	16
		NT	16.8	15
		NT	7.5	16
		NT	6.5, 11.8	15
		NT	14.0	15
		NT	11.0	12
		977	17.0	15
		NT	15.5	13
		NT	18.5	16
		NT	12.6	13
		NT	12.5	13
		NT	7.8	15
		978	18.0	15
		NT	7.8	14
		NT	14.5	14
		979	14.4	14
		NT	8.5, 9.4, 5.6	15
		NT	12.0, 7.0	14
	79 Seedlings/saplings	**NT**	**<2**	
C	*Corymbia calophylla*	NT	7.5	11
		NT	4.5	3
		NT	10.0	11
		NT	6.0	11
		NT	9.0	13
		NT	6.5	13
		NT	14.0	13
		NT	8.6	13
		NT	2.5	14
		NT	9.3	11
		NT	9.9	15
		NT	9.5	13
		NT	6.2, 5.7	12
		983	32.5	16
		NT	12.0	13
		NT	12.0	15
		NT	10.6	12
		NT	9.4	12
		NT	11	14
		NT	12.5	14
		NT	5.6	12
		NT	6.7	11
		NT	9.3	13
		NT	8.5	13
		NT	7.3	12
		NT	10.0	15
		NT	7.0	13
		NT	14.5	12
		NT	11.7	14
		NT	11.0	12
		NT	7.9	11
		NT	7.6	11
		987	16.5	15
		NT	7.5	17

		988	20.2	15
		NT	13.6	14
		NT	6.8	13
		NT	9.7	13
		NT	7.5	14
		NT	6.8	13
		NT	8.0	9
	27 Seedlings/saplings	**NT**	**<2**	
	Eucalyptus marginata	980	19.5, 10.2	17
		NT	18.5	13
		NT	16.0	11
		981	35.0	15
		NT	5.8	13
		NT	9.5, 10.1	15
		982	27.8	17
		NT	21.4	16
		NT	7.5, 15.6	14
		NT	13.0	14
		984	18.8	16
		985	23.6	16
		NT	8.1	13
		986	37.7	10
		NT	11.3	12
		NT	7.3	14
		NT	13.0	11
		NT	9.1	14
		NT	6.1	15
		NT	5.4	7
		NT	4.0	9
		NT	7.3	12
		NT	9.7	13
		NT	3.8	15
		NT	7.3, 11.0	15
		NT	5.3	12
		NT	9.8	15
		NT	7.7, 3.3	15
		NT	6.9	13
		989	42.5	17
	73 Seedlings/saplings	**NT**	**<2**	
D	*Corymbia calophylla*	NT	5.5	3
		NT	8.4	14
		NT	7.2	12
		NT	7.5	11
		NT	9.0	12
		990	23.3	14
		NT	7.3	10
		NT	10.1	10
		NT	20.2	13
		991	29.7	14
		NT	6.4	13
		NT	10.6	14
		NT	3.2	12
		NT	11.8	13

		NT	7.4	13
		NT	14.8	16
		NT	7.5	14
		NT	6.4	12
		NT	22.3	12
		NT	12	13
		NT	11.5	10
		NT	11.8	13
		NT	15.5	11
		NT	19.8	11
		NT	8.8	13
		NT	10.2	11
		NT	13.0, 5.0	11
		NT	7.2	10
		NT	7.8	13
		NT	7.1	12
		NT	9.5	11
		NT	15.0	12
		995	29.0	13
		NT	11.6	10
		NT	11.	12
		NT	8.7	13
		NT	14.8	14
		NT	6.0	11
		NT	10.1, 6.0, 3.4	12
		NT	13.0	14
		NT	11.5	14
		NT	19.0	12
		NT	14.8	11
		NT	6.9	11
		NT	1.5	12
		NT	10.7	11
		NT	8.0	10
		NT	3.4	12
		NT	12.2	14
		1000	49.7	12
		NT	6.1	12
	63 Seedlings/saplings	**NT**	**<2**	
	Eucalyptus marginata	NT	6.5	14
		NT	11.7	14
		NT	9.3	13
		NT	10.0	12
		NT	5.5	10
		NT	7.2	14
		NT	14.0	15
		NT	14.3	15
		NT	6.2	15
		992	25.3	14
		NT	8.7	14
		NT	21.3	13
		NT	6.2	13
		NT	24.0	15
		NT	10.5	13

		NT	11.0	10
		NT	11.7	12
		NT	3.4	14
		NT	16.3	12
		NT	5.8	13
		NT	6.8	14
		NT	8.5	14
		NT	6.1	11
		993	20.8	11
		NT	5.8	11
		NT	6.0, 4.3, 5.3	11
		NT	9.8, 10.0, 10.5, 13.3	12
		NT	5.1	7
		NT	16.8	11
		NT	8.3, 15.4	14
		NT	20.8	12
		996	25.4	16
		997	51.8	14
		NT	12.5	12
		NT	8.0	11
		NT	15.3	11
		NT	6.7	11
		998	37.7	13
		NT	44.0	12
		999	46.4	16
	38 Seedlings/saplings	**NT**	**<2**	

1.2.7 Darradup Rd North

Plot	Species	Tag Number	DBH	Health
A	*Corymbia calophylla*	706	3.2, 2.8, 2.0, <2.0	20
		709	21.5	11
		710	25.0	5
		711	15.8	12
		719	10	13
		720	14.9	14
		721	9.7	13
		723	7.5, 9.0	15
		725	12	12
		727	5.4	12
		728	6.1	13
		731	48.9	9
		735	16	10
		737	12.4	11
		741	9.0, 5.0	12
		745	5.4, >2.0, 3.3	11
		747	12.0	12
		748	4.4	11
		751	18.1	14
		753	21.3	12
		754	13	14
		755	16.1	14
		757	19.7	15
		758	20.0	11
	18 Seedlings/ saplings	**NT**	**<2**	
	Eucalyptus marginata	707	49.0	17
		708	41.5	11
		712	4.8	13
		713	4.4	15
		715	17.2	12
		NT	3.2	13
		716	9.2	14
		717	15.2	13
		718	5.4	13
		722	12.6	14
		724	10.0	12
		726	10.1, 4.8	11
		729	5.4	10
		730	5.2	13
		732	47.2	9
		733	10.4	13
		734	11.1	14
		736	10.2	11
		738	17	14
		739	8.7	14
		740	13	13
		742	5.0, 4.2	15
		743	10.0	9
		744	12.2	12
		746	7.3	12
		749	16.1	12

		750	7.3	10
		752	17.2	13
		756	28.8	13
	95 Seedlings/ saplings	**NT**	**<2**	
B	*Corymbia calophylla*	759	27.0	4
		762	51.8	10
		763	17.2	10
		764	15.6	12
		766	11.0	14
		768	16.8	11
		770	26.0	9
		771	30.0	11
		774	13.4	13
		776	19.7	11
		777	17.8	14
		780	25.1	13
		781	8.9	12
		782	27.5	11
		783	10.4	11
		785	22.0	12
		787	18.7	14
		789	20.4	16
		791	16.3	13
		792	7.5	13
		795	9.0	12
		796	15.1	11
		798	14.3	11
		799	23.0	13
		800	13.0	14
		801	31.4	6
		803	20.0	12
		805	15.8	11
	41 Seedlings/ saplings	**NT**	**<2**	
	Eucalyptus marginata	760	10.0	11
		761	8.9	11
		765	54.0	13
		767	11.5	9
		769	31.7	12
		772	7.2	13
		773	38.0	9
		775	12.8, 8.2	15
		778	14.7	15
		779	10.8	5
		784	27.3	11
		786	10.5	11
		788	42.5	15
		790	39.0	10
		793	22.5	9
		794	12.0	11
		797	15.8	13
		802	54.6	17
		804	16.7	3
	89 Seedlings/saplings	**NT**	**<2**	

C	*Corymbia calophylla*	806	21.6	13
		807	10.0	13
		809	10.0	11
		811	15.4, 15.6, 16.5	13
		817	8.9	12
		826	10.5	10
		831	16.6	13
		832	54.9	7
		837	10.0	12
		842	42.3	11
	20 Seedlings/saplings	**NT**	**<2**	
	Eucalyptus marginata	808	27.5	15
		810	16.5	13
		812	12.7	14
		813	13.2	14
		814	20.5	15
		815	24.2	15
		816	9.8, 3.5	11
		818	13.3	14
		819	10.7	13
		820	14.1	12
		821	17.4	13
		822	16.5, 4.3, 52.0	14
		823	10.3	11
		824	42.3, 17.2	9
		825	39.0	9
		827	18.0	12
		828	9.0	13
		829	10.0	12
		830	66.2	13
		833	10.4	10
		834	13.7	9
		835	7.6	12
		836	16.2	15
		838	19.7	13
		839	20.0, 12.5, 3.2	13
		840	9.4	14
		841	10.7	13
		843	9.4	12
		844	10.3	10
		845	11.0, 2.5	12
		846	10.0	13
		847	11.2	12
	47 Seedlings/saplings	**NT**	**<2**	
D	*Corymbia calophylla*	848	46.3	13
		849	48.1	13
		853	47.0	15
		854	31.5	12
		855	27.7	9
		NT	10.4	11
		NT	13.4	12
		NT	10.3	12
		NT	8.9	9

		NT	7.3	12
		NT	14.8	15
		NT	10.0	12
		NT	9.5	12
		NT	10.2	12
		862	22.2	15
		NT	8.7	12
		NT	13.0	15
		NT	6.2	12
		866	29.5	16
		NT	11.6	13
	47 Seedlings/saplings	**NT**	**<2**	
	Eucalyptus marginata	850	20.6	14
		851	47.0	13
		852	35.8	13
		NT	9.0	5
		NT	8.2	9
		NT	9.1	10
		NT	10.2	13
		NT	11.7	12
		856	29.0	11
		857	23.4	11
		858	15.9	13
		859	34.8	11
		NT	6.5, 5.0	12
		NT	12.3	12
		NT	9.0	5
		NT	13.1, 14.5	15
		NT	9.8	15
		NT	8.5	12
		NT	7.1	7
		860	100.0	11
		861	25.5	13
		NT	10.7	12
		NT	7.7	9
		NT	8.0	12
		NT	9.3	11
		NT	9.8, <2.0	13
		NT	9.4	13
		NT	9.6	13
		NT	6.7	11
		NT	10.4	14
		NT	7.3, 3.4	13
		NT	10.0	14
		NT	9.0	15
		NT	10.0	12
		NT	4.0	12
		863	37.0	16
		NT	7.7	12
		NT	11.5	15
		864	45.4	12
		865	23.0	14
		867	16.4	16

		NT	13.4	13
		NT	7.8	11
		NT	8.0	11
	87 Seedlings/saplings	**NT**	**<2**	

1.2.8 Jack Track

Plot	Species	Tag Number	DBH	Health
A	*Eucalyptus marginata*	521	13.8	17
		522	7.5	15
		523	5.0, 55.0, 30.5, 23.0	19
		NT	<2.0	15
		524	8.5, 9.3, 6.4, 6.1, <2.0, 59.8, 56.2	19
		525	26.3	15
		526	40.5, 41.8	19
		527	67.7, 8.0, 20.0	19
		528	49.0	17
		NT	<2.0	16
		529	27.1, 29.0, 21.0, 23.1	19
		18 X NT	<2.0	15
		530	8.5	13
		531	11.6, 7.0	18
		532	8.0	18
		533	5.0, 6.0	14
		534	4.5	13
		535	19.0, 9.8	19
		536	8.7	15
		537	12.4, 10.8, 12.3	19
		538	4.5, 4.2, <2.0, <2.0	18
		539	9.5	11
		540	4.5, 9.8	17

1.2.9 Scott Rd

Plot	Species	Tag Number	DBH	Health
A	*Corymbia calophylla*	474	95.2	12
		475	14.9	10
		477	120.0	20
		478	52.3	19
		479	29.9	15
		480	5.0, 3.7	15
		482	26.7	14
		483	3.4	10
		484	8.6	11
		485	8.1, 5.3	10
		NT	<2.0	14
		NT	<2.0	14
		NT	<2.0	14
	Eucalyptus marginata	476	45.0	17
		481	39.8	12
B	*Eucalyptus marginata*	486	20.5, 6.8	7
		487	5.4	14
		488	53.0	13
		490	18.0	13
		491	9.4	15
		492	2.2, <2.0	15
		493	9.2	15
		494	3.5	15
		495	5.2	15
		NT	<2.0	15
		497	12.2	15
		498	21.9	13
		500	33.1	8
		501	21.0	5
		502	18.0, 29.0, <2.0	12
	Corymbia calophylla	489	3.2, <2.0	14
		496	72.2	13
		499	29.8	13
C	*Corymbia calophylla*	503	9.0	9
		504	14.0	9
		505	20.5	12
		506	11.0	11
		508	45.5	14
		509	2.7	11
	Eucalyptus marginata	507	45.3	11
	Melaleuca preissiana	510	24.2, 60.4, 43.4	13
		511	6.0	8
		NT	<2.0	10
		NT	<2.0	10
D	*Eucalyptus marginata*	512	62.8, 67.1	19
		513	10.0, 7.0, 9.8, 9.4	19
		519	26.8	17
		520	40.5	17
	Corymbia calophylla	514	46.7	19
	Melaleuca preissiana	515	12.7	10
		516	7.6	5

		517	4.8	10
		518	8.1	9
		519	26.8	17
		520	40.5	17

1.2.10 Black Point Rd

Plot	Species	Tag Number	DBH	Health
A	*Corymbia calophylla*	81	12.0, 2.0, 1.5	15
		82	16.0, 8.3	10
		83	48.0	15
		84	6.0	19
		85	6.7	16
		86	7.3	16
		87	23.3	17
		89	16.3	14
		91	9.2	14
		96	13.7	17
		97	16.3	13
		NT	<2.0	10
		NT	<2.0	10
		NT	<2.0	10
		NT	<2.0	10
		NT	<2.0	10
		NT	<2.0	10
		NT	<2.0	10
		99	16.0	15
		100	11.2	15
		102	21.0	13
		103	33.0	15
		104	7.0	13
		105	50.0	17
		107	45.7	15
		110	2.5	14
		NT	<2.0	18
		NT	<2.0	18
		111	12.0	13
		112	19.3	10
		114	28.3, 12.0	15
		115	4.0	12
	Eucalyptus marginata	88	23.0, 6.7	15
		90	8.0	17
		92	8.5	14
		93	22.0	17
		94	8.0	14
		95	6.5	17
		NT	<2.0	18
		NT	<2.0	18
		NT	<2.0	18
		98	6.6, 2.5	16
		101	64.0	13
		106	73.0	15
		108	28.3, 8.0	15
		109	27.0	7
		113	10.2	13
		116	4.5	14
		117	11.0, 6.2,	12
		118	4.0, 3.3	12
		NT	<2.0	18

		NT	<2.0	18
		NT	<2.0	18
	252 *Euc/ Corymbia* seedlings			
B	*Eucalyptus marginata*	119	24.3, 13.0, 13.0, 51.8	14
		123	61.2	16
		126	53.0	11
		127	47.7	16
		128	8.0	13
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		130	8.1	17
		131	61.7	13
		134	11.2	15
		135	2.0	12
		136	2.0	12
	Corymbia calophylla	120	16.0	13
		121	11.3	13
		122	7.2	16
		124	14.0	14
		125	31.9	10
		129	42.0	15
		NT	3.0	8
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		NT	<2.0	15
		132	39.0	13
		133	54.0	13
C	*Corymbia calophylla*	137	9.7	15
		139	20.0	15
		140	6.6	14
		141	5.0	13
		142	9.2	15
		143	10.5	11
		144	8.2	12
		146	6.5	11
		147	2.7	11
		148	9.0	11
		149	30.2	9
		150	72.0	9
		151	3.5	13
		152	6.8	12
		153	83.0	13
		154	5.0	13
	Eucalyptus marginata	138	44.7	13
		145	67.6	10
	Eucalyptus/ Corymbia	20 x NT	<2.0	16

D	*Corymbia calophylla*	155	22.6	10
		157	15.8	12
		158	11.3	13
		161	12.8	13
		162	13	12
		163	9.4	13
		164	16.5	11
		166	19.7	13
		167	2.7	9
		168	8.0	13
		169	25.9	9
		170	3.7	14
		172	21.2	9
		173	47.4	12
		174	36.0	11
		175	7.9	12
	Eucalyptus marginata	156	30.5	dead
		159	36.3	6
		160	60.0	11
		165	2.0	13
		171	38.5	11
	Eucalyptus/ Corymbia	13 x NT	<2.0	15

Appendix 2: Baseline monitoring – understorey species data

2.1 Wetlands

2.1.1 Lake Jasper

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Banksia littoralis	3	-	2	-	4	2	-	-
Agonis flexuosa	2	-	3	-	4	2	3	1
Xanthorrhoea preissii	1	-	2	-	-	4	-	-
Xanthorrhoea brunonis	1	-	2	-	4	3	3	-
Sp. 122 Cyperaceae sp.	4	2	-	3	-	3	-	-
Senico ramossissmus	3	1	1	2	-	1	-	-
Anigozanthos flavidus	4	3	-	5	2	4	-	-
Callistachys lanceolata	2	2	2	3	-	4	-	-
Lobelia tenuior	2	2	-	2	1	1	-	1
Sp. 126	4	2	-	4	-	1	-	1
*Chenopodium album**	2	-	2	-	1	-	-	2
Sp. 128	4	2	2	4	-	5	-	1
Sp. 129* Asteraceae sp.	1	-	-	-	-	-	-	-
Lepidosperma longitudinale	2	3	3	3	2	3	3	1
Sp. 131 Poaceae sp.	2	-	-	-	-	-	-	-
Sp. 132*	3	-	3	-	-	-	-	1
*Conyza bonariensis**	2	-	-	1	-	1	-	1
Isolepis cernua	2	-	3	1	-	2	2	-
Sp. 135*	1	-	-	-	-	-	-	-
Sp. 136	2	-	2	3	-	-	-	-
Sp. 137 Epacridaceae	2	1	2	2	4	2	2	2
Hardenbergia comptoneana	1	-	-	-	-	-	-	-
Villarsia parnissifolia	1	2	-	1	-	2	-	-
Trachymene pilosa	1	1	-	2	-	2	-	-
Sp. 142 Restionaceae sp.	-	2	-	-	-	-	-	-
Taxandria inundata	-	8	-	-	-	-	3	4
Thelymitra fuscolutea	1	-	-	-	-	-	-	-
Sp. 145 Orchidaceae sp.	1	-	-	-	-	-	-	-
*Hypochaeris glabra**	1	-	1	-	-	-	-	-
Macrozamia reidlei	-	-	3	-	-	-	-	1
Sp. 148	2	-	2	-	3	2	3	4
Sp. 149A	-	-	2	-	-	1	1	1
Austostipa compressa	-	-	1	-	3	-	3	3
Sp. 150	-	-	1	-	2	1	2	2
Scaevola calliptera	-	-	2	-	1	-	-	-
Sp. 152 *Acacia* sp.	-	-	1	-	2	1	-	1
Sp. 153 *Drosera* sp.	-	-	2	-	2	1	-	1
Drosera menziesii	-	-	1	-	-	-	-	1
Sp. 155 Orchidaceae sp.	-	-	1	-	-	-	-	-
Sp. 156	-	-	-	1	-	-	-	-
Hypolaena pubescens	-	-	-	-	1	1	-	-
Tripterococcus brunonis	-	-	-	-	2	-	1	1
Velleia trinervis	-	-	-	-	1	-	2	2
Pteridium esculatum	-	-	-	-	-	-	3	3
Sp 160A	-	-	-	-	-	3	-	-
Pultenaea reticulata	-	-	-	-	-	-	3	3
Adenanthos obovatus	-	-	-	-	-	-	1	-

2.1.2 Lake Jasper - east

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Taxandria inundata	3		4		1			
Anigozanthos flavida	3			1				
Baumea articulata	6	8	2					
Callistachys lanceolata	2		2	3	2			
Sp 126	1			2				
Baumea juncea	5	7	5	2				
Sp 215	1							
Villarsia parnissifolia	2		3					
Sp 216	2							
Melaleuca preissiana			5	2				
Sp 217			1					
Pteridium esculatum				7	3	5	1	
Macrozamia reidlei				3	2	4	6	6
Senecio ramossissmus				1				
Opercularia hispidula				3	3	1		2
Acacia rostellifera				2	2	3	3	3
Sp 220				1				
Sp 221 /137 Epacridaceae sp				3	2	2	3	3
Xanthorrhoea preissii				3	4	3	4	5
Xanthorrhoea brunonis				1	3	2	3	2
Sp 129 Asteraceae sp.				1		1		
Eucalyptus megacarpa				4	2	2	1	
Pultenaea reticulata					2	4		1
Sp 131 Poaceae sp.					2	2	1	3
Villarsia parnissifolia					2			
Hardenbergia comptoneana					1	1	1	
Sp 204 Restionaceae sp.					2	2	1	3
Dampiera linearis					1	2	1	2
Anarthria prolifera					2		3	2
Sp 37 *Leucopogon sp.*						1		
Sp 99						1		
Sp 182 Rubiaceae sp.						2	1	1
Isolepis cernua						2	1	1
Stylidium diversifolia						2		
Sp 227					1	1	2	3
Hypolaena pubescens							2	
Banksia attenuata							1	
Comesperma confertum							1	1
Pultenaea drummondii							2	2
Gompholobium tomentosum								2
Sp 228 Epacridaceae sp.								2

2.1.3 Jangardup Rd

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Sp 55 Restionaceae sp.	4	-	-	-	-	-	-	-
Sp 60 Taxandria sp.	1	-	-	-	-	-	-	-
Sp 61 Restionaceae sp.	3	-	-	-	-	-	-	-
Meeboldina scariosa	2	-	1	-	-	-	-	-
Xyris roycei	1	-	1	-	-	-	1	-
Beaufortis sparsa	2	-	3	-	-	3	-	1
Sp 77 *Acacia sp.*	1	-	-	-	-	1	-	-
Sp 43	2	-	-	-	2	2	1	-
Homalospermum firmum	2	-	-	-	-	-	-	-
Astartea juniperina	6	-	-	-	-	-	-	-
Adenathos obovatus	1	2	3	2	3	2	1	1
Taxandria parviceps	-	3	2	1	2	7	1	5
Pericalymma ellipitcum	-	3	3	2	4	-	3	-
Anarthria prolifera	-	8	7	3	4	3	3	3
Dampiera linearis	-	2	2	2	1	1	1	-
Sp 19 *Isolepis* sp.	-	1	1	-	-	-	-	-
Anarthria scabra	-	1	4	9	1	6	5	9
Drosera sulphurea	-	1	1	1	2	1	2	1
Xanthorrhoea preissii	-	1	1	-	3	1	1	-
Dasypogon bromeliifolius	-	3	3	3	3	2	3	2
Evandra aristata	-	4	5	3	3	3	2	3
Pimelea longiflora	-	1	-	-	-	-	-	-
Amphipogon turbinatus	-	1	1	-	-	-	-	-
Lyginea imberbis	-	1	-	-	-	-	1	-
Comesperma confertum	-	1	1	1	-	-	1	-
Sp 70	-	3	-	-	-	-	-	-
Sp 77 *Acacia sp.*	-	2	2	3	3	-	3	1
Sp 82 *Acacia sp.*	2	1	-	1	-	5	-	-
Tremulina tremula	-	2	3	3	4	2	4	1
Melaleuca thymoides	-	3	3	3	4	1	3	-
Kunzea recurva	-	2	3	4	4	3	4	3
Kunzea micrantha	-	2	4	3	1	5	3	5
Boronia crenulata	-	1	2	1	2	1	1	-
Sp 90 Cyperaceae sp.	-	1	-	-	-	-	-	-
Thylymitra aff *macrophylla*	-	-	1	-	1	-	-	-
Cassytha racemosa	-	-	1	-	-	1	-	1
Sp 49 Restionacea sp.	-	-	2	-	-	-	-	-
Sp 50	-	-	1	-	-	-	-	-
Andersonia caerulea	-	-	1	-	-	1	-	-
Bossiaea linophylla	-	-	1	3	2	-	2	-
Sp 27 Restionaceae sp.	-	-	-	2	-	-	1	-
Sp 28 Restionaceae sp.	-	-	-	2	-	-	-	-
Sp 15 Papilionaceae sp.	-	-	-	1	-	-	-	-
Lomandra caespitosa	-	-	-	1	1	-	2	-
Xanthosia huegelii	-	-	-	1	-	-	-	-
Hakea falcata	-	-	-	3	2	-	-	2
Sp 41 *Drosera sp.*	-	-	-	-	2	-	-	-
Melaleuca preissiana	-	-	-	-	-	2	-	-
Hypocaylmma angustifolium	-	-	-	-	-	-	2	-

Sphenotoma gracile	-	-	-	-	-	-	1	1
Acacia pulchella var. *goadbyi*	-	-	-	-	-	-	-	1
Sp 93 *Hibbertia sp.*	-	-	-	-	-	-	-	1

2.1.4 Blackpoint Rd

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Sp 60 *Taxandria sp.*	3	-	1	-	-	-	-	-
Pericalymma ellipticum	1	5	3	4	-	5	-	2
Hakea certophylla	3	4	3	3	-	-	-	-
Sp 61 Restionaceae sp.	2	2	2	3	-	-	-	-
Meeboldina scariosa	2	1	1	-	-	-	-	-
Sp 55 Restionaceae sp.	3	-	2	-	-	-	-	-
Sp 63 Cyperaceae sp.	1	1	2	-	-	-	-	-
Xyris roycei	2	4	-	2	-	3	-	2
Melaleuca basicephala P4	1	-	-	-	-	-	-	-
Sp 65	1	1	2	-	-	-	-	1
Mesomelaena tetragona	-	2	-	4	3	-	-	3
Sp 26 Restionaceae sp.	-	2	-	-	-	3	-	-
Beaufortia sparsa	-	2	-	-	7	3	4	3
Cassytha racemosa	-	2	-	2	1	2	1	1
Chordifex amblycoleus	-	2	-	2	-	2	-	-
Lyginea barbata	-	2	-	-	-	-	-	-
Eutaxia obovata	-	2	-	2	-	3	-	-
Platychorda applanata	-	2	3	3	-	-	-	-
Sphenotoma gracile	-	1	-	1	3	2	2	3
Comesperma confertum	-	2	-	-	1	1	-	-
Diaspasis filifolia	-	2	-	-	-	-	-	-
Pimelea sulphurea	-	1	-	-	-	-	-	-
Sp 69 Papilionaceae sp.	-	1	-	-	1	-	-	-
Calothamnus lateralis	-	1	1	1	-	1	-	-
Sp 70	-	2	2	1	-	-	-	-
Stylidium dichotomum	-	1	-	-	-	-	-	-
Sp 72 *Drosera sp.*	-	1	-	2	-	-	-	-
Petrophile serruiae	-	-	2	-	-	-	-	-
Dampiera linearis	-	-	-	1	2	1	-	2
Sp 50	-	-	-	3	-	-	-	4
Sp 41 *Drosrea sp.*	-	-	-	2	1	-	-	-
Sp 74 Restionaceae sp.	-	-	-	2	-	-	-	-
Taxandria parviceps	-	-	-	-	4	4	5	7
Acacia browniana	-	-	-	-	2	-	-	-
Anarthria scabra	-	-	-	-	4	3	10	-
Drosera menziesii	-	-	-	-	2	1	1	2
Stylidium scandens	-	-	-	-	2	2	1	2
Melaleuca preissiana	-	-	-	-	8	-	6	7
Pultenaea reticulata	-	-	-	-	3	-	-	-
Sp 77 *Acacia sp.*	-	-	-	-	3	2	-	-
Persoonia longiflora	-	-	-	-	1	-	2	-
Adenanthos obovatus	-	-	-	-	-	1	1	2
Anarthria prolifera	-	-	-	-	-	3	2	4
Sp 15 Papilionaceae sp.	-	-	-	-	-	2	-	1
Xanthorrhoea preissii	-	-	-	-	-	1	-	2
Sp 27 Restionaceae sp.	-	-	-	-	-	3	-	-
Cyathochaeta avenacea	-	-	-	-	-	1	-	-
Dasypogon bromeliifolius	-	-	-	-	-	3	1	1
Pimelea longiflora	-	-	-	-	-	3	-	4
Sp 45 Restionaceae sp.	-	-	-	-	-	2	-	-

Sp 49 Restionaceae sp.	-	-	-	-	-	2	-	-
Sp 79 *Drosera sp.*	-	-	-	-	-	2	-	-
Daviesia inflata	-	-	-	-	-	2	-	3
Hakea falacta	-	-	-	-	-	1	-	4
Sp 47	-	-	-	-	-	-	2	2
Xanthorrhoea brunonis	-	-	-	-	-	-	-	1
Johnsonia lupupina	-	-	-	-	-	-	-	1
Sp 82 *Acacia sp.*	-	-	-	-	-	-	-	1

2.1.5 Pneumonia Rd

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Pericalymma ellipticum	7	5	3	3	7	5	9	9
Xanthorrhoea preissii	3	3	2	2	3	2	-	-
Xanthorrhoea brunonis	3	2	2	3	-	2	-	1
Melaleuca preissiana	5	4	-	-	-	3	-	-
Dampiera trigona	2	2	3	4	2	3	-	3
Acacia myrtifolia	2	3	2	3	-	4	-	3
Sp 2 Acacia	3	-	-	-	-	-	-	-
Desmocladus castanues	3	6	-	2	-	7	-	5
Briza minor	2	-	-	-	-	1	-	-
Scaevola calliptera	1	-	-	-	-	1	-	-
Dampiera linearis	2	1	-	-	-	-	-	-
Xanthosia huegelii	2	1	-	-	-	1	-	-
Drosera sp 1	2	1	-	-	-	-	-	-
Conostylis laxiflora	2	1	-	-	-	1	-	1
Thysanotus tenullus	1	1	-	1	-	-	-	-
Hibbertia stellaris	1	-	-	1	-	1	-	1
Sp 10 sedge 1	3	-	-	-	-	-	-	-
Sp 11 sedge 2	3	5	4	2	4	-	-	-
Lomandra purpurea	3	2	-	-	-	-	-	-
Sp 13 sedge 4	3	2	-	-	-	-	-	-
Dasypogon bromeliifolius	-	4	-	-	-	3	-	2
Sphaerolobium medium	-	2	2	3	3	2	3	3
Chamaescilla corymbosa	-	2	-	-	-	-	-	1
Pimelea lanata	-	1	-	2	-	-	-	-
Adenanthos obovatus	-	1	-	-	-	-	-	-
Polypogon monspeliensis	-	1	-	-	-	1	-	-
Sp 18 hairy trifolium	-	1	-	-	-	-	-	1
Taxandria parviceps	-	5	-	-	-	1	1	-
Hypolaena pubescens	-	2	-	-	-	-	-	-
Sp 21	-	-	3	2	3	3	4	3
Xyris roycei	-	-	-	4	2	2	3	2
Mesomelaena tetragona	-	-	3	2	-	-	-	-
Amphipogon turbinatus	-	-	2	-	-	-	-	2
Comesperma confertum	-	-	2	-	1	-	-	1
Hakea ceratophylla	-	-	4	-	3	-	3	1
Hakea linearis	-	-	2	2	3	1	1	1
Banksia littoralis	-	-	2	-	-	-	-	-
Taxandria linearifolia	-	-	4	6	6	7	-	1
Sphaerolobium fornicatum	-	-	2	2	-	-	-	-
Melaleuca basicephala (P4)	-	-	1	-	1	-	1	-
Cassytha racemosa	-	-	1	2	-	2	-	-
Villarsia parnasifolia	-	-	1	2	-	2	-	2
Hibbertia cunninghamii	-	-	1	1	-	-	-	2
Sp 33	-	-	-	2	-	2	-	2
Conospermum capitatum	-	-	-	1	-	-	-	2
Sp 35	-	-	-	2	-	1	-	-
Pimelea spectabilis	-	-	-	-	2	2	2	2
Sp 37	-	-	-	-	3	3	5	3
Sp 38	-	-	-	-	2	-	-	-

Sp 39	-	-	-	-	2	2	3	4
Sp 40	-	-	-	-	-	1	-	-
Sp 41	-	-	-	-	-	1	-	-
Chordifex amblycoleus	-	-	-	-	-	-	2	-
Nuytsia floribunda	-	-	-	-	-	-	-	2
Hakea sulcata	-	-	-	-	-	-	-	1

2.1.6 Blackpoint/ Fouracres Rd

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Taxandria parviceps	3	4	4	4	2	-	2	3
Pericalymma ellipticum	4	2	5	5	7	9	8	5
Anarthria scabra	4	7	-	-	3	-	-	-
Stylidium scandens	2	2	1	-	1	-	-	-
Lindsaea linearis	2	2	-	-	-	-	-	-
Mesomelaena tetragona	4	3	4	3	-	4	1-	2
Eucalyptus marginata	1	6	1	1	2	-	-	-
Adenanthos obovatus	1	1	-	-	1	-	-	1
Hibbertia stellaris	2	1	-	-	2	-	2	1
Sphaerolobium medium	2	2	3	-	1	-	-	-
Anarthria prolifera	4	3	4	4	4	-	3	4
Acacia browniana	1	-	-	-	-	-	-	-
Andersonia caerula	1	3	2	-	2	-	-	-
Xanthorrhoea preissii	1	-	1	-	2	-	4	4
Dampiera linearis	1	1	1	-	1	-	-	1
Sp 15 Papilionaceae sp.	2	3	-	3	2	-	1	1
Sp 16 *Acacia sp.*	1	-	-	-	-	-	-	-
Conostylis laxiflora	1	-	-	-	-	-	-	-
Xanthosia huegelii	1	-	1	-	-	-	-	-
Sp 19 *Isolepis sp.*	1	-	2	-	1	-	1	-
Sp 20 *Hemigenia sp.*	1	1	1	2	1	-	2	1
Hypocalymma angustifolium	1	1	3	-	3	-	3	2
Nuytsia floribunda	1	-	-	-	-	-	2	-
Sp 23 *Drosera sp.*	-	1	2	-	2	-	-	-
Drosera sulphurea	2	1	2	-	-	-	-	-
Drosera menziesii	1	1	1	1	-	-	-	1
Sp 26 Restionaceae sp.	3	3	2	3	-	2	-	2
Sp 27 Restionaceae sp.	2	1	2	2	1	1	-	1
Sp 28 Restionaceae sp.	1	-	2		1	-	-	-
Cyathochaeta avenacea	1	-	-	1	-	-	1	-
Hypocalymma robustum	1	1	-		-	-	-	-
Dasypogon bromeliifolius	-	1	4	3	3	-	3	3
Evandra aristata	-	1	-	-	2	-	-	2
Lomandra caespitosa	-	2	2	-	-	-	-	-
Pimelea longiflora	-	2	1	1	1	-	-	-
Burchardia umbellata	-	1	1	-	-	-	-	-
Johnsonia lupulina	-	1	1	-	1	-	-	1
Sp 37 *Leucopogon sp.*	-	1	-	-	-	-	-	-
Thelymitra aff. *macrophylla*	-	-	1	-	-	-	-	-
Cassytha racemosa	-	-	1	-	1	-	-	-
Beaufortia sparsa	-	-	3	1	4	-	-	4
Melaleuca preissiana	-	-	-	1	1	-	-	2
Sp 41 *Drosera sp.*	-	-	-	-	-	-	-	-
Xyris roycei	-	-	-	3	2	1	2	3
Sp 43	-	-	-	3	4	-	3	1
Amphipogon turbinatus	-	-	-	2	-	-	1	-
Sp 45 Restionaceae sp.	-	-	-	1	-	1	-	1
Chordifex amblycoleus	-	-	-	1	-	3	-	-
Sp 47	-	-	-	-	3	-	2	1

Lyginea imberbis	-	-	-	-	2	-	1	-
Sp 49 Restionaceae sp.	-	-	-	-	2	-	2	1
Sp 50	-	-	-	-	-	-	1	2
Eutaxia obovata	-	-	-	-	-	1	-	-
Hakea certophylla	-	-	-	-	-	3	-	-
Calothamnus lateralis	-	-	-	-	-	2	1	1
Platychorda applanata	-	-	-	-	-	2	-	-
Sp 55 Restionaceae sp.	-	-	-	-	-	1	3	-
Sp 56 *Leucopogon sp.*	-	-	-	-	-	-	2	-
Utricularia nultifida	-	-	-	-	-	-	-	1
Sphenotoma gracile	-	-	-	-	-	-	-	2
Sp 59 *Trifolium sp.*	-	-	-	-	-	-	-	1

2.1.7 Blackpoint Rd – base of dunes

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Taxandria linearifolia	2	-	5	4	3	4	4	3
Evandra aristata	3	3	1	1	-	-	-	-
Astartea juniperina	4	3	3	5	5	3	-	3
Eutaxia virgata	3	1	3	3	2	2	1	-
Sphenotoma gracile	3	3	-	-	-	-	-	-
Meeboldinia scariosa	2	3	3	2	3	3	2	2
Cassytha racemosa	3	3	2	2	4	4	2	3
Comesperma confertum	1	-	1	1	2	2	1	1
Sp 69 Papilionaceae sp.	3	1	2	3	-	-	2	2
Dampiera linearis	2	1	-	1	2	-	-	-
Sp 191 Cyperaceae sp.	2	-	-	-	-	1	1	-
Hakea linearis	3	1	3	2	2	2	2	1
Boronia stricta	3	2	2	2	1	-	-	-
Stylidium pygmaeum	2	1	2	-	-	-	-	-
Acacia pulchella var. *goadbyi*	2		2	2	3	-	-	-
Sp 82 *Acacia sp.*	2	3	3	2	-	-	-	-
Melaleuca rhaphiophylla	3	1	-	3	4	-	2	2
Haemodorum spicatum	1	-	-	-	-	2	2	2
Lepidosperma longitudinale	2	3	4	4	4	4	5	5
Sp 177	2	-	2	-	-	-	-	-
Hypolaena pubescens	3	-	2	3	2	2	-	-
Sp 203	2	-	-	-	-	-	-	-
Taxandria parviceps	-	7	3	2	-	-	-	-
Sp 204 Restionaceae sp.	-	4	2	2	2	-	-	-
Sp 205 Proteaceae sp.	-	2	-	-	-	-	-	-
Kunzea spathulata	-	2	-	-	-	-	-	-
Cyathochaeta avenacea	-	-	3	2	2	2	2	3
Banksia littoralis	-	-	2	2	-	-	-	-
Stylidium calcaratum	-	-	2	2	-	-	-	-
Sp 207 *Pimelea sp.*	-	-	1	1	-	2	-	3
Sp 208	-	-	2	2	1	1	-	-
Stylidium diversifolia	-	-	1	2	-	-	-	-
Melaleuca laterita	-	-	-	-	3	3	4	3
Xyris roycei	-	-	-	-	1	1	1	1
Sp 209	-	-	-	-	1	1	2	2
Stylidium fasciculatum	-	-	-	-	2	1	-	2
Sp 98 Restionaceae sp.	-	-	-	-	-	3	-	2
Xanthosia sp.	-	-	-	-	-	1	4	3
Sp 212 Restionaceae sp.	-	-	-	-	-	-	3	-
Sp 213 Restionaceae sp.	-	-	-	-	-	-	3	-
Velleia trinervis	-	-	-	-	-	-	1	-

2.1.8 Blackpoint Rd – dunes

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Taxandria juniperina	5	5	3	3	3	3	2	2
Cassytha racemosa	4	3	1	1	2	2	2	-
Eutaxia virgata	5	7	4	4	4	3	5	3
Sp 61 Restionaceae sp.	4	4	4	2	3	2	2	2
Amphipogon turbinatus	2	-	1	-	-	-	-	-
Sp 191 Cyperaceae sp.	1	1	2	2	3	2	-	1
Melaleuca preissiana	2	7	3	3	-	-	2	-
Thysanotus arenarius	2	2	1	1	-	-	-	-
Hakea linearis	3	1	-	-	-	-	-	-
Patersonia occidentalis	1	-	2	-	-	1	-	-
Eutaxia myrtifolia	2	1	2	2	-	-	1	-
Sp 197	1	1	-	-	-	-	-	-
Kunzea spathulata	3	1	3	3	4	3	6	4
Villarsia parnissifolia	1	2	1	2	2	-	1	-
Astartea juniperina	-	2	-	-	-	-	-	2
Sp 199 Lobeliaceae sp.	1	-	-	-	-	1	1	-
Comesperma confertum	-	-	-	1	-	-	1	-
Melaleuca laterita	-	-	-	-	3	-	-	-
Lepidosperma longitudinale	-	-	-	-	3	2	2	3
Pericalymma ellipticum	-	-	-	-	-	1	-	-
Banksia littoralis	-	-	-	-	-	3	-	-

2.1.9 Darradup Rd East

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Anarthria scabra	7	7	7	7	2	4	-	3
Adenanthos obovatus	3	3	2	3	2	3	1	2
Pimelea longiflora	1	2	2	1	2	2	1	2
Haemodoracea spicatum	3	2	2	-	-	-	-	-
Sp 2 *Jacksonia sp.*	1	-	1	-	-	-	-	-
Xanthorrhoea preissii	1	-	-	-	-	-	-	-
Dasypogon bromeliifolius	2	3	3	3	2	3	4	2
Sp 3	2	3	3	-	2	2	2	-
Johnsonia lupulina	1	1	-	-	1	2	-	-
Velleia trinervis	2	2	2	-	1	-	-	-
Drosera marchantii	2	2	2	1	-	2	-	2
Drosera sp 2	2	2	2	2	-	-	-	-
Sp 6	2	2	2	-	-	-	-	-
Sp 7 *Dampiera sp.*	2	2	2	-	-	-	-	-
Lyginea imberbis	2	2	1	-	-	1	-	-
Sp 9	2	3	2	2	-	-	-	-
Adenanthos meisneri	2	3	3	-	1	-	-	-
Pericalymma ellipticum	1	3	3	1	-	2	3	2
Sp 11	2	2	-	2	1	-	-	-
Sp 12 *Lomandra sp.*	3	2	3	-	2	3	-	2
Astartea juniperiana	-	4	-	4	3	3	-	4
Beaufortia sparsa	-	2	-	1	1	2	-	2
Sp 13 *Acacia sp.*	-	2	1	-	1	2	1	1
Gahnia trifida	-	1	2	3	-	-	-	-
Nuytsia floribunda	-	1	2	-	1	2	2	-
Eucalyptus marginata	-	-	5	-	-	-	-	-
Dampiera linearis	-	-	2	2	-	2	-	1
Sp 15 *Stylidium sp.*	-	-	1	-	-	-	-	-
Sp 16 *Isolepis sp*	-	-	2	2	-	2	2	1
Drosera sp. 3	-	-	1	-	2	1	2	2
Melaleuca preissiana	-	-	-	4	-	4	1	2
Hypocalymma angustifolium	-	-	-	3	4	3	4	4
Sp 17	-	-	-	3	-	-	-	-
Boronia anceps	-	-	-	2	2	-	2	-
Sp 19 *Hibbertia sp.*	-	-	-	1	-	-	-	-
Evandra aristata	-	-	-	2	-	-	-	-
Sp 21	-	-	-	3	3	2	4	-
Sp 22 = sp 49 w book Restionaceae sp.	-	-	-	2	-	-	-	-
Sp 23	-	-	-	3	-	2	-	-
Sp 24	-	-	-	1	1	2	-	1
Drosera sp 4	-	-	-	-	1	-	-	-
Stylidium repens	-	-	-	-	1	2	4	2
Sp 26	-	-	-	-	2	2	2	2
Mitrasacme paradoxa	-	-	-	-	1	-	-	2
Sp 28	-	-	-	-	2	2	2	2
Sp 29	-	-	-	-	2	-	-	-
Sp 30	-	-	-	-	2	2	-	2
Sp 31	-	-	-	-	-	1	-	2

Hakea ceratophylla	-	-	-	-	-	-	1	-
Hakea linearis	-	-	-	-	-	-	1	-
Desmocladus castaneus	-	-	-	-	-	-	2	2
Taxandria parviceps	-	-	-	-	-	-	2	-
Lindsaea linearis	-	-	-	-	-	-	-	1

2.1.10 Darradup Rd West

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Mesomelaena tetragona	3	3	2	2	-	2	1	3
Dampiera linearis	1	1	1	1	1	1	2	2
Sp 15 Papilionaceae sp.	2	1	1	-	1	1	1	2
Drosera menziesii	1	1	-	2	1	1	1	-
Dasypogon bromeliifolius	3	3	3	4	5	3	3	-
Evandra aristata	1	1	4	1	1	1	-	-
Beaufortia sparsa	4	3	3	2	4	3	3	-
Hakea certophylla	3	2	-	-	-	-	-	-
Calothamnus lateralis	2	3	-	-	2	1	3	-
Sphenotoma gracile	1	1	1	2	2	2	2	-
Comesperma confertum	1	-	-	-	-	-	-	-
Homalospermum firmum	3	3	4	5	3	4	3	-
Astertea juniperiana	1	3	1	3	2	1	2	-
Taxandria parviceps	5	7	8	5	5	5	5	2
Sp 37 *Leucopogon sp.*	1	-	-	2	-	1	-	-
Sphaerolobium fornicatum	2	2	2	2	2	2	2	-
Conospermum capitatum	2	1	1	1	2	1	-	-
Sp 97 Restionaceae sp.	3	3	2	-	2	2	2	-
Sp 98 Restionaceae sp.	2	2	3	2	2	2	2	-
Sp 26 Restionaceae sp.	2	-	-	-	-	-	-	-
Sp 99	1	-	-	-	-	-	-	-
Adenathos obovatus	1	-	3	2	3	2	1	-
Sp 19 *Isolepis*	1	-	-	-	-	-	-	-
Drosera sulphera	1	-	2	-	1	1	1	-
Sp 37 *Leucopogon sp.*	1	-	-	-	-	-	-	-
Sp 41 *Drosera sp.*	2	-	-	-	-	-	-	2
Sp 28 Restionaceae sp.	-	2	-	-	-	-	1	-
Conostylis laxiflora	-	1	-	1	2	-	-	-
Boronia anceps	-	2	-	-	-	-	1	-
Daviesia inflata	-	-	1	1	-	-	-	-
Lyginea imberbis	-	-	1	2	1	-	-	-
Cassytha racemosa	-	-	-	1	-	-	-	-
Pimelea longiflora	-	-	-	1	-	-	-	-
Sp 101	-	-	-	1	-	-	-	-
Haemodorum spicatum	-	-	-	2	-	-	-	-
Sp 103	-	-	-	1	-	-	-	-
Sp 55 Restionaceae sp.	-	-	-	2	-	2	3	-
Sp 82 *Acacia sp.*	-	-	-	-	2	3	2	-
Pericalymma ellipticum	-	-	-	-	-	-	-	2
Acacia browniana	-	-	-	-	-	-	-	1
Xanthosia huegelii	-	-	-	-	-	-	-	1
Eucalyptus marginata	-	-	-	-	-	-	-	2
Lindsaea linearis	-	-	-	-	-	-	-	2
Cyathochaeta avenacea	-	-	-	-	-	-	-	1
Utricularia multifida	-	-	-	-	-	-	-	1
Patersonia umbrosa	-	-	-	-	-	-	-	1
Taxandria linearifolia	-	-	-	-	-	-	-	2
Pimelea spectabilis	-	-	-	-	-	-	-	1
Leschenaultia biloba	-	-	-	-	-	-	-	1
Dryandra lindleyana	-	-	-	-	-	-	-	1

Sp 109 *Hibbertia sp.*	-	-	-	-	-	-	-	1
Stylidium diversifolia	-	-	-	-	-	-	-	2
Loxocarya exsulca	-	-	-	-	-	-	-	3
Sp 113	-	-	-	-	-	-	-	3
Sp 114 Restionaceae sp.	-	-	-	-	-	-	-	3

2.1.11 Blackwood River Crossing

Species	**Cover and abundance**							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Pericalymma ellipticum	10	10	9	10	8	10	10	10
Cassytha racemosa	2	1	1	3	-	2	-	-
Sp 55 Restionaceae sp.	2	4	3	3	6	2	5	5
Conostylis laxiflora	3	3	3	3	2	3	3	3
Sp 113	3	2	3	3	3	3	4	4
Sp 41 *Drosera sp.*	2	1	-	-	-	1	-	-
Sp 163 *Hakea sp.*	3	3	2	3	4	3	2	4
Comesperma confertum	1	1	-	-	-	1	-	1
Anarthria prolifera	2	-	-	-	-	1	-	-
Mesomelaena tetragona	2	3	-	-	-	-	-	-
Anigozanthos flavidus	-	3	2	-	4	-	1	2
Oxylobium lineare	-	3	3	1	-	-	-	-
Sp 165 *Hakea sp.*	-	-	2	-	-	1	-	1
Dampiera linearis	-	-	1	-	2	-	-	-
Melaleuca preissiana	-	-	-	-	10	1	-	-
Lobelia alata	-	-	-	-	2	-	-	1
Sp 167 Poaceae sp.	-	-	-	-	2	-	-	-
Sp 37 *Leucopogon sp.*	-	-	-	-	1	-	-	-
Villarsia parnissifolia	-	-	-	-	-	-	-	1

2.1.12 Brockman Highway

Species	Cover and abundance					
	A1	A2	B1	B2	C1	C2
Taxandria linearifolia	4	8	7	6	7	-
Sp 168 *Leucopogon sp.*	1	-	-	-	-	-
Pteridium esculentum	7	1	-	-	1	4
Banksia littoralis	3	-	-	-	-	-
Astartea juniperina	2	2	3	3	4	-
Comesperma confertum	1	-	-	-	2	-
Sp 170 *Acacia sp.*	4	-	-	3	3	-
Acacia pulchella var. goadbyi	1	-	-	-	-	-
Eucalyptus rudis	4	-	-	-	-	-
Mirbelia dilatata	1	-	-	-	-	2
Tremandra stelligera	3	-	-	-	-	-
Dampiera hederacea	3	1	-	1	-	-
Sp 175	5	5	3	3	3	-
Sphaerolobium medium	2	2	2	3	3	-
Sp 98 Restionaceae sp.	2	5	5	-	3	-
Sp 177	3	-	-	-	-	-
*Hypochaeris glabra**	1	-	-	-	-	-
Sp 179	-	1	-	-	-	-
Lepidosperma tetraquetrum	-	9	5	2	-	-
Sp 181 Restionaceae sp.	-	5	6	5	2	-
Taxandria juniperiana	-	-	-	3	-	-
Cassytha racemosa	-	-	-	1	2	-
Orchid sp.	-	-	-	1	-	-
Sp 182 Rubiaceae sp.	-	-	-	2	-	-
Anigozanthos flavidus	-	-	-	-	1	1
Lobelia alata	-	-	-	-	1	-
Haemodorum spicatum	-	-	-	-	-	2
Scaevola calliptera	-	-	-	-	-	3
Xanthorrhoea preissii	-	-	-	-	-	2
Sp 134 T* *Lomandra sp.*	-	-	-	-	-	3
Lomandra purpurea	-	-	-	-	-	2
Sp 44 T* *Acacia sp*	-	-	-	-	-	5
Cyathochaeta avenacea	-	-	-	-	-	1
Persoonia longiflora	-	-	-	-	-	1
Sp 170W* *Acacia sp.*	-	-	-	-	-	1
Patersonia umbrosa	-	-	-	-	-	2
Trymalium floribundum	-	-	-	-	-	1
Sp 202T*	-	-	-	-	-	4
Corymbia calophylla	-	-	-	-	-	10
Eucalyptus marginata	-	-	-	-	-	4
Billardiera laxiflora	-	-	-	-	-	1
Opercularia hispidula	-	-	-	-	-	2
Sp 14T *	-	-	-	-	-	1
Cassytha racemosa	-	-	-	-	-	1
Lindsaea linearis	-	-	-	-	-	1
Sp 62T*	-	-	-	-	-	1
Anarthria prolifera	-	-	-	-	-	1

W* - species in wetland field herbarium; T* - species in terrestrial field herbarium

2.1.13 Stewart Rd

Species	Cover and abundance							
	A1	**A2**	**B1**	**B2**	**C1**	**C2**	**D1**	**D2**
Chordifex amblycoleus	3	-	-	-	-	3	3	-
Platychorda applanata	3	3	6	3	5	5	3	-
Cyathachaeta avenacea	2	3	2	-	2	1	1	2
Hakea certophylla	2	2	4	1	3	4	3	4
Pericalymma ellipticum	4	2	5	3	2	7	7	4
Cassytha racemosa	1	-	2	-	-	-	-	-
Eutaxia virgata	2	1	3	7	5	3	2	2
Sp 74 Restionaceae sp.	2	-	4	2	2	-	2	-
Sp 183 Restionaceae sp.	2	3	4	-	-	-	-	-
Hakea linearis	3	2	5	4	4	3	5	1
Melaleuca laterita	2	-	2	2	2	1	3	3
Sp 186 Lobeliaceae sp.	1	1	-	-	-	-	-	-
Melaleuca basicephala (P4)	-	3	2	-	-	1	-	2
Drosera glanduligera	-	1	1	-	-	-	-	-
Sp 191 Cyperaceae sp.	-	2	3	-	2	-	-	2
Astartea juniperina	-	-	-	-	1	-	-	-
Sp 192	-	-	-	-	1	2	1	-
Sp 63 Cyperaceae sp.	-	-	-	-	-	1	-	3
Sp 193	-	-	-	-	-	1	-	2
Acacia pulchella var. goadbyi	-	-	-	-	-	-		3

2.1.14 Poison Gully

Species	Cover and abundance			
	A1	**A2**	**B1**	**B2**
Astartea juniperina	2	1	2	1
Casuarina fraseriana	4	-	-	-
Eucalyptus marginata	3	-	-	-
Taxandria parviceps	-	-	-	2
Anarthria scabra	7	-	-	-
Dampiera linearis	2	-	1	-
Sp 16 *Acacia sp.*	2	-	-	-
Pimelea longiflora	1	-	-	-
Cassytha racemosa	1	3	3	2
Beaufortia sparsa	1	-	2	4
Sp 47	2	-	-	1
Sphenotoma gracile	-	-	2	-
Pulteneae reticulata	3	-	-	-
Kunzea recurva	-	-	-	3
Sphaerolobium fornicatum	1	2	2	-
Sp 97 Restionaceae sp.	2	-	-	2
Sp 98 Restionaceae sp.	-	3	3	-
Taxandria pariceps	4	3	3	5
Loxocarya exsulca	3	-	-	-
Sp 115	3	10	9	3
Callistemon glaucus	-	3	3	4
Pultenaea drummondii	-	-	-	3
Xanthorrea preissii	4	-	-	-

2.2 Terrestrial Sites

2.2.1 Blackpoint/ Fouracres Rd

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Hovea elliptica	1	-	1	-	-	1	-	1
Hibbertia cunninghamii	2	1	1	-	2	2	1	-
Patersonia umbrosa	2	1	2	2	2	-	-	-
Platysace tenuissima	2	3	1	2	-	1	-	-
Trymalium floribundum	1	2	-	-	-	-	-	-
Acacia browniana	2	3	2	3	2	3	-	-
Lindsaea linearis	2	1	3	3	1	1	2	2
Sp 14	2	1	3	3	3	-	3	4
Sp 12 *Stylidium sp.*	1	-	-	-	-	-	-	-
Pimelea spectabilis	2	3	-	2	-	2	1	-
Sphaerolobium fornicatum	2	2	-	-	-	1	-	-
Grevillea quercifolia	2	1	-	-	-	-	-	-
Scaevola calliptera	3	2	-	-	-	1	1	3
Anarthria prolifera	3	3	2	3	2	3	3	2
Sp 37	1	-	-	-	-	-	-	-
Dampiera linearis	2	2	2	2	1	2	-	-
Taxandria parviceps	1	-	2	4	-	3	4	1
Leucopogon verticillatus	1	-	-	-	-	2	-	-
Persoonia longiflora	3	1	1	1	2	2	1	1
Sp 48 *Drosera sp.*	1	1	1	-	-	-	1	1
Stylidium scandens	2	3	2	3	1	1	1	2
Daviesia inflata	3	2	2	1	-	3	-	-
Andersonia caerulea	1	2	2	2	2	2	2	-
Hypocalymma robustum	1	2	2	2	1	2	2	2
Mesomelaena tetragona	1	-	-	-	-	-	-	-
Conostylis laxiflora	1	-	-	-	-	-	-	-
Drosera erythrorhiza	1	1	-	1	-	1	2	2
Xylomelon occidentale	3	3	3	-	-	2	1	2
Banksia grandis	4	4	1	1	2	2	2	-
Macrozamia riedlei	3	-	-	2	-	1	3	3
Xanthorrhoea preissii	5	5	5	4	1	3	5	3
Corymbia calophylla	5	5	2	3	-	-	9	2
Eucalyptus marginata	4	4	-	-	-	-	-	8
Samolus repens	3	-	2	-	-	-	-	-
Anarthria scabra	2	3	2	5	2	4	3	8
Sp 75	3	-	1	2	-	-	1	-
Sp 77 Orchidaceae sp.	1	-	-	-	-	-	-	-
Thelymitra aff. *macrophylla*	1	1	1	1	-	1	1	-
Comesperma ciliatum	2	1	-	2	-	-	-	1
Kennedia coccinea	1	1	-	-	-	3	-	-
Cassytha racemosa	-	2	-	-	-	1	-	-
Adenanthos obovatus	-	1	3	2	3	2	3	2
Dasypogon bromeliifolius	-	3	3	3	1	3	3	4
Sp 62 (Restionaceae)	-	2	-	-	1	-	2	-
Billardiera laxiflora	-	1	-	-	-	-	-	1
Opercularia hispidula	-	1	2	1	1	2	1	1
Sp 83 *Acacia sp.*	-	3	1	5	2	4	1	3
Platysace filiformis	-	-	1	1	1	-	-	1

Sp 44 *Acacia sp.*	-	-	3	-	-	4	-	2
Tremandra diffusa	-	-	1	2	-	1	-	2
Bossiaea praetermisa	-	-	1	1	-	1	1	1
Stylidium calcartum	-	-	1	-	1	-	-	-
Johnsonia lupinina	-	-	2	-	-	-	-	-
Sp 90 *Lomandra sp.*	-	-	1	-	-	-	-	-
Burchardia umbellata	-	-	1	-	-	-	-	1
Leucopogon capitellatus	-	-	1	-	-	-	-	-
Leucopogon propinqus	-	-	-	2	-	-	-	-
Stylidium schoendes	-	-	-	1	-	-	-	-
Sp 94 *Waitzia sp.*	-	-	-	-	1	-	-	-
Mitrasacme paradoxa	-	-	-	-	1	-	-	-
Xanthorrhoea brunonis	-	-	-	-	-	3	-	2
Sp 84	-	-	-	-	-	1	-	-
Sp 46 *Leucopogon sp.*	-	-	-	-	-	1	1	-
Pulteneae reticulata	-	-	-	-	-	-	3	-

2.2.2 Darradup Rd East

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Hypocalymma robustum	2	3	2	2	-	-	-	1
Anarthria scabra	4	4	2	4	3	1	2	-
Scaevola calliptera	2	-	-	2	-	1	-	-
Burchardia umbellata	2	1	-	1	-	-	-	-
Lindsaea linearis	2	3	3	3	-	3	5	-
Adenanthos obovatus	1	1	3	3	2	1	1	1
Sp 48 *Drosera sp.*	2		1	1	-	-	-	-
Dasypogon bromeliifolius	3	3	-	3	2	2	-	1
Nuytsia floribunda	1	-	1	-	-	1	7	-
Taxandria parviceps	4	-	4	4	6	3	4	2
Stylidium scandens	1	-	-	-	2	-	-	-
Pentapeltis peltigera	1	-	-	-	-	-	-	1
Eucalytpus marginata	2	3	-	5	-	7	-	6
Allocasuarina fraseriana	7	3	8	2	1	2	2	2
Adenanthos meisneri	3	3	4	2	2	-	-	-
Leucopogon propinqus	1	2	-	2	-	-	1	1
Sp 99 *Andersonia sp.*	1	-	-	-	-	-	-	-
Lomandra purpurea	2	2	2	1	2	-	-	-
Sp 101	1	-	-	2	2	2	2	2
Trymalium floribundum	1	2	1	1	1	1	1	-
Pimelea spectabilis	2	1	1	-	1	2	1	1
Hypolaena exculsa	1	2	2	-	-	-	-	-
Hibbertia inconspicua	1	-	-	-	-	-	-	-
Dampiera linearis	2	-	2	2	-	-	-	-
Drosera pallida	2	-	-	-	-	-	-	-
Sp 105 Cyperaceae sp.	-	1	-	2	-	-	-	-
Lyginea barbata	-	1	2	-	2	-	-	-
Melaleuca thymoides	-	2	2	1	-	-	-	-
Sp 108	-	2	2	1	-	-	-	-
Opercularia hispidula	-	2	1	1	1	-	-	2
Sp 109	-	1	1	2	-	2	-	1
Sp 110 Epacridaceae sp.	-	1	1	-	-	-	-	-
Haemodorum spicatum	-	1	1	-	-	-	-	1
Persoonia longiflora	-	-	2	-	-	-	-	-
Drosera erythrorhiza	-	-	2	-	-	-	-	-
Daviesia inflata	-	-	1	-	-	-	-	-
Sp 112 Papilionaceae sp.	-	-	1	-	-	-	-	-
Xanthorrhoea gracilis	-	-	1	-	-	-	-	-
Sp 14	-	-	-	3	-	-	-	-
Corymbia calophylla	-	-	-	5	-	-	3	5
Platysace filiformis	-	-	-	2	-	-	1	-
Pimelea longiflora	-	-	-	1	1	-	-	-
Sp 118 *Comesperma sp.*	-	-	-	2	-	-	-	-
Cassytha racemosa	-	-	-	1	-	-	-	-
Platysace tenuissima	-	-	-	-	1	1	2	-
Conostylis laxiflora	-	-	-	-	1	-	1	-
Patersonia umbrosa	-	-	-	-	1	2	1	3
Hibbertia cunninghamii	-	-	-	-	1	3	1	2
Pericalymma ellipitcum	-	-	-	-	2	-	-	-
Pultenaea reticulata	-	-	-	-	2	-	-	-

Xyris roycei	-	-	-	-	2	-	-	-
Desmocladus fasciculatus	-	-	-	-	1	-	-	1
Sp 122	-	-	-	-	2	-	-	-
Conostylis setigera	-	-	-	-	1	2	2	-
Boronia denticulata	-	-	-	-	2	-	-	-
Sp 125 *Acacia sp.*	-	-	-	-	1	-	-	-
Sp 126 Papilionaceae sp.	-	-	-	-	2	-	-	-
Sp 29 Orchidaceae sp.	-	-	-	-	1	-	-	-
Thelymitra aff. *macrophylla*	-	-	-	-	1	-	-	-
Stylidium diversifolia	-	-	-	-	2	2	2	2
Drosera pulchella	-	-	-	-	2	-	-	-
Sp 129	-	-	-	-	2	2	2	1
Stylidium amoenum	-	-	-	-	2	-	2	-
Sp 37	-	-	-	-	-	1	-	-
Lomandra caespitosa	-	-	-	-	-	1	-	-
Acacia alata var. *alata*	-	-	-	-	-	2	2	-
Sp 131	-	-	-	-	-	1	-	2
Lechenaultia biloba	-	-	-	-	-	2	-	2
Sp 133 *Sphaerolobium sp.*	-	-	-	-	-	1	1	-
Sp 48 *Drosera sp.*	-	-	-	-	-	1	-	-
Grevillea quercifolia	-	-	-	-	-	-	1	2
Tetratheca setigera	-	-	-	-	-	-	2	-
Sp 134 *Lomandra sp.*	-	-	-	-	-	-	2	-
Lomandra nigricans	-	-	-	-	-	-	1	-
Petrophile serruiae	-	-	-	-	-	-	1	-
Sp 30 Poaceae sp.	-	-	-	-	-	-	1	1
Leucopogon verticillatus	-	-	-	-	-	-	-	1
Xanthorrhoea brunonis	-	-	-	-	-	-	-	2
Macrozamia riedlei	-	-	-	-	-	-	-	1
Tremandra diffusa	-	-	-	-	-	-	-	2
Hibbertia pilosa	-	-	-	-	-	-	-	1
Sp 138 *Boronia sp.*	-	-	-	-	-	-	-	1

2.2.3 Blackwood River Crossing

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Lindsaea linearis	4	3	3	3	3	-	-	-
Patersonia umbrosa	1	-	1	-	3	2	3	2
Trymalium floribundum	1	-	-	-	-	-	-	-
Acacia browniana	1	1	1	1	2	-	-	-
Anarthria prolifera	2	3	1	-	-	1	1	1
Johnsonia lupinina	2	2	2	-	-	-	1	2
Platysace tenuissima	2	-	-	-	2	1	-	-
Sp 37	3	1	-	-	1	-	-	-
Xanthorrhoea preissii	2	-	-	-	-	-	-	-
Sp 46 *Leucopogon sp.*	3	-	-	-	-	-	-	-
Desmocladus fasciculatus	2	2	3	3	2	2	2	2
Sp 9	2	-	-	1	-	-	-	-
Lyginia barbata	2	3	2	-	-	-	-	-
Eucalyptus marginata	5	4	3	2	8	7	-	1
Pimelea spectablis	3	1	-	-	-	-	-	-
Dasypogon bromeliifolius	2	3	3	5	2	4	3	3
Sp 200 Papilionaceae sp.	1	4	3	4	4	4	2	3
Hypolaena exsulca	3	2	2	3	2	3	2	3
Sp 155	1	-	2	-	-	2	-	-
Hibbertia hypericoides	4	4	3	2	-	-	2	-
Conospermum capitatum subsp. *glabratum*	3	1	-	-	-	-	-	-
Acacia stenoptera	1	-	1	1	-	-	2	-
Gompholobium knightianum	1	-	-	-	2	-	-	-
Lomandra purpurea	1	4	2	-	-	-	-	-
Conosytylis laxiflora	1	3	3	3	2	3	2	2
Opercularia hispidula	1	3	1	3	-	1	1	1
Lomandra sp.	1	3	2	1	-	2	-	1
Sp 199	2	-	-	-	-	-	-	-
Sp 28 Epacridaceae sp.	-	1	-	1	1	2	1	-
Stylidium amoenum	-	3	3	-	1	-	2	2
Scaevola calliptera	-	1	-	-	-	-	1	-
Taxandria parviceps	-	6	8	5	3	5	4	5
Persoonia longiflora	-	1	-	-	-	-	-	-
Corymbia calophylla	-	2	8	6	3	4	3	4
Dampiera linearis	-	2	1	2	1	1	-	-
Sp 201 Poaceae sp.	-	1	1	-	1	-	-	-
Sp 202 Papilionaceae sp.	-	4	3	1	1	-	-	-
Hakea ruscifolia	-	2	-	1	1	3	-	1
Sp 204 *Lomandra sp.*	-	1	4	-	-	-	-	-
Pentapeltis peltigera	-	-	3	-	2	-	1	-
Adenanthos obovatus	-	-	3	3	-	2	-	2
Conostylis setigera	-	-	1	2	2	-	2	1
Sp 84	-	-	1	-	-	1	-	-
Banksia grandis	-	-	1	-	-	-	-	-
Sp 30 Poaceae sp.	-	-	1	-	1	1	1	1
Sp 209	-	-	1	1	-	-	2	1
Sp 75	-	-	2	-	3	2	-	-
Lepidosperma pubisquatmatum	-	-	1	-	1	1	-	1

Sp 206	-	-	2	-	-	-	-	-
Comesperma confertum	-	-	1	-	-	-	-	-
Sp 208	-	-	2	1	1	-	-	-
Cassytha racemosa	-	-	-	2	-	-	-	-
Billardiera laxiflora	-	-	-	1	-	-	-	-
Hibbertia cunninghamii	-	-	-	1	1	1	1	2
Gompholobium preissii	-	-	-	2	3	2	2	-
Tricoryne elatior	-	-	-	3	-	1	1	1
Sp 211 Poaceae sp.	-	-	-	2	-	-	-	-
Mesomelaena tetragona	-	-	-	3	4	2	3	2
Philotheca spicata	-	-	-	-	2	-	2	1
Sp 62 Restionaceae sp.	-	-	-	-	2	2	-	2
Xylomelon occidentale	-	-	-	-	4	1	-	-
Cyathochaeta avenacea	-	-	-	-	1	-	1	-
Sp 191 *Acacia sp.*	-	-	-	-	1	-	2	1
Daviesia inflata	-	-	-	-	1	-	-	-
Sp 182	-	-	-	-	-	2	-	2
Xanthorrhoea brunonia	-	-	-	-	-	-	2	-
Hakea amplexicaulis	-	-	-	-	-	-	2	-
Sp 217 *Dampiera sp.*	-	-	-	-	-	-	1	-
Briza maxima	-	-	-	-	-	-	1	-
Grevillea trifida	-	-	-	-	-	-	1	-
Pericalymma ellpticum	-	-	-	-	-	-	1	-
Platysace filiformis	-	-	-	-	-	-	-	1
Sp 220 Poaceae sp.	-	-	-	-	-	-	-	2
Xanthosia candida	-	-	-	-	-	-	-	3
Leucopogon propinqus	-	-	-	-	-	-	-	1

2.2.4 Brockman Highway

Species	Cover and abundance					
	A1	A2	B1	B2	C1	C2
Platysace tenuissima	4	3	2	-	2	2
Opercularia hispidula	2	4	-	-	2	-
Lindsaea linearis	2	2	-	-	-	-
Trymalium floribundum	2	2	2	2	1	2
Pimelea spectablis	2	-	-	-	-	-
Grevillea quercifolia	2	1	2	2	1	2
Desmocladus fasciculatus	3	2	2	1	2	2
Dampiera linearis	2	-	-	-	-	-
Sp 44 *Acacia sp*	3	3	-	2	-	-
Sp 46 *Leucopogon sp*	2	-	1	1	-	-
Persoonia longiflora	1	-	-	-	-	-
Mesomelaena tetragona	4	-	-	-	-	-
Conostylis laxiflora	1	3	1	1	1	1
Sp 75	1	2	1	-	2	1
Comesperma confertum	1	-	-	-	-	-
Kennedia coccinea	2	3	3	1	2	2
Hypoleana exsulca	3	3	1	-	-	-
Eucalyptus marginata	5	-	3	6	4	4
Corymbia calophylla	4	-	-	4	2	1
Hibbertia cunninghamii	2	2	-	-	-	-
Sp 202 Papilionaceae sp.	4	4	3	7	3	4
Sp 204 *Lomandra sp.*	3	4	-	-	-	-
Sp 209	3	2	2	2	2	2
Sp 208	1	-	-	-	-	-
Cyathochaeta avenacea	1	1	2	3	-	2
Sp 220 Poaceae sp.	1	-	-	-	-	-
Mirbelia dilatata	3	2	2	-	2	2
Anigozanthos flavida	3	3	3	-	-	1
Haemodorum spicatum	1	2	-	2	1	-
Billardiera floribunda	1	1	-	-	-	-
Pteridium esculentum	3	2	4	-	3	-
Sp 182	1	1	2	1	2	2
*Centaurium erythraea**	1	-	-	-	-	-
Sp 229	1	-	-	-	-	-
Anarthria prolifera	1	-	-	-	-	-
Sp 62 Restionaceae sp.	2	-	-	-	-	-
Leucopogon verticillatus	2	-	-	-	-	1
Sp 230 *Acacia sp.*	2	-	-	-	-	-
Patersonia umbrosa	-	1	3	2	2	1
Dasypogon bromeliifolius	-	1	-	-	-	-
Xylomelon occidentale	-	2	3	5	-	-
Banksia grandis	-	3	2	-	-	2
Xanthorrhoea preissii	-	3	-	-	-	-
Macrozamia riedlei	-	3	3	4	2	-
Conostylis setigera	-	1	-	-	-	-
Sp 134 *Lomandra sp.*	-	2	-	-	1	-
Sp 37	-	1	1	1	1	1
Tricoryne elatior	-	1	1	-	1	-
Hypolaena pubescens	-	2	-	4	-	-
Gompholobium preissii	-	1	2	2	2	-

Sp 232	-	1	1	2	-	1
Sp 233	-	2	-	-	2	1
Sp 234 *Scaevola sp.*	-	2	-	-	-	-
Sp 235	-	2	2	1	2	-
Scaevola calliptera	-	-	1	-	-	-
Sp 28 Epacridaceae sp.	-	-	1	-	-	1
Sp 201 Poaceae sp.	-	-	2	2	-	-
Sp 191 *Acacia sp.*	-	-	2	-	-	1
Pentapeltis peltigera	-	-	1	-	1	1
Xanthosia candida	-	-	2	-	-	1
Sp 35 Cyperaceae sp.	-	-	2	-	-	-
Sp 30 Poaceae sp.	-	-	-	1	1	1
Sp 211 Poaceae sp.	-	-	-	1	1	-
Ptilotus manglesii	-	-	-	1	-	-
Hibbertia cunninghamii	-	-	-	-	1	-
Stylidium amoenum	-	-	-	-	-	2
Taxandria parviceps	-	-	-	-	-	1
Sp 237 Cyperaceae sp.	-	-	-	-	-	3
Podolepis gracilis	-	-	-	-	-	2
Goodenia eatoniana	-	-	-	-	-	1
Tripterococcus brunonis	-	-	-	-	-	1

2.2.5 Poison Gully

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Taxandria parviceps	2	-	-	-	-	-	-	-
Dasypogon bromeliifolius	4	5	-	3	2	2	2	2
Anarthria scabra	5	4	4	2	2	3	3	3
Sp 62 Restionaceae sp.	2	2	-	-	2	2	1	-
Comesperma confertum	1	-	-	-	-	-	-	-
Pultenaea reticulata	4	2	3	3	1	-	-	2
Eucalyptus marginata	3	1	5	2	4	4	2	3
Melaleuca thmoides	3	1	3	-	3	3	3	2
Pimelea longiflora	2	-	-	-	-	-	-	-
Xanthorrhoea preissii	1	-	2	1	3	2	-	-
Stylidium scandens	1	-	2	2	1	2	1	2
Sp 35 Cyperaceae sp.	2	2	-	-	-	1	1	1
Sp 139 Epacridaceae sp.	2	-	-	-	-	-	-	-
Adenanthos obovatus	-	1	-	-	1	1	1	1
Allocasuarina fraseriana	-	5	1	5	2	3	-	-
Adenanthos meisneri	-	2	-	2	-	2	2	3
Anarthria prolifera	-	2	2	1	1	2	1	-
Desmocladus fasciculatus	-	1	2	1	2	2	1	-
Xylomelon occidentale	-	1	3	-	1	1	-	-
Daviesia inflata	-	2	-	-	-	1	-	1
Xanthorrhoea gracilis	-	1	-	-	-	-	1	-
Sp 134 Lomandra sp.	-	3	2	1	1	-	-	-
Lomandra purpurea	-	2	2	1	-	-	2	1
Hibbertia cunninghamii	-	1	-	1	-	1	1	1
Astroloma pallidum	-	1	-	-	-	-	-	-
Sp 150	-	2	2	1	1	-	-	1
Xanthorrhoea brunonia	-	2	2	2	2	3	2	2
Platysace tenuissima	-	1	1	-	1	1	2	-
Pentapeltis peltigera	-	2	2	1	2	2	2	1
Ricinocarpos glaucus	-	2	1	1	-	1	-	-
Trymalium floribundum	-	1	1	-	-	-	-	-
Sp 75	-	2	-	-	-	-	-	-
Platysace filiformis	-	1	1	-	-	-	-	-
Scaevola calliptera	-	-	2	-	1	1	2	1
Dampiera linearis	-	-	1	1	1	-	2	-
Hypolaena exsulca	-	-	2	-	-	-	-	-
Banksia grandis	-	-	2	-	-	3	1	1
Sp 44 *Acacia sp.*	-	-	1	-	-	-	-	-
Sp 177 *Drosera sp.*	-	-	2	-	2	-	2	-
Sp 178 Restionaceae sp.	-	-	2	2	-	-	1	1
Sp 179 *Thysantous sp.*	-	-	1	-	-	1	1	-
Sp 180 Epacridaceae sp.	-	-	1	-	1	1	-	-
Conostylis setigera	-	-	2	1	1	1	2	-
Sp 182	-	-	2	1	2	2	-	-
Sp 183 *Hibbertia sp.*	-	-	1	-	-	-	-	-
Billardiera laxiflora	-	-	1	-	-	-	-	-
Opercularia hispidula	-	-	1	-	2	-	-	-
Burchardia umbellata	-	-	1	1	-	-	-	-
Grevillea quercifolia	-	-	1	-	2	1	2	1
Haemodorum spicatum	-	-	-	1	-	-	1	-

Petrophile linearis	-	-	-	1	1	1	-	1
Isopogon sphaerocephalus	-	-	-	1	1	2	1	2
Banksia attenuata	-	-	-	1	2	-	-	-
Caladenia flava	-	-	-	1	-	-	2	-
Sp 30 Poaceae sp.	-	-	-	1	-	-	-	-
Macrozamia riedlei	-	-	-	-	1	1	-	-
Hypocalymma robustum	-	-	-	-	2	2	-	-
Stylidium schoendes	-	-	-	-	1	-	-	-
Sp 112 Papilionaceae sp.	-	-	-	-	2	3	3	1
Patersonia umbrosa	-	-	-	-	2	-	-	-
Sphaerolobium fornicatum	-	-	-	-	1	-	-	-
Hibbertia quadricolour	-	-	-	-	2	2	1	1
Dryandra lindeyana	-	-	-	-	1	-	-	-
Acacia stenoptera	-	-	-	-	1	-	-	-
Sp 190	-	-	-	-	2	1	-	-
Corymbia calophylla	-	-	-	-	-	2	2	-
Patersonia occidentalis	-	-	-	-	-	2	2	-
Sphaerolobium fornicatum	-	-	-	-	-	1	-	-
Thelymitra aff. *macrophylla*	-	-	-	-	-	1	2	-
Sp 48 *Drsoera sp.*	-	-	-	-	-	-	1	-
Cassytha racemosa	-	-	-	-	-	-	1	-
Sp 24 Orchidaceae sp.	-	-	-	-	-	-	1	-
Boronia denticulata	-	-	-	-	-	-	1	-
Philotheca spicata	-	-	-	-	-	-	2	2
Sp 191 *Acacia sp.*	-	-	-	-	-	-	-	-
Sp 192 Papilionacea sp.	-	-	-	-	-	-	-	-
Thysanotus manglesianus	-	-	-	-	-	-	1	-
Sp 14	-	-	-	-	-	-	-	1
Sp 194 Epacridaceae sp.	-	-	-	-	-	-	-	1

2.2.6 Stewart Rd

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Patersonia umbrosa	3	3	3	3	3	3	3	3
Stylidium amoenum	2	2	1	2	2	2	2	2
Lindsaea linearis	2	-	-	3	-	-	-	-
Sp 14	2	-	-	-	-	-	-	-
Pentapeltis peltigera	2	1	2	2	2	-	-	1
Grevillea quercifolia	3	2	2	2	2	2	2	2
Platysace tenuissima	2	2	1	-	1	-	2	-
Sp 37	1	1	-	-	-	-	-	-
Dampiera linearis	2	1	1	-	2	-	-	-
Xanthorrhoea brunonis	1	-	-	-	-	-	-	-
Taxandria parviceps	1	4	5	3	3	3	3	4
Adenanthos obovatus	1	-	2	1	3	1	2	1
Hakea amplexicaulis	3	3	3	2	2	3	1	3
Mesomelaena tetragona	2	-	-	2	-	-	-	-
Hypocalymma robustum	2	-	1	-	-	-	-	-
Sp 75	3	2	2	3	3	2	2	2
Eucalyptus marginata	7	7	4	6	8	5	5	5
Corymbia calophylla	5	4	3	6	3	3	5	5
Hibbertia cunninghamii	1	1	2	-	1	-	1	-
Sp 157 *Thysanotus sp.*	2	1	-	-	1	1	-	1
Sp 200 Papilionaceae sp.	4	2	3	3	2	1	4	3
Sp 208	1	1	1	-	1	-	-	-
Sp 247 *Sphaerolobium* sp.	2	-	2	-	1	-	3	2
Dryandra lindleyana subsp. *lindleyana*	2	-	-	-	-	-	-	-
Sp 250	3	1	2	-	-	-	-	-
Billardiera laxiflora	2	-	-	-	1	-	1	-
Sp 254	2	-	-	-	-	-	-	-
Sp 255 *Dampiera* sp.	2	-	2	-	2	1	-	-
Sp 256	2	-	2	-	2	2	-	2
Lomandra caespitosa	1	-	-	-	-	-	-	-
Sp 90 *Lomandra sp.*	2	-	-	-	-	-	-	-
Isopogon sphaerocephalus	2	2	2	1	1	-	-	1
Sp 257 *Acacia* sp.	2	-	-	2	-	3	1	3
Sp 258	2	2	2	2	3	-	-	-
Hibbertia hypericoides	2	-	-	-	-	-	-	-
Sp 28 Epacridaceae sp.	1	-	-	-	-	-	-	-
Trymalium floribundum	1	-	-	-	-	-	-	-
Sp 259	1	-	-	-	-	-	-	-
Sp 260 Epacridaceae sp.	1	-	-	-	-	-	-	-
Sp 30 Poaceae sp.	-	1	-	1	-	-	-	-
Sp 134 *Lomandra sp.*	-	3	2	2	1	-	-	-
Scaevola calliptera	-	2	1	1	-	1	-	-
Sphenotoma capitatum	-	2	2	-	2	1	-	-
Sp 105	-	2	2	-	-	1	-	-
Acacia browniana	-	2	-	-	1	-	1	1
Goodenia eatoniana	-	2	1	1	-	-	-	1
Stylidium amoenum	-	2	-	-	-	1	-	-
Anarthria prolifera	-	1	1	-	-	-	-	-
Poranthera huegelii	-	1	3	-	1	-	-	-

Sp 263 *Acacia* sp.	-	2	1	1	2	2	2	1
Sp 264 Cyperaceae sp.	-	3	3	3	2	2	3	-
Cassytha racemosa	-	-	1	1	-	1	1	1
Leucopogon propinqus	-	-	1	2	1	2	1	-
Leucopogon verticillatus	-	-	1	-	1	-	-	1
Daviesia preissii	-	-	2	-	-	-	-	-
Sp 44 *Acacia sp.*	-	-	1	-	1	1	1	1
Sp 46 *Leucopogon sp.*	-	-	1	-	-	-	-	-
Xanthorrhoea preissii	-	-	-	-	1	-	1	-
Johnsonia lupinina	-	-	-	-	1	-	-	-
Sp 34 *Xanthorrhoea sp.*	-	-	-	-	-	2	2	-
Petrophile diversifolia	-	-	-	-	-	2	-	2
Sp 138 *Boronia sp.*	-	-	-	-	-	2	-	-
Sp 267 Papilionaceae sp.	-	-	-	-	-	2	-	-
Lomandra nigricans	-	-	-	-	-	1	2	-
Sp 201 Poaceae sp.	-	-	-	-	-	-	1	-
Kennedia coccinea	-	-	-	-	-	-	1	1
Sp 268 Poaceae sp.	-	-	-	-	-	-	2	2
Pimelea spectabilis	-	-	-	-	-	-	-	2
Comesperma ciliatum	-	-	-	-	-	-	-	1
Lepidosperma pubisquatmatum	-	-	-	-	-	-	-	2
Thysanotus multiflorus	-	-	-	-	-	-	-	1

2.2.7 Darradup Rd North

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Hovea elliptica	2	-	1	1	1	-	3	3
Patersonia umbrosa	2	2	3	2	3	-	1	2
Platysace tenuissima	2	1	-	1	1	1	3	1
Acacia browniana	2	2	3	2	2	2	3	2
Stylidium amoenum	2	2	1	1	2	1	1	1
Lindsaea linearis	2	2	2	-	-	-	-	2
Pimelea spectabilis	2	1	-	1	-	1	2	-
Pentapeltis peltigera	2	2	2	2	2	2	2	1
Grevillea quercifolia	-	2	2	-	2	-	-	1
Taxandria parviceps	3	4	4	6	4	3	6	5
Adenanthos obovatus	2	-	1	1	-	2	3	1
Hakea amplexicaulis	3	2	2	2	2	1	2	3
Scaevola calliptera	3	-	-	-	1	1	1	1
Euclayptus marginata	4	8	3	6	4	3	6	7
Corymbia calophylla	4	-	4	5	5	1	5	5
Haemodorum spicatum	1	-	-	-	-	-	-	-
Hibbertia cunninghamii	3	-	2	2	1	1	2	2
Sp 200 Papilionaceae sp.	2	4	5	3	3	2	4	4
Lepidosperma pubisquatmatum	3	-	-	-	-	2	-	-
Cyathochaeta avenacea	3	-	-	2	2	-	-	-
Mirbelia dilatata	1	-	-	-	-	-	-	-
Kingia australis	3	3	4	-	3	2	2	2
Thomasia folisa	2	2	2	2	2	2	2	3
Goodenia eatoniana	2	1	2	2	-	1	2	-
Sp 75	2	3	3	3	1	2	2	3
Grevillea trifida	2	-	-	1	-	2	-	-
Hibbertia quadricolour	1	-	-	2	-	-	1	1
Sp 201 Poaceae sp.	1	2	2	1	1	1	2	1
Lomandra purpurea	1	-	1	-	-	1	-	-
Sp 235	1	-	2	1	2	-	1	-
Johnsonia lupinina	1	-	-	-	-	-	-	-
Gompholobium obovatum	-	2	1	-	2	2	2	-
Sp 30 Poaceae sp.	-	1	-	1	1	-	-	-
Allocasuarina fraseriana	-	4	-	-	-	-	-	-
Sp 110 Epacridaceae sp.	-	1	-	-	-	-	-	-
Sp 62 Restionaceae sp.	-	3	-	-	-	-	-	-
Billardiera laxiflora	-	1	-	2	-	-	2	1
Dampiera trigona	-	1	-	-	-	-	-	-
Sp 208	-	1	-	2	-	1	-	-
Isopogon sphaerocephalus	-	2	1	1	-	-	-	-
Samolus repens	-	1	-	1	1	-	1	-
Stylidium amoenum	-	1	-	-	-	-	-	-
Cassytha racemosa	-	1	-	2	1	-	-	-
Mesomelaena tetragona	-	-	1	-	-	3	-	-
Sp 247 *Sphaerolobium* sp.	-	-	1	-	2	-	-	-
Boronia denticulata	-	-	2	-	2	2	2	-
Dampiera linearis	-	-	-	2	1	-	1	-
Hakea linearis	-	-	-	2	-	-	-	-
Sp 46 *Leucopogon sp.*	-	-	-	1	2	-	-	-

Hypolaena exsulca	-	-	-	2	2	-	-	-
Anarthria prolifera	-	-	-	2	2	1	1	1
Dryandra lindleyana subsp. *lindleyana*	-	-	-	2	-	-	-	-
Sp 140	-	-	-	1	1	-	-	3
Petrophile diversifolia	-	-	-	-	2	-	-	2
Sp 44 *Acacia sp.*	-	-	-	-	1	-	-	-
Sp 237 Cyperaceae sp.	-	-	-	-	1	-	-	-
Trymalium floribundum	-	-	-	-	1	-	-	-
Sp 250	-	-	-	-	1	1	2	2
Hypocalymma robustum	-	-	-	-	-	1	1	1
Dasypogon bromeliifolius	-	-	-	-	-	1	2	-
Sp 182	-	-	-	-	-	1	1	1
Conostylis setigera	-	-	-	-	-	2	-	-
Sp 134 *Lomandra sp.*	-	-	-	-	-	-	1	-
Sp 105	-	-	-	-	-	-	2	-
Sp 37	-	-	-	-	-	-	1	-
Sp 157 *Thysanotus sp.*	-	-	-	-	-	-	1	1
Synaphea gracillima	-	-	-	-	-	-	1	-
Xylomelon occidentale	-	-	-	-	-	-	-	1
Sp 134 *Lomandra sp.*	-	-	-	-	-	-	-	1
Sp 253	-	-	-	-	-	-	-	1
Leucopogon verticillatus	-	-	-	-	-	-	-	1

2.2.8 Jack Track

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Xanthorrhoea brunonis	1	-	-	1	1	1	2	2
Xanthorrhoea preissii	1	2	3	2	2	3	3	4
Anarthria prolifera	3	1	3	4	3	4	4	2
Adenathos obovatus	3	3	3	3	3	3	1	3
Andersonia caerula	3	3	2	3	2	2	2	2
Hypocalymma robustum	1	-	2	2	2	1	2	-
Dasypogon bromeliifolius	2	2	1	2	3	2	2	2
Anarthria scabra	4	5	6	3	7	5	3	4
Johnsonia lupinia	2	-	1	1	3	2	2	-
Lomandra purpurea	3	3	3	3	4	1	3	3
Lyginia barbata	3	3	1	2	1	-	1	-
Melaleuca thymoides	3	1	4	4	3	4	4	3
Pimelea longiflora	1	-	2	3	3	3	3	2
Pericalymma ellipticum	6	3	4	-	2	-	1	2
Lechenaultia biloba	1	1	-	-	-	-	-	-
Hibbertia pilosa	2	1	-	3	2	-	2	2
Patersonia occidentalis	2	2	2	2	2	2	2	2
Hibbertia stellaris	2	1	-	-	-	-	-	-
Sp 159 *Drosera sp.*	1	-	1	-	-	1	-	-
Kunzea recurva	3	1	3	3	2	3	1	2
Sp 161 Papilionaceae sp.	1	1	-	1	-	-	-	-
Lindsaea linearis	1	-	1	1	-	-	1	-
Nuytsia floribunda	2	-	3	1	-	2	-	-
Sp 162 *Sphenotoma sp*	3	3	1	-	-	-	-	-
Sp 163 *Needhamiella sp.*	3	3	3	5	3	3	3	2
Sp 164	1	2	1	1	1	2	1	2
Lomandra nigricans	2	-	1	-	-	-	-	-
Stylidium repens	-	2	-	-	-	-	-	-
Sp 62 Restionaceae sp.	-	1	2	-	-	-	-	-
Petrophile linearis	-	1	2	2	-	2	1	-
Lysinema ciliatum	-	3	3	2	-	1	-	1
Sphenotoma gracile	-	2	4	2	1	-	-	-
Sp 168 Papilionaceae sp.	-	2	-	4	3	-	3	3
Tetratheca setigera	-	-	2	1	2	2	1	-
Lomandra caespitosa	-	-	1	-	-	-	-	-
Eucalyptus marginata	-	-	2	2	1	4	-	2
Sp 105	-	-	1	-	-	-	-	-
Drosera pulchella	-	-	1	-	-	-	-	-
Cassytha racemosa	-	-	1	-	-	2	2	1
Loxacarya exsulca	-	-	1	-	-	-	-	-
Acacia uliginosa	-	-	1	1	1	-	1	-
Comesperma confertum	-	-	1	2	1	2	2	1
Dampiera linearis	-	-	-	1	2	1	-	-
Opercularia hispidula	-	-	-	1	1	1	2	1
Sp 155	-	-	-	1	-	-	-	-
Sp 171 *Drosera sp.*	-	-	-	1	-	-	-	-
Conospermum capitatum subsp. *glabratum*	-	-	-	1	-	-	-	-
Scaevola calliptera	-	-	-	2	-	-	-	-
Stylidium schoendes	-	-	-	-	-	1	-	-

Allocasuarina fraseriana	-	-	-	-	-	2	-	-
Sphaerolobium fornicatum	-	-	-	-	-	2	-	-
Sp 48 *Drosera sp.*	-	-	-	-	-	-	1	1
Beaufortia sparsa	-	-	-	-	-	-	-	-

2.2.9 Scott Rd

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Sp 9	2	-	-	-	-	-	-	-
Lindsaea linearis	2	2	2	2	2	2	1	3
Samolus repens	2	-	1	-	-	-	-	-
Lomandra caespitosa	2	-	-	-	-	-	-	-
Anarthria prolifera	3	5	5	5	4	-	1	2
Xanthorrhoea brunonis	2	1	-	1	1	-	-	-
Platysace filiformis	3	-	3	2	2	-	-	-
Dampiera linearis	2	2	2	1	2	1	-	2
Agonis flexuosa	2	-	-	-	-	-	-	-
Taxandria parviceps	4	6	4	10	6	7	9	7
Sp 44 *Acacia sp.*	3	3	3	3	3	-	3	-
Adenanthos obovatus	2	-	-	-	-	1	-	-
Stylidium scandens	1	2	3	1	1	-	-	2
Dasypogon bromeliifolius	3	2	2	-	1	-	-	-
Hypocalymma robustum	1	1	1	-	1	-	-	-
Sp 62 Restionaceae sp.	2	2	2	2	1	-	2	-
Anarthria scabra	5	4	4	4	4	-	-	-
Thelymitra aff. *macrophylla*	1	1	-	-	-	1	-	-
Andersonia caerula	1	-	1	-	-	-	-	1
Bossiaea praetermisa	2	-	2	-	2	-	-	-
Johnsonia lupinia	2	-	2	2	2	4	3	4
Eucalyptus marginata	6	2	2	5	2	-	-	-
Melaleuca thymoides	2	-	-	-	-	-	-	-
Corymbia calophylla	7	4	8	4	-	1	-	2
Sp 140	2	1	-	-	-	-	-	-
Philotheca spicata	1	-	-	-	-	-	-	-
Sp 142	1	-	-	-	-	-	-	-
Lyperanthus serratus	1	-	1	-	-	-	-	1
Gompholobium tomentosum	1	-	1	-	-	-	-	-
Macrozamia riedlei	1	-	1	-	-	-	-	-
Pultenaea reticulata	1	-	-	-	2	-	-	-
Agrostocrinum stypandroides	1	-	-	-	-	-	-	-
Scaevola calliptera	-	1	1	1	2	-	-	-
Cassytha racemosa	-	2	-	1	1	-	-	-
Xanthorrhoea preissii	-	3	3	-	3	3	4	4
Drosera erythrorhiza	-	2	-	-	-	-	-	-
Opercularia hispidula	-	1	-	-	-	-	-	-
Stylidium calcartum	-	2	-	-	-	-	-	-
Sp 48 *Drosera sp.*	-	1	-	1	1	-	-	-
Patersonia occidentalis	-	1	-	-	-	-	-	-
Sp 147 *Acacia sp.*	-	1	-	2	2	-	-	1
Stylidium repens	-	1	-	-	-	-	-	-
Siloxerus humifusus	-	1	-	-	-	1	-	-
Sp 150	-	1	-	-	-	-	-	2
Trymalium floribundum	-	1	-	-	-	-	-	-
Sp 151	-	-	3	3	3	-	-	-
Drosera pallida	-	-	-	-	-	1	-	-
Sp 83 *Acacia sp.*	-	-	-	2	-	-	-	-
Sp 108	-	-	-	1	-	-	-	-

Sp 153 *Eutaxia sp.*	-	-	-	3	2	-	-	-
Melaleuca preissiana	-	-	-	3	-	1	1	-
Burchardia umbellata	-	-	-	-	1	-	-	-
Sp 155	-	-	-	-	3	-	-	-
Conostylis laxiflora	-	-	-	-	-	3	1	1
Pericalymma ellipticum	-	-	-	-	-	3	-	-
Stylidium diversifolia	-	-	-	-	-	1	-	2
Sp 126 Papilionaceae sp.	-	-	-	-	1	2	1	1
Sp 138 *Boronia sp.*	-	-	-	-	-	-	1	2
Pimelea spectabilis	-	-	-	-	-	-	-	2
Hovea elliptica	-	-	-	-	-	-	-	1
Sp 46 *Leucopogon sp.*	-	-	-	-	-	-	-	1
Comesperma confertum	-	-	-	-	-	-	-	1
Drosera pulchella	-	-	-	-	-	-	-	2
Hibbertia stellaris	-	-	-	-	-	-	-	1

2.2.10 Blackpoint Rd

Species	Cover and abundance							
	A1	A2	B1	B2	C1	C2	D1	D2
Hovea elliptica	3	3	2	1	-	-	-	1
Hibbertia inconspicua	2	2	-	2	2	1	2	2
Chorizema rhombeum	2	2	1	-	2	1	2	2
Patersonia umbrosa	3	4	3	2	2	1	3	3
Platysace tenuissima	2	2	2	-	1	-	2	1
Trymalium floribundum	2	2	2	2	1	2	-	-
Petrophile diversifolia	4	5	4	-	-	1	1	5
Acacia browniana	4	3	-	3	2	4	4	3
Sp 9	2	-	1	1	-	-	-	1
Stylidium fasiculatum	1	2	-	-	-	-	-	-
Stylidium amoenum	2	2	1	2	2	2	2	2
Sp 12 *Stylidium sp.*	1	1	2	-	-	-	2	1
Lindsaea linearis	3	2	6	3	3	3	2	2
Sp 14	3	1	2	3	-	-	1	-
Acacia browniana	3	-	-	-	-	-	-	-
Leucopogon verticillatus	3	2	1	1	-	3	-	-
Pimelea spectabilis	2	1	2	2	1	-	1	2
Pentapeltis peltigera	1	2	1	-	-	-	1	1
Sp 19	2	2	1	-	1	-	-	-
Boronia crenulata	2	-	-	-	-	1	-	1
Sp 21 *Stylidium sp.*	2	-	-	-	-	-	-	-
Sphaerolobium fornicatum	2	2	-	3	3	2	2	2
Grevillea quercifolia	2	-	1	-	1	1	2	2
Sp 24 Orchidaceae sp.	1	-	-	-	-	-	-	-
Gompholobium obovatum	1	1	2	2	1	1	2	1
Desmocladus fasciculatus	1	-	-	-	-	-	-	-
Eucalyptus marginata	5	5	10	5	1	7	3	-
Corymbia calophylla	5	4	5	-	3	-	3	3
Scaevola calliptera	-	1	2	2	2	2	2	-
Sp 28 Epacridaceae sp.	-	1	-	3	1	-	-	-
Sp 29 Orchidaceae sp.	-	1	1	1	1	-	1	1
Sp 30 Poaceae sp.	-	1	-	-	1	-	1	1
Lomandra caespitosa	-	1	2	2	3	2	2	2
Anarthria prolifera	-	-	2	4	3	3	3	3
Macrozamia riedlei	-	-	1	-	-	3	1	1
Xanthorrhoea preissii	-	-	4	3	4	-	4	3
Sp 35 Cyperaceae sp.	-	-	1	-	-	-	1	-
Platysace filiformis	-	-	2	3	2	3	1	-
Sp 37	-	-	2	-	2	2	2	-
Sp 38	-	-	1	-	-	-	-	-
Dampiera linearis	-	-	-	2	-	-	2	2
Sp 40 *Lepidosperma sp.*	-	-	-	3	-	3	-	-
Cassytha racemosa	-	-	-	1	-	1	-	-
Agonis flexuosa	-	-	-	1	-	-	-	-
Taxandria parviceps	-	-	-	8	7	5	1	5
Sp 44 *Acacia sp.*	-	-	-	1	-	2	-	-
Persoonia longiflora	-	-	-	2	1	1	-	1
Sp 46 *Leucopogon sp.*	-	-	-	1	1	-	-	1
Adenanthos obovatus	-	-	-	1	-	-	-	-
Sp 48 *Drosera sp.*	-	-	-	1	1	1	1	1

Sp 49 Orchidaceae sp.	-	-	-	-	1	-	-	-
Tripterococcus brunonis	-	-	-	-	1	-	-	-
Stylidium scandens	-	-	-	-	1	2	2	-
Daviesia inflata	-	-	-	-	2	-	-	-
Andersonia caerulea	-	-	-	-	2	2	2	-
Hakea amplexicaulis	-	-	-	-	-	1	2	3
Xanthorrhoea brunonis	-	-	-	-	-	1	-	3
Dasypogon bromeliifolius	-	-	-	-	-	3	-	-
Sp 57 Epacridaceae sp.	-	-	-	-	-	1	-	-
Hypocaylmma robustum	-	-	-	-	-	1	1	1
Comesperma ciliatum	-	-	-	-	-	1	-	1
Mesomelaena tetragona	-	-	-	-	-	1	3	-
Anarthria scabra	-	-	-	-	-	3	2	-
Sp 62 Restionaceae sp.	-	-	-	-	-	1	1	-
Drosera pallida	-	-	-	-	-	1	1	-
Conostylis laxiflora	-	-	-	-	-	-	1	-
Sollya heterophylla	-	-	-	-	-	-	-	1
Hakea linearis	-	-	-	-	-	-	-	2
Astroloma pallidum	-	-	-	-	-	-	-	2
Drosera erythrorhiza	-	-	-	-	-	-	-	2
Sp 69 Orchidaceae sp.	-	-	-	-	-	-	-	1
Xylomelon occidentale	-	-	-	-	-	-	-	2
Banksia grandis	-	-	-	-	-	-	-	1
Tetratheca setigera	-	-	-	-	-	-	-	1

References

Bunn, S. E., Boon, P. I., Brock, M. A., & Schofield, N. J. (1997). National wetlands R & D program: scoping review. Canberra: Land and Water Resources Research and Development Corporation.

Finlayson, C. M. (2003). The challenge of integrating wetland inventory, assessment and monitoring. Aquatic Conservation. *Marine and Freshwater Ecosystems, 13*, 281-286.

Finlayson, C. M., & Mitchell, D. S. (1999). Australian Wetlands: the Monitoring Challenge. *Wetlands Ecology and Management, 7*, 105-112.

Froend, R. H., & Loomes, R. C. (2005). *South West Yarragadee - Assessment of Vegetation Susceptibility and Possible Response to Drawdown.* Perth: Froend, Bowen and Associates.

Froend, R. H., & Loomes, R. C. (2006). *Determination of Ecological Water Requirements of Wetland and Terrestrial Vegetation - Southern Blackwood and Eastern Scott Coastal Plain.* (No. 2005-07). Joondalup: CEM, ECU.

Froend, R. H., & Zencich, S. J. (2002). *Phreatophytic Vegetation and Groundwater Study. Phase 1: Phreatophytic Vegetation Research Review.* (No. 2001-12). Joondalup: ECU, Centre for Ecosystem Management.

Kent, M., & Coker, P. (1992). *Vegetation Description and Analysis: A Practical Approach.* London.: Belhaven Press.

Ladd, P. G. (1996). *Ecology/Ecological Principles - Unit Manual.* Perth.: Murdoch University.

URS. (2004). *Establishment of Interim Ecological Water Requirements for the Blackwood Groundwater Area, WA - Stages 1 and 2.*

V & C Semeniuk Research Group. (2005). *Wetland Mapping, Classification and Evaluation, Southern Blackwood and Eastern Scott Coastal Plain.*

van Dam, R. A., Camilleri, C., & Finlayson, C. M. (1998). The Potential of Rapid Assessment Techniques as Early Warning Indicators of Wetland Degradation: A Review. *Environmental Toxicology and Water Quality, 13,* 297-312.