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APPENDICES

Appendix 3.1. Spatial, climatic, edaphic and pasture management attributes of the 101 paddocks surveyed on the Northern Tablelands of NSW.

No.	Property	Paddock	Area (hectares)	Zone	Aspect	Latitude	Longitude	Altitude	Parent Material	Rainfall Class	Grazing Method	Spill Period	Treec Density	Period since last cultivation	Degree of Cultivation	Fertilizer Application	Lime Application	Pasture Species Sown	Pasture Improvement	Microlarena stipoides rating			
1	Rosedale	Adrian's Corner	16.19	1	1	3	1	2	3	3	1	1	4	3	1	2	2	2	4.28	3			
2	Rosedale	Front	72.85	1	1	3	1	2	3	3	1	1	4	2	1	2	2	2	4.44	5			
3	Rosedale	Wagner's Creek	24.28	1	1	3	1	2	3	3	1	1	4	2	2	2	2	2	4.7	2			
4	Buriwest	Red Hill	56.66	1	1	2	1	2	3	3	2	1	3	2	2	2	2	3	4.75	2			
5	Buriwest	Western	28.33	1	1	2	1	2	3	3	1	2	2	3	6	4	2	2	5	1			
6	Buriwest	Eastern	61.51	1	1	2	1	2	3	3	2	3	3	6	4	2	2	5	1	4.69	5		
7	Clover Dale	Hill P.1	24.28	1	2	3	2	1	1	3	3	3	3	6	4	2	2	5	2	5.66	3		
8	Clover Dale	Dump	60.71	1	2	3	2	1	1	3	3	2	2	1	3	2	2	2	3	5.12	1		
9	Clover Dale	Hill P.2	48.56	1	2	3	2	1	1	3	3	2	9	2	1	3	2	2	3	5.04	3		
10	Somer Set	Shepherd's Bush	80.94	1	2	3	2	2	4	3	3	3	8	3	6	4	2	2	2	5.18	5		
11	Somer Set	Rough Hill	26.31	1	2	3	2	2	4	3	1	2	8	1	1	3	3	2	2	4	5.26	3	
12	Somer Set	One Tree	8.09	1	2	3	2	2	4	3	1	2	8	1	2	3	2	2	2	4	5.22	5	
13	Edinburgh	Paddock 1	1	3	3	2	2	2	1	3	2	2	3	3	6	4	3	2	2	3	5.23	2	
14	Edinburgh	Paddock 2	32.38	1	3	3	2	2	1	3	2	2	10	3	6	4	3	2	2	3	5.35	3	
15	Kimberly Pa Ridge		28.33	1	3	3	2	2	2	3	3	1	1	1	3	3	5	2	2	3	5.01	4	
16	Kimberly Pa Red Hill		93.08	2	1	2	1	3	2	4	3	3	1	1	1	6	4	5	2	2	1	5.1	5
17	Kimberly Pa Spring		23.47	1	3	3	2	2	2	3	3	1	1	1	3	6	4	5	2	1	1	5	
18	Cherry hill	Gerry's 3A	52.61	2	1	2	1	3	2	4	1	3	3	1	2	2	2	2	2	5.39	2		
19	Cherry hill	Monopoly 1	78.92	2	1	2	1	3	2	4	1	3	3	1	4	2	2	2	2	5.4	3		
20	Cherry hill	Paddock 1	12.14	2	1	2	1	3	2	4	1	3	3	1	2	3	2	2	2	2	2		
21	Balala	DAM	42.49	2	1	2	1	3	2	2	1	3	2	1	1	1	3	6	4	4	2		
22	Balala	Plum Scrub	101.18	2	1	2	1	3	2	3	2	1	2	3	3	6	4	3	1	1	2		
23	Balala	Poor Man's	687.99	2	1	2	1	3	2	1	2	3	2	1	1	1	1	2	5	1	5.63	2	
24	Rowena	Back	97.13	2	1	2	1	3	2	1	3	2	1	1	1	2	3	2	4	2	1		
25	Rowena	Camp	4.45	2	1	2	1	3	2	2	1	3	2	1	1	1	2	5	1	5.19	2		
26	Rowena	Honec	28.33	2	2	2	2	2	2	3	2	1	1	1	1	1	2	2	2	2	4.82	2	
27	Mt.View	Stud	56.66	2	2	2	2	2	2	3	2	1	1	1	1	2	6	4	4	2	4		
28	Mt.View	Pretty Valley														3	2	6	2	5	1		

29	Mt.View	House	28.33	2	2	2	2	2	3	2	1	1	1	1	6	4	4	2	2	4	4.78	4	
30	Greenway	Granary	4.05	2	2	2	2	2	3	3	1	3	3	1	1	3	4	2	2	4	5.1	1	
31	Greenway	Shed	10.12	2	2	2	2	2	1	3	1	3	3	2	6	4	4	2	2	3	4.84	4	
32	Greenway	Honeymoon	30.35	2	2	2	2	2	3	3	2	1	2	2	6	4	3	2	5	2	4.4	4	
33	Sawrey	Horse	6.07	2	2	2	2	2	2	3	2	2	1	1	6	4	2	2	5	2	4.83	2	
34	Sawrey	House	2.02	2	2	2	2	2	1	3	2	2	1	1	6	4	2	2	5	2	4.68	4	
35	Sawrey	SW Back	10.12	2	2	2	2	2	1	3	2	1	1	2	6	4	2	2	5	1	4.33	5	
36	Daisy Hill	Lease	52.61	2	3	2	2	2	2	7	2	1	1	2	6	4	4	2	1	2	4.59	5	
37	Daisy Hill	Air Strip	32.38	2	3	2	2	2	2	7	2	1	1	1	4	2	4	2	2	3	1		
38	Daisy Hill	Bottom Farm	24.28	2	3	2	2	2	2	7	2	1	1	1	3	3	4	2	2	3	4.54	2	
39	Karuah	Simana	60.71	2	3	2	3	1	4	3	3	3	3	3	6	4	6	2	2	2	4.55	5	
40	Karuah	Linochside	20.24	2	3	2	3	1	4	3	3	3	3	3	1	2	3	6	2	2	3	4.46	3
41	Karuah	Abroi	27.11	2	3	2	3	1	4	3	3	3	3	3	2	6	4	6	2	2	2	4.62	5
42	Cloverlea	Woodlands	2	3	2	3	1	1	7	2	2	2	3	3	6	4	5	2	2	4	4.57	3	
43	Cloverlea	Mid -Phantom	2	3	2	3	1	1	1	7	2	2	2	3	1	4	1	5	1	2	4	4.58	2
44	Cloverlea	One-tree	2	3	2	3	1	1	1	7	2	2	2	3	1	6	4	5	1	2	4	4.66	4
45	Caloola	Lickholes	74.46	4	1	2	1	4	3	2	1	1	1	7	3	6	4	2	2	5	2	5.36	1
46	Caloola	String bark	55.04	4	1	2	1	4	3	2	3	3	3	10	3	6	3	2	2	2	3	4.36	1
47	Caloola	TopRobinson	84.99	4	1	2	1	4	3	1	1	3	3	3	3	2	2	2	5	1	1		
48	Milchomi	Red Hill	101.18	3	1	1	1	4	2	2	1	2	6	3	6	4	5	2	5	2	5.42	1	
49	Milchomi	Woolshed	60.71	3	1	1	1	4	2	2	3	2	3	1	2	3	7	2	2	3	5.24	1	
50	Milchomi	Forest	30.76	3	1	1	1	4	3	2	3	2	3	1	2	3	7	2	2	3	5.17	3	
51	Powalgarh	Mid-cult	3	2	2	2	1		2											5.08	3		
52	Powalgarh	Well-cult	3	2	2	2	1		2											5.06	5		
53	Powalgarh	Pironte	3	2	2	2	1		3											5.12	5		
54	Triangle	Kook	35.61	3	2	1	2	2	1	3	3	2	3	2	6	3	6	2	2	2	5.81	1	
55	Triangle	Hawthorne	42.49	3	2	1	2	2	1	3	1	1	2	1	6	3	6	2	2	3	5.5	2	
56	Triangle	Swamp	60.71	3	2	1	2	2	1	2	1	1	9	1	2	3	6	2	2	3	5.75	1	
57	Aberfoyle	Campions	3	3	2	3	1	3	2	3	2	3	2	6	4	2	2	5	2	5.05	5		
58	Aberfoyle	North Shearing	20.24	3	3	2	3	1	3	2	3	2	3	1	6	4	2	2	5	1	2		
59	Aberfoyle	House	20.24	3	3	2	3	1	3	3	3	2	3	3	1	3	2	2	1	2	3	5.48	1
60	Tirrana	Foot Rot	10.12	3	3	1	3	1	2	3	2	1	1	1	4	3	5	2	2	4	5.12	5	
61	Tirrana	High Trial	3	3	1	3	1	2	3	2	1	1	2	6	3	6	2	2	2	5	2	5.37	2
62	Tirrana	#7 Bald Ridge	3	3	1	3	1	2	2	2	1	1	3	5	4	1	2	5	2	1	3	5.75	1
63	East Lynne	Creek	4	1	1	2	4	3	2	3	2	3	1	6	3	5	2	2	1	5	1	5.86	1
64	East Lynne	Mine	4	1	1	2	4	3	2	3	2	3	2	6	2	2	2	5	1	3	5.82	1	
65	East Lynne	Air Strip	4	1	1	2	4	1	2	3	2	3	2	4	34	4	2	2	2	3	6.08	1	
66	Karoola	SLAB	4	1	1	1	4	3	2	3	2	2	1	1	3	2	1	1	1	3	6.1	1	
67	Karoola	Stony Camp	40.47	4	1	1	1	4	3	2	3	2	2	1	6	3	2	2	2	3	5.66	1	
68	Karoola	Wasin's	161.88	4	1	1	1	4	2	3	3	2	2	2	1	4	2	2	5	1	5.78	1	
69	Glendonvale	Cultivation	16.19	4	2	1	1	3	1	3	2	1	10	2	1	1	7	1	2	3	5.78	1	
70	Glendonvale	Middle Hill	141.65	4	2	1	1	3	1	3	3	2	1	2	6	4	7	2	1	2	5		
71	Glendonvale	Stringy Bark	161.88	4	2	1	1	3	1	3	1	1	1	2	6	4	3	1	1	2	4.87	4	

72	Wellington Y	#1	48.56	4	2	1	2	3	2	2	2	1	1	2	5	3	5	2	2	3	5.67	2		
73	Wellington Y	#7	48.56	4	2	1	2	3	2	2	2	1	1	2	2	3	2	5	2	2	4	5.1	3	
74	Wellington Y	#8	40.47	4	2	1	2	3	2	2	1	2	3	3	1	5	3	6	2	2	5	1	4.92	2
75	Claremont	House	10.12	4	3	1	2	2	1	2	3	3	3	1	5	3	6	2	2	3	4.68	4		
76	Claremont	Top Sandy	60.71	4	3	1	2	2	1	4	2	3	3	2	4	3	6	2	2	4	4.82	4		
77	Claremont	Bottom Sandy	101.18	4	3	1	2	2	2	4	2	3	3	2	6	4	4	2	1	1	5.62	5		
78	Rock Abbey	Hill	30.35	4	3	1	2	2	3	4	3	3	3	3	6	4	4	2	1	1	5.62	2		
79	Rock Abbey	Pine Tree	34.40	4	3	1	2	2	2	2	3	3	3	2	2	3	4	2	2	3	4.97	3		
80	Rock Abbey	Scrub	121.41	4	3	1	2	2	3	2	1	1	1	3	6	4	3	2	1	1	5.3	3		
81	Narrigal	Shed	16.19	4	2	1	2	3	2	2	1	2	3	1	3	3	3	2	2	3	5.3	4		
82	Narrigal	Red Hill	101.18	4	2	1	2	3	2	2	1	2	3	2	6	4	2	2	5	1	5.36	2		
83	Narrigal	Road	72.85	4	2	1	2	3	2	2	1	2	3	2	6	4	3	2	5	2	5.82	1		
84	Brooklyn	Pig's Tail	16.19	5	1	1	1	5	3	1	3	1	1	1	6	4	1	2	5	1	5.92	1		
85	Brooklyn	Front	202.35	5	1	1	1	5	3	1	3	2	3	1	6	4	1	2	5	2	5.92	1		
86	Brooklyn	Cultivation	12.14	5	1	1	1	5	3	1	3	3	3	1	2	3	2	2	1	3	5.53	1		
87	Codee	Lucerne	7.28	5	1	1	1	5	3	1	3	3	2	1	2	3	2	2	1	1	6.66	1		
88	Codee	Sandy	16.19	5	1	1	1	5	3	1	2	2	2	2	3	2	2	2	3	3	1			
89	Codee	Hayshed	8.09	5	1	1	1	5	3	1	2	2	2	1	1	1	1	2	2	4	3	6.55	1	
90	Rosedale-2	Hayshed	8.09	5	2	1	2	3	1	2	3	2	4	1	3	3	5	2	2	3	4.96	1		
91	Rosedale-2	Gorge	40.47	5	2	1	2	3	1	2	3	2	3	2	6	4	5	2	5	1	5.55	3		
92	Rosedale-2	Top River	80.94	5	2	1	2	3	2	2	1	2	3	2	6	4	5	2	5	1	5.65	4		
93	Braeburn	Donahue's Corner	3.24	5	2	1	2	4	2	2	1	2	6	1	3	3	4	2	2	3	6.05	1		
94	Braeburn	Greeny' Hill	4.05	5	2	1	2	4	2	3	1	2	3	1	4	1	4	2	5	2	6.02	1		
95	Braeburn	Salt Water 2	80.94	5	2	1	2	4	2	3	1	1	1	2	6	4	4	2	5	1	6.02	2		
96	Baldrock	Reseedin 2	12.14	5	3	1	3	3	2	3	2	2	3	2	6	4	4	2	2	2	3			
97	Baldrock	Yard	12.14	5	3	1	3	3	2	3	2	2	3	2	4	3	4	2	2	3	5.36	3		
98	Baldrock	Damp	40.47	5	3	1	3	3	2	3	2	2	3	2	6	4	4	2	2	1	5.5	3		
99	Timbarra	Sandy Creek	101.18	5	3	1	3	3	2	5	2	1	3	2	6	4	4	2	2	1	5.52	2		
100	Timbarra	Demon	283.29	5	3	1	3	3	2	5	2	1	1	2	6	4	1	2	5	1	5.58	1		
101	Timbarra	Eastern Top	80.94	5	3	1	3	3	2	5	2	2	6	1	6	4	4	2	2	3	5.06	3		

Appendix 3.2. Species identified in the 101 paddocks surveyed on the Northern Tablelands of NSW.

No.	Property	Paddock	Aira	Agrostis	Andropogon	Anthoxanthum	Aristida	Arundinella	Axonopus	Bothriochlon	Briza	Bronus	Chloris
1	Rosedale	Adrian's Corner	<i>A. caryophyllea</i>							<i>B. macra</i>			
2	Rosedale	Front		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. racemosus</i>	
3	Rosedale	Wagner's Creek		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. cartharthicus</i>	
4	Buriwest	Red Hill		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. racemosus</i>	
5	Buriwest	Western		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. cartharthicus</i>	
6	Buriwest	Eastern		<i>A. avenacea</i>						<i>B. macra</i>		<i>C. truncata</i>	
7	Clover Dale	Hill P.1		<i>A. avenacea</i>								<i>B. racemosus</i>	
8	Clover Dale	Dump		<i>A. avenacea</i>								<i>B. cartharthicus</i>	
9	Clover Dale	Hill P.2		<i>A. avenacea</i>								<i>B. brevis</i>	
10	Somer Set	Sheperd's Bush								<i>B. macra</i>		<i>B. sp.</i>	
11	Somer Set	Rough Hill		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. cartharthicus</i>	
12	Somer Set	One Tree		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. brevis</i>	
13	Edinburgh	Paddock 1								<i>B. macra</i>			
14	Edinburgh	Paddock 2								<i>B. macra</i>		<i>B. brevis</i>	
15	Kimberly Pai Ridge			<i>A. avenacea</i>					<i>A. affinis</i>	<i>B. macra</i>		<i>B. cartharthicus</i>	
16	Kimberly Pai	Red Hill		<i>A. avenacea</i>						<i>B. macra</i>		<i>B. brevis</i>	
17	Kimberly Pai	Spring											
18	Cherry hill	Gerry's 3A								<i>B. macra</i>		<i>C. truncata</i>	
19	Cherry hill	Monopoly 1								<i>B. macra</i>		<i>C. truncata</i>	
20	Cherry hill	Paddock 1								<i>B. macra</i>		<i>C. truncata</i>	
21	Balala	DAM				<i>A. ramosa</i>				<i>B. macra</i>		<i>C. truncata</i>	
22	Balala	Plum Scrub				<i>A. ramosa</i>						<i>C. truncata</i>	
23	Balala	Poor Man's	<i>A. caryophyllea</i>			<i>A. ramosa</i>			<i>B. macra</i>			<i>C. truncata</i>	
24	Rowena	Back				<i>A. warburgii</i>			<i>B. macra</i>			<i>C. truncata</i>	
25	Rowena	Camp				<i>A. calycina</i>						<i>C. truncata</i>	
26	Rowena	Home				<i>A. vagans</i>			<i>B. macra</i>			<i>C. truncata</i>	
27	Mt. View	Stud				<i>A. warburgii</i>						<i>C. truncata</i>	
						<i>A. jerichoensis</i>			<i>B. macra</i>				
						<i>A. ramosa</i>							

No.	Property	Paddock	<i>Critesion</i>	<i>Cymbopogon</i>	<i>Cynodon</i>	<i>Dactylis</i>	<i>Danthonia</i>	<i>Deyeuxia</i>	<i>Dicanthium</i>	<i>Dichelachne</i>	<i>Digitaria</i>	<i>Echinochlora</i>
1	Rosedale	Adrian's Corner				<i>C. dactylon</i>			<i>D. racemosa</i>			
2	Rosedale	Front				<i>C. dactylon</i>			<i>D. pilosa</i>			
3	Rosedale	Wagner's Creek										
4	Buriwest	Red Hill							<i>D. pilosa</i>			
5	Buriwest	Western				<i>C. dactylon</i>						
6	Buriwest	Eastern				<i>C. dactylon</i>						
7	Clover Dale	Hill P.1										
8	Clover Dale	Dump							<i>D. glomerata</i>			
9	Clover Dale	Hill P.2										
10	Somer Set	Sheperd's Bush				<i>C. dactylon</i>						
11	Somer Set	Rough Hill				<i>C. dactylon</i>		<i>D. glomerata</i>	<i>D. pilosa</i>			
12	Somer Set	One Tree				<i>C. dactylon</i>						
13	Edinburgh	Paddock 1										
14	Edinburgh	Paddock 2				<i>C. dactylon</i>		<i>D. glomerata</i>	<i>D. pilosa</i>			
15	Kimberly Pai	Ridge				<i>C. dactylon</i>		<i>D. glomerata</i>				
16	Kimberly Pai	Red Hill				<i>C. dactylon</i>						
17	Kimberly Pai	Spring							<i>D. laevis</i>			
18	Cherry hill	Gerry's 3A				<i>C. dactylon</i>						
19	Cherry hill	Monopoly 1				<i>C. dactylon</i>						
20	Cherry hill	Paddock 1							<i>D. penicillata</i>			
21	Balala	DAM							<i>D. caespitosa</i>			
22	Balala	Plum Scrub							<i>D. racemosa</i>			
23	Balala	Poor Man's							<i>D. caespitosa</i>		<i>D. affine</i>	<i>D. mirantha</i>
									<i>D. laevis</i>			<i>D. brownii</i>
24	Rowena	Back				<i>C. dactylon</i>						<i>D. rara</i>
25	Rowena	Camp										<i>D. rara</i>
26	Rowena	Home										<i>D. brownii</i>
27	Mt.View	Stud						<i>D. racemosa</i>				
								<i>D. laevis</i>				

No.	Property	Paddock	<i>Hyparrhenia</i>	<i>Imperata</i>	<i>Lachnogrostis</i>	<i>Lalium</i>	<i>Panicum</i>	<i>Paspalidium</i>	<i>Paspalum</i>	<i>Pennisetum</i>	<i>Phalaris</i>	<i>Poa</i>
1	Rosedale	Adrian's Corner				<i>L. perenne</i>				<i>P. alopecuroides</i>		<i>P. sieberiana</i>
2	Rosedale	Front				<i>L. perenne</i>						<i>P. pratensis</i>
3	Rosedale	Wagner's Creek				<i>L. perenne</i>				<i>P. alopecuroides</i>		
4	Buriwest	Red Hill				<i>L. perenne</i>	<i>P. effusum</i>	<i>P. effusum</i>				<i>P. pratenses</i>
5	Buriwest	Western								<i>P. alopecuroides</i>		<i>P. sieberiana</i>
6	Buriwest	Eastern										
7	Clover Dale	Hill P.1										
8	Clover Dale	Dump				<i>L. perenne</i>	<i>P. gilvum</i>			<i>P. alopecuroides</i>	<i>P. aquatica</i>	
9	Clover Dale	Hill P.2									<i>P. aquatica</i>	
10	Somer Set	Sheperd's Bush				<i>L. perenne</i>	<i>P. effusum</i>		<i>P. dilatatum</i>			
11	Somer Set	Rough Hill				<i>L. perenne</i>	<i>P. effusum</i>		<i>P. dilatatum</i>			
12	Somer Set	One Tree										
13	Edinburgh	Paddock 1							<i>P. dilatatum</i>	<i>P. alopecuroides</i>		
14	Edinburgh	Paddock 2				<i>L. rigidum</i>			<i>P. dilatatum</i>	<i>P. alopecuroides</i>	<i>P. aquatica</i>	<i>P. pratensis</i>
15	Kimberly Par	Ridge				<i>L. perenne</i>			<i>P. dilatatum</i>	<i>P. alopecuroides</i>		
16	Kimberly Par	Red Hill									<i>P. aquatica</i>	<i>P. pratensis</i>
17	Kimberly Par	Spring									<i>P. alopecuroides</i>	
18	Cherry hill	Gerry's 3A					<i>P. effusum</i>					
19	Cherry hill	Monopoly 1					<i>P. effusum</i>					
20	Cherry hill	Paddock 1					<i>P. effusum</i>	<i>P. distans</i>				
21	Balala	DAM					<i>P. effusum</i>					
22	Balala	Plum Scrub					<i>P. effusum</i>			<i>P. alopecuroides</i>		
23	Balala	Poor Man's					<i>P. effusum</i>					
24	Rowena	Back										
25	Rowena	Camp					<i>P. effusum</i>					
26	Rowena	Home					<i>P. effusum</i>					
27	Mt.View	Stud					<i>P. effusum</i>			<i>P. alopecuroides</i>		<i>P. sieberiana</i>

No.	Property	Paddock	<i>Setaria</i>	<i>Sorghum</i>	<i>Sporobalus</i>	<i>Stipa</i>	<i>Themeda</i>	<i>Tripogon</i>	<i>Vulpia</i>	<i>Carex</i>	<i>Juncus</i>	<i>Tragus</i>
1	Rosedale	Adrian's Corner			<i>S. mitchelli</i>	<i>S. rufis</i>	<i>T. australis</i>					
2	Rosedale	Front								<i>C. inversa</i>		
3	Rosedale	Wagner's Creek										
4	Buriwest	Red Hill				<i>S. rufis</i>					<i>Juncus</i> sp.	
5	Buriwest	Western			<i>S. creber</i>	<i>S. scabra</i>				<i>C. inversa</i>	<i>Juncus</i> sp.	
6	Buriwest	Eastern				<i>S. rufis</i>	<i>T. australis</i>			<i>C. inversa</i>		
7	Clover Dale	Hill P.1								<i>C. inversa</i>		
8	Clover Dale	Dump										
9	Clover Dale	Hill P.2										
10	Somer Set	Sheperd's Bush								<i>C. inversa</i>		
11	Somer Set	Rough Hill			<i>S. creber</i>		<i>T. australis</i>					
12	Somer Set	One Tree								<i>C. inversa</i>		
13	Edinburgh	Paddock 1			<i>S. creber</i>							
14	Edinburgh	Paddock 2	<i>S. gracilis</i>		<i>S. creber</i>					<i>C. inversa</i>		
15	Kimberly Par	Ridge			<i>S. creber</i>							
16	Kimberly Par	Red Hill			<i>S. creber</i>						<i>Juncus</i> sp.	
17	Kimberly Par	Spring			<i>S. creber</i>						<i>Juncus</i> sp.	
18	Cherry hill	Gerry's 3A			<i>S. creber</i>					<i>C. inversa</i>		
19	Cherry hill	Monopoly 1	<i>S. gracilis</i>		<i>S. creber</i>	<i>S. acrocallata</i>						
20	Cherry hill	Paddock 1			<i>S. creber</i>					<i>C. inversa</i>		
21	Balala	DAM	<i>S. gracilis</i>		<i>S. creber</i>					<i>C. inversa</i>		
22	Balala	Plum Scrub	<i>S. gracilis</i>		<i>S. creber</i>	<i>S. acrocallata</i>				<i>C. inversa</i>		
23	Balala	Poor Man's	<i>S. gracilis</i>		<i>S. creber</i>	<i>S. acrocallata</i>					<i>Juncus</i> sp.	
24	Rowena	Back			<i>S. creber</i>						<i>Juncus</i> sp.	
25	Rowena	Camp	<i>S. gracilis</i>		<i>S. creber</i>						<i>Juncus</i> sp.	
26	Rowena	Home			<i>S. creber</i>			<i>T. lolliformis</i>		<i>C. inversa</i>	<i>J. subsecundus</i>	
27	Mt.View	Stud			<i>S. creber</i>							

No.	Property	Paddock	<i>Aira</i>	<i>Agrostis</i>	<i>Andropogon</i>	<i>Anthoxanthum</i>	<i>Aristida</i>	<i>Arundinella</i>	<i>Axonopus</i>	<i>Bothriochlon</i>	<i>Briza</i>	<i>Bronus</i>	<i>Chloris</i>
28	Mt.View	Pretty Vally											
29	Mt.View	House								<i>B. macra</i>			<i>C. truncata</i>
30	Greenway	Granary											<i>C. truncata</i>
31	Greenway	Shed											
32	Greenway	Honeymoon					<i>A. ramosa</i>						
33	Sawrey	Horse											<i>B. racemosus</i>
34	Sawrey	House											<i>B. racemosus</i>
35	Sawrey	SW Back											<i>B. brevis</i>
36	Daisy Hill	Lease		<i>A. caryophyllea</i>									
37	Daisy Hill	Air Strip					<i>A. ramosa</i>						<i>B. cartharticus</i>
38	Daisy Hill	Bottom Farm											<i>B. cartharticus</i>
39	Karuah	Simana			<i>A. avenacea</i>								<i>C. elatior</i>
40	Karuah	Linochside			<i>A. avenacea</i>		<i>A. odoratum</i>						<i>B. brevis</i>
41	Karuah	Abroi											<i>B. racemosus</i>
42	Cloverlea	Woodlands											
43	Cloverlea	Mid -Phantom											
44	Cloverlea	One-tree											
45	Caloola	Lickholes					<i>A. ramosa</i>		<i>B. macra</i>		<i>B. cartharticus</i>		<i>C. truncata</i>
46	Caloola	String bark					<i>A. ramosa</i>		<i>B. Macra</i>				<i>C. truncata</i>
47	Caloola	TopRobinson					<i>A. ramosa</i>		<i>B. decipiens</i>				<i>C. ventricosa</i>
48	Milchomi	Red Hill					<i>A. calycina</i>		<i>B. macra</i>				<i>C. truncata</i>
49	Milchomi	Woolshed					<i>A. ramosa</i>	<i>A. nepalensis</i>	<i>B. macra</i>				
50	Milchomi	Forest											<i>C. truncata</i>
51	Powalgarh	Mid-cult		<i>A. avenacea</i>					<i>B. macra</i>		<i>B. minor</i>		<i>B. brevis</i>
52	Powalgarh	Well-cult											<i>B. hordeus</i>
53	Powalgarh	Pironte		<i>A. cupaniana</i>									<i>B. hordeaceus</i>
54	Triangle	Kook											<i>B.</i>
55	Triangle	Hawthorne											<i>B. racemosus</i>
													<i>C. truncata</i>
									<i>B. macra</i>				<i>C. truncata</i>

No.	Property	Paddock	Critesion	Cymbopogon	Cynodon	Dactylis	Danthoria	Deyeuxia	Dicanthium	Dichelachne	Digitaria	Echinochloa
28	Mt.View	Pretty Vally					<i>D. laevis</i>			<i>D. rara</i>		
							<i>D. pilosa</i>					
29	Mt.View	House					<i>D. sp.</i>			<i>D. rara</i>		
30	Greenway	Granary					<i>D. caespitosa</i>					
31	Greenway	Shed		<i>C. dactylon</i>		<i>D. glomerata</i>	<i>D. caespitosa</i>					
32	Greenway	Honeymoon					<i>D. caespitosa</i>					
33	Sawrey	Horse		<i>C. dactylon</i>								
34	Sawrey	House					<i>D. caespitosa</i>					
35	Sawrey	SW Back					<i>D. pilosa</i>					
36	Daisy Hill	Lease										<i>D. sanguinalis</i>
37	Daisy Hill	Air Strip				<i>D. glomerata</i>						
38	Daisy Hill	Bottom Farm				<i>D. glomerata</i>						
39	Karuah	Simana				<i>D. glomerata</i>	<i>D. pilosa</i>					
40	Karuah	Linochside	<i>C. murinum</i>				<i>D. laevis</i>					
41	Karuah	Abroi				<i>D. glomerata</i>	<i>D. pilosa</i>			<i>D. micrantha</i>		
42	Cloverlea	Woodlands				<i>D. glomerata</i>				<i>D. micrantha</i>		
43	Cloverlea	Mid -Phantom				<i>D. glomerata</i>						
44	Cloverlea	One-tree					<i>D. pilosa</i>					
45	Caloola	Lickholes		<i>C. refractus</i>			<i>D. pilosa</i>		<i>D. affine</i>			
46	Caloola	String bark		<i>C. refractus</i>	<i>C. dactylon</i>		<i>D. pilosa</i>				<i>D. brownii</i>	
47	Caloola	TopRobinson		<i>C. refractus</i>	<i>C. dactylon</i>		<i>D. pilosa</i>				<i>D. brownii</i>	
48	Milchomi	Red Hill		<i>C. refractus</i>			<i>D. pilosa</i>					<i>D. sanguinalis</i>
49	Milchomi	Woolshed					<i>D. caespitosa</i>					<i>D. sanguinalis</i>
50	Milchomi	Forest		<i>C. refractus</i>			<i>D. laevis</i>					
51	Powalgarh	Mid-cult	<i>C. murinum</i>				<i>D. laevis</i>			<i>D. rara</i>		<i>D. violascens</i>
52	Powalgarh	Well-cult					<i>D. racemosa</i>					
53	Powalgarh	Pironte					<i>D. racemosa</i>					
54	Triangle	Kook					<i>D. laevis</i>					
55	Triangle	Hawthorne					<i>D. penicillata</i>		<i>D. sericeum</i>			
							<i>D. linkii</i>		<i>subsp. sereceum</i>			
							<i>D. pilosa</i>					

No.	Property	Paddock	<i>Echinopogon</i>	<i>Ehrharta</i>	<i>Eleusine</i>	<i>Elymus</i>	<i>Enneapogon</i>	<i>Eragrostis</i>	<i>Eulalia</i>	<i>Festuca</i>	<i>Halcus</i>	<i>Hordeum</i>
28	Mt.View	Pretty Vally								<i>Eragrostis</i> sp.		
29	Mt.View	House										
30	Greenway	Granary				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
31	Greenway	Shed				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
32	Greenway	Honeymoon				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
33	Sawrey	Horse							<i>Eragrostis</i> sp.			
34	Sawrey	House				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
35	Sawrey	SW Back				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
36	Daisy Hill	Lease							<i>Eragrostis</i> sp.			
37	Daisy Hill	Air Strip				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
38	Daisy Hill	Bottom Farm				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
39	Karuah	Simana					<i>E. scaber</i>					
40	Karuah	Linochside		<i>E. caespitosus</i>			<i>E. scaber</i>		<i>E. mexicana</i>		<i>F. pratensis</i>	<i>F. lanatus</i>
41	Karuah	Abroi					<i>E. scaber</i>					
42	Cloverlea	Woodlands			<i>E. erecta</i>						<i>H. lanatus</i>	<i>H. lanatus</i>
43	Cloverlea	Mid -Phantom										
44	Cloverlea	One-tree										
45	Caloola	Lickholes	<i>E. ovatus</i>			<i>E. tristachya</i>			<i>E. aurea</i>			
46	Caloola	String bark	<i>E. caespitosus</i>			<i>E. tristachya</i>			<i>E. cilianensis</i>			
47	Caloola	TopRobinson	<i>E. ovatus</i>						<i>E. loptostachya</i>			
48	Milchomi	Red Hill		<i>E. mckiei</i>					<i>Eragrostis</i> sp.			
49	Milchomi	Woolshed				<i>E. tristachya</i>			<i>Eragrostis</i> sp.			
50	Milchomi	Forest		<i>E. caespitosus</i>		<i>E. tristachya</i>			<i>E. parviflora</i>			
51	Powalgarh	Mid-cult					<i>E. scaber</i>					
52	Powalgarh	Well-cult										
53	Powalgarh	Pironte	<i>E. ovatus</i>									
54	Triangle	Kook					<i>E. scaber</i>					
55	Triangle	Hawthorne				<i>E. tristachya</i>	<i>E. scaber</i>					

No.	Property	Paddock	<i>Hyparrhenia</i>	<i>Imperata</i>	<i>Lachnogrostis</i>	<i>Lalium</i>	<i>Panicum</i>	<i>Paspalidium</i>	<i>Paspalum</i>	<i>Pennisetum</i>	<i>Phalaris</i>	<i>Poa</i>
28	Mt.View	Pretty Vally					<i>P. effusum</i>			<i>P. alopecuroides</i>		
29	Mt.View	House					<i>P. effusum</i>					
30	Greenway	Granary					<i>P. effusum</i>			<i>P. aquatica</i>	<i>Poa sp.</i>	
31	Greenway	Shed								<i>P. aquatica</i>	<i>Poa sp.</i>	
32	Greenway	Honeymoon					<i>P. effusum</i>					
33	Sawrey	Horse							<i>P. dilatatum</i>	<i>P. alopecuroides</i>		
34	Sawrey	House										
35	Sawrey	SW Back										
36	Daisy Hill	Lease					<i>P. effusum</i>	<i>P. dilatatum</i>				<i>P. sieberiana</i>
37	Daisy Hill	Air Strip						<i>P. dilatatum</i>		<i>P. alopecuroides</i>		
38	Daisy Hill	Bottom Farm										
39	Karuah	Simana				<i>L. perenne</i>						<i>P. pratensis</i>
40	Karuah	Linochside				<i>L. perenne</i>						<i>P. pratensis</i>
41	Karuah	Abroi					<i>L. perenne</i>					<i>P. sieberiana</i>
42	Cloverlea	Woodlands										<i>P. sieberiana</i>
43	Cloverlea	Mid -Phantom										
44	Cloverlea	One-tree										
45	Caloola	Lickholes					<i>P. effusum</i>					
46	Caloola	String bark					<i>P. effusum</i>	<i>P. aversum</i>	<i>P. dilatatum</i>			
47	Caloola	TopRobinson					<i>P. effusum</i>					
48	Milchomi	Red Hill					<i>P. effusum</i>					
49	Milchomi	Woolshed					<i>P. effusum</i>		<i>P. dilatatum</i>			
50	Milchomi	Forest					<i>P. simile</i>					
51	Powalgarh	Mid-cult								<i>P. alopecuroides</i>		
52	Powalgarh	Well-cult				<i>Lalium sp.</i>						
53	Powalgarh	Pironte								<i>P. alopecuroides</i>		<i>P. sieberiana</i>
54	Triangle	Kook				<i>L. perenne</i>				<i>P. alopecuroides</i>	<i>P. aquatica</i>	
55	Triangle	Hawthorne				<i>L. perenne</i>			<i>P. dilatatum</i>	<i>P. alopecuroides</i>	<i>P. aquatica</i>	

No.	Property	Paddock	<i>Setaria</i>	<i>Sorghum</i>	<i>Sporobalus</i>	<i>Stipa</i>	<i>Themeda</i>	<i>Tripogon</i>	<i>Vulpia</i>	<i>Carex</i>	<i>Juncus</i>	<i>Tragus</i>
28	Mt.View	Pretty Vally										
29	Mt.View	House				<i>S. creber</i>						
30	Greenway	Granary	<i>S. gracilis</i>			<i>S. creber</i>	<i>S. scabra</i>					
31	Greenway	Shed				<i>S. creber</i>						
32	Greenway	Honeymoon				<i>S. creber</i>	<i>S. scabra</i>					<i>S. rufidis</i>
33	Sawrey	Horse										
34	Sawrey	House										
35	Sawrey	SW Back										
36	Daisy Hill	Lease				<i>S. creber</i>	<i>S. scabra</i>					
37	Daisy Hill	Air Strip				<i>S. creber</i>						
38	Daisy Hill	Bottom Farm				<i>S. creber</i>						
39	Karuah	Simana							<i>V. bromoides</i>			
40	Karuah	Linochside							<i>V. bromoides</i>			
41	Karuah	Abroi				<i>S. rufidis</i>	<i>T. australis</i>		<i>V. bromoides</i>	<i>C. inversa</i>	<i>Juncus</i> sp.	
42	Cloverlea	Woodlands										
43	Cloverlea	Mid -Phantom										
44	Cloverlea	One-tree										
45	Caloola	Lickholes				<i>S. creber</i>	<i>S. scabra</i>			<i>C. inversa</i>	<i>Juncus</i> sp.	
46	Caloola	String bark				<i>S. creber</i>	<i>S. scabra</i>			<i>C. inversa</i>		<i>T. australianus</i>
47	Caloola	TopRobinson				<i>S. creber</i>	<i>S. verticillata</i>					
48	Milchomi	Red Hill				<i>S. creber</i>	<i>S. scabra</i>					
49	Milchomi	Woolshed				<i>S. creber</i>						<i>Juncus</i> sp.
50	Milchomi	Forest				<i>S. creber</i>						
51	Powalgarh	Mid-cult	<i>S. gracilis</i>						<i>V. bromoides</i>			
52	Powalgarh	Well-cult										
53	Powalgarh	Pironte					<i>S. nervosa</i>		<i>V. bromoides</i>		<i>Juncus</i> sp.	
54	Triangle	Kook				<i>S. creber</i>	<i>S. scabra</i>		<i>V. myuros</i>			
55	Triangle	Hawthorne				<i>S. creber</i>						

No.	Property	Paddock	<i>Aira</i>	<i>Agrostis</i>	<i>Andropogon</i>	<i>Anthoxanthum</i>	<i>Aristida</i>	<i>Arundinella</i>	<i>Axonopus</i>	<i>Bothriochlon</i>	<i>Briza</i>	<i>Bronus</i>	<i>Chloris</i>
56	Triangle	Swamp		<i>A. avanacea</i>							<i>B. brevis</i>		<i>C. truncata</i>
57	Aberfoyle	Campions			<i>A. aequata</i>				<i>B. macra</i>		<i>B. cartharthicus</i>	<i>B. cartharthicus</i>	<i>C. truncata</i>
58	Aberfoyle	North Shearing									<i>B. brevis</i>		<i>B. cartharthicus</i>
59	Aberfoyle	House									<i>B. cartharthicus</i>		<i>B. cartharthicus</i>
60	Tirrana	Foot Rot									<i>B. cartharthicus</i>		<i>B. cartharthicus</i>
61	Tirrana	High Trial							<i>B. macra</i>		<i>B. brevis</i>		
62	Tirrana	#7 Bald Ridge								<i>B. macra</i>			
63	East Lynne	Creek											<i>C. truncata</i>
64	East Lynne	Mine					<i>A. ramosa</i>		<i>B. macra</i>				<i>C. ventricosa</i>
65	East Lynne	Air Strip					<i>A. ramosa</i>		<i>B. macra</i>				<i>C. truncata</i>
66	Karoola	SLAB					<i>A. jerichoensis</i>						<i>C. truncata</i>
67	Karoola	Stony Camp						<i>A. ramosa</i>		<i>B. macra</i>			<i>C. truncata</i>
68	Karoola	Wasin's						<i>A. ramosa</i>	<i>A. nepalensis</i>	<i>B. macra</i>			<i>C. divaricata</i>
69	Glendonvale	Cultivation					<i>A. acuta</i>			<i>B. macra</i>			
70	Glendonvale	Middle Hill											<i>C. truncata</i>
71	Glendonvale	Stringy Bark		<i>A. avenacea</i>			<i>A. vagans</i>		<i>B. macra</i>				
72	Wellington Y	#1					<i>A. acuta</i>				<i>B. cartharthicus</i>		
73	Wellington Y	#7					<i>A. ramosa</i>				<i>B. brevis</i>	<i>B. cartharthicus</i>	<i>B. brevis</i>
74	Wellington Y	#8					<i>A. ramosa</i>						<i>C. truncata</i>
75	Claremont	House		<i>A. avenacea</i>				<i>B. macra</i>					<i>C. truncata</i>
76	Claremont	Top Sandy									<i>B. cartharthicus</i>		
77	Claremont	Bottom Sandy		<i>A. avenacea</i>				<i>B. macra</i>			<i>B. brevis</i>		
78	Rock Abbey	Hill					<i>A. ramosa</i>		<i>B. macra</i>				
79	Rock Abbey	Pine Tree					<i>A. ramosa</i>		<i>B. macra</i>				
80	Rock Abbey	Scrub					<i>A. acuta</i>		<i>B. macra</i>				
81	Warrigal	Shed					<i>A. ramosa</i>		<i>B. macra</i>				

No.	Property	Paddock	Critesion	Cymbopogon	Cynodon	Dactylis	Danthonia	Deyeuxia	Dicanthium	Dichelachne	Digitaria	Echinochloa
56	Triangle	Swamp				<i>D. glomerata</i>	<i>D. linkii</i>					
57	Aberfoyle	Campions		<i>C. obtectus</i>				<i>D. pilosa</i>				
58	Aberfoyle	North Shearing						<i>D. pilosa</i>				
59	Aberfoyle	House				<i>D. glomerata</i>		<i>D. pilosa</i>				
60	Tirrana	Foot Rot									<i>D. diffusa</i>	
61	Tirrana	High Trial						<i>D. pilosa</i>			<i>D. sanguinalis</i>	
62	Tirrana	#7 Bald Ridge										
63	East Lynne	Creek						<i>D. racemosa</i>			<i>D. brownii</i>	
64	East Lynne	Mine		<i>C. refractus</i>						<i>D. rara</i>		
65	East Lynne	Air Strip									<i>D. brownii</i>	
66	Karoola	SLAB										<i>E. colona</i>
67	Karoola	Stony Camp			<i>C. dactylon</i>							
68	Karoola	Wasin's		<i>C. refractus</i>	<i>C. dactylon</i>					<i>D. affine</i>	<i>D. rara</i>	
69	Glendonvale	Cultivation					<i>D. caespitosa</i>		<i>D. affine</i>			
70	Glendonvale	Middle Hill					<i>D. caespitosa</i>		<i>D. affine</i>		<i>D. rara</i>	
71	Glendonvale	Stringy Bark					<i>D. pilosa</i>			<i>D. affine</i>	<i>D. rara</i>	
72	Wellington Y	#1					<i>D. pilosa</i>					
73	Wellington Y	#7			<i>C. dactylon</i>			<i>D. eriantha</i>				
74	Wellington Y	#8						<i>D. pilosa</i>				
75	Claremont	House				<i>C. dactylon</i>	<i>D. glomerata</i>	<i>D. pilosa</i>			<i>D. ciliaris</i>	
76	Claremont	Top Sandy					<i>D. glomerata</i>	<i>D. pilosa</i>			<i>D. sanguinalis</i>	
77	Claremont	Bottom Sandy		<i>C. refractus</i>		<i>D. glomerata</i>					<i>D. didactyla</i>	
78	Rock Abbey	Hill		<i>C. refractus</i>			<i>D. pilosa</i>					
79	Rock Abbey	Pine Tree					<i>D. laevis</i>				<i>D. parviflora</i>	
80	Rock Abbey	SCrub		<i>C. refractus</i>			<i>D. racemosa</i>					
81	Warrigal	Shed			<i>C. refractus</i>					<i>D. rara</i>		<i>D. ciliaris</i>

No.	Property	Paddock	<i>Echinopogon</i>	<i>Ehrharta</i>	<i>Eleusine</i>	<i>Elymus</i>	<i>Enneapogon</i>	<i>Eragrostis</i>	<i>Eulalia</i>	<i>Festuca</i>	<i>Halcus</i>	<i>Hordeum</i>
56	Triangle	Swamp			<i>E. tristachya</i>			<i>Eragrostis</i> sp.				
57	Aberfoyle	Campions			<i>E. tristachya</i>			<i>Eragrostis</i> sp.		<i>F. pratensis</i>		
58	Aberfoyle	North Shearing			<i>E. tristachya</i>			<i>Eragrostis</i> sp. <i>E. aurea</i>		<i>F. pratensis</i>		
59	Aberfoyle	House			<i>E. tristachya</i>			<i>Eragrostis</i> sp.			<i>H. lanatus</i>	
60	Tirrana	Foot Rot								<i>F. elatior</i>	<i>H. lanatus</i>	
61	Tirrana	High Trial			<i>E. tristachya</i>			<i>Eragrostis</i> sp.		<i>F. elatior</i>	<i>H. lanatus</i>	
62	Tirrana	#1 Bald Ridge						<i>Eragrostis</i> sp.			<i>H. lanatus</i>	
63	East Lynne	Creek			<i>E. tristachya</i>			<i>Eragrostis</i> sp.				
64	East Lynne	Mine				<i>E. scaber</i>		<i>Eragrostis</i> sp. <i>E. aurea</i>				
65	East Lynne	Air Strip						<i>Eragrostis</i> sp. <i>E. aurea</i>				
66	Karoola	SLAB						<i>Eragrostis</i> sp.				
67	Karoola	Stony Camp						<i>Eragrostis</i> sp.				
68	Karoola	Wasin's	<i>E. ovatus</i>					<i>Eragrostis</i> sp.				
69	Glendonvale	Cultivation										
70	Glendonvale	Middle Hill			<i>E. tristachya</i>			<i>Eragrostis</i> sp.				
71	Glendonvale	Stringy Bark				<i>E. scaber</i>		<i>Eragrostis</i> sp.				
72	Wellington Y	#1			<i>E. tristachya</i>			<i>Eragrostis</i> sp.				
73	Wellington Y	#7	<i>E. ovatus</i>		<i>E. tristachya</i>			<i>Eragrostis</i> sp.		<i>F. pratensis</i>		
74	Wellington Y	#8	<i>E. ovatus</i>		<i>E. tristachya</i>			<i>Eragrostis</i> sp.				
75	Claremont	House								<i>F. pratensis</i>		
76	Claremont	Top Sandy	<i>E. ovatus</i>		<i>E. tristachya</i>			<i>Eragrostis</i> sp.		<i>F. pratensis</i>		
77	Claremont	Bottom Sandy	<i>E. ovatus</i>					<i>Eragrostis</i> sp.		<i>F. pratensis</i>		
78	Rock Abbey	Hill	<i>E. ovatus</i>					<i>Eragrostis</i> sp.				
79	Rock Abbey	Pine Tree	<i>E. ovatus</i>		<i>E. tristachya</i>			<i>Eragrostis</i> sp. <i>E. aurea</i>		<i>F. pratensis</i>		
80	Rock Abbey	SCrub	<i>E. ovatus</i>					<i>Eragrostis</i> sp.				
81	Warrigal	Shed	<i>E. ovatus</i>			<i>E. scaber</i>		<i>Eragrostis</i> sp.				

No.	Property	Paddock	<i>Hyparrhenia</i>	<i>Imperata</i>	<i>Lachnogrostis</i>	<i>Lalium</i>	<i>Panicum</i>	<i>Paspalidium</i>	<i>Paspalum</i>	<i>Pennisetum</i>	<i>Phalaris</i>	<i>Poa</i>
56	Triangle	Swamp				<i>L. perenne</i>			<i>P. dilatatum</i>		<i>P. aquatica</i>	
57	Aberfoyle	Campions				<i>L. perenne</i>						<i>P. sieberiana</i>
58	Aberfoyle	North Shearing				<i>L. perenne</i>						<i>P. pratensis</i>
59	Aberfoyle	House					<i>P. effusum</i>				<i>P. aquatica</i>	
60	Tirrana	Foot Rot					<i>P. gilvum</i>		<i>P. dilatatum</i>	<i>P. alopecuroides</i>	<i>P. aquatica</i>	
61	Tirrana	High Trial							<i>P. dilatatum</i>	<i>P. alopecuroides</i>		
62	Tirrana	#1 Bald Ridge								<i>P. alopecuroides</i>		
63	East Lynne	Creek					<i>P. effusum</i>					
64	East Lynne	Mine							<i>P. dilatatum</i>			
65	East Lynne	Air Strip					<i>P. effusum</i>					
66	Karoola	SLAB										
67	Karoola	Stony Camp										
68	Karoola	Wasin's										<i>P. pratensis</i>
69	Glendonvale	Cultivation								<i>P. aquatica</i>		
70	Glendonvale	Middle Hill								<i>P. aquatica</i>		<i>P. pratensis</i>
71	Glendonvale	Stringy Bark					<i>P. effusum</i>		<i>P. dilatatum</i>			<i>P. pratensis</i>
72	Wellington Y	'#1									<i>P. aquatica</i>	
73	Wellington Y	#7					<i>P. effusum</i>		<i>P. dilatatum</i>		<i>P. aquatica</i>	
74	Wellington Y	#8										<i>P. pratensis</i>
75	Claremont	House										
76	Claremont	Top Sandy				<i>L. perenne</i>			<i>P. dilatatum</i>			
77	Claremont	Bottom Sandy										
78	Rock Abbey	Hill					<i>P. effusum</i>		<i>P. dilatatum</i>			
79	Rock Abbey	Pine Tree										<i>P. aquatica</i>
80	Rock Abbey	Scrub										<i>P. pratensis</i>
81	Warrigal	Shed				<i>I. cylindrica</i>						
							<i>P. effusum</i>					

No.	Property	Paddock	<i>Setaria</i>	<i>Sorghum</i>	<i>Sporobalus</i>	<i>Stipa</i>	<i>Themeda</i>	<i>Tripogon</i>	<i>Vulpia</i>	<i>Carex</i>	<i>Juncus</i>	<i>Tragus</i>
56	Triangle	Swamp				<i>S. creber</i>						
57	Aberfoyle	Campions				<i>S. leiocladium</i>						
58	Aberfoyle	North Shearing										
59	Aberfoyle	House										<i>C. inversa</i>
60	Tirrana	Foot Rot										<i>C. inversa</i>
61	Tirrana	High Trial										<i>Juncus</i> sp.
62	Tirrana	#1 Bald Ridge										
63	East Lynne	Creek										<i>C. inversa</i>
64	East Lynne	Mine										
65	East Lynne	Air Strip	<i>S. gracilis</i>			<i>S. creber</i>	<i>S. scabra</i>					
							<i>S. verticillata</i>					
							<i>S. creber</i>					
66	Karoola	SLAB				<i>S. creber</i>	<i>S. aristiglumis</i>					
67	Karoola	Stony Camp				<i>S. creber</i>	<i>S. rufa</i>					
68	Karoola	Wasin's				<i>S. creber</i>						<i>Juncus</i> sp.
69	Glendonvale	Cultivation										
70	Glendonvale	Middle Hill					<i>S. scabra</i>					
71	Glendonvale	Stringy Bark						<i>T. australis</i>				<i>Juncus</i> sp.
72	Wellington Y	'#1				<i>S. creber</i>						
73	Wellington Y	#7	<i>S. gracilis</i>			<i>S. creber</i>	<i>S. verticillata</i>	<i>T. australis</i>				
74	Wellington Y	#8				<i>S. creber</i>	<i>S. verticillata</i>	<i>T. australis</i>				<i>C. inversa</i>
75	Claremont	House										
76	Claremont	Top Sandy				<i>S. creber</i>						
77	Claremont	Bottom Sandy	<i>S. gracilis</i>			<i>S. creber</i>	<i>S. scabra</i>	<i>T. australis</i>				
78	Rock Abbey	Hill				<i>S. creber</i>						<i>Juncus</i> sp.
79	Rock Abbey	Pine Tree				<i>S. creber</i>		<i>T. australis</i>				<i>Juncus</i> sp.
80	Rock Abbey	Scrub				<i>S. creber</i>	<i>S. scabra</i>	<i>T. australis</i>				<i>Juncus</i> sp.
81	Wartigal	Shed				<i>S. creber</i>	<i>S. verticillata</i>					

No.	Property	Paddock	<i>Aira</i>	<i>Agrostis</i>	<i>Andropogon</i>	<i>Anthoxanthum</i>	<i>Aristida</i>	<i>Arundinella</i>	<i>Axonopus</i>	<i>Bothriochlon</i>	<i>Briza</i>	<i>Bromus</i>	<i>Chloris</i>
82	Warrigal	Red Hill					<i>A. jerichoensis</i>			<i>B. macra</i>			
83	Warrigal	Road					<i>A. acuta</i>	<i>A. nepalensis</i>					<i>Chloris sp.</i>
84	Brooklyn	Pig's Tail					<i>A. ramosa</i>			<i>B. macra</i>			
85	Brooklyn	Front					<i>A. ramosa</i>			<i>B. macra</i>			<i>C. ventricosa</i>
86	Brooklyn	Cultivation					<i>A. psammohila</i>						<i>Chloris sp.</i>
							<i>A. blakei</i>						<i>C. truncata</i>
							<i>A. ramosa</i>						<i>C. virgata</i>
													<i>C. virgata</i>
87	Codee	Lucerne											
88	Codee	Sandy											
89	Codee	Hayshed											
90	Rosedale-2	Hayshed								<i>B. macra</i>			
91	Rosedale-2	Gorge					<i>A. ramosa</i>			<i>B. macra</i>			<i>C. ventricosa</i>
92	Rosedale-2	Top River					<i>A. ramosa</i>			<i>B. macra</i>			<i>C. truncata</i>
93	Braeburn	Donahue's Corner											
94	Braeburn	Greeny' Hill								<i>B. macra</i>			
95	Braeburn	Salt Water 2								<i>B. macra</i>			
96	Baldrock	Reseeding 2										<i>B. cartharthicus</i>	
97	Baldrock	Yard										<i>B. brevis</i>	
98	Baldrock	Damp										<i>B. brevis</i>	
99	Timbarra	Sandy Creek					<i>A. ramosa</i>					<i>B. cartharthicus</i>	
100	Timbarra	Demon						<i>A. affinis</i>					<i>B. cartharthicus</i>
101	Timbarra	Eastern Top		<i>A. virginicus</i>				<i>A. affinis</i>		<i>B. macra</i>			<i>B. cartharthicus</i>

No.	Property	Paddock	<i>Echinopogon</i>	<i>Ehrharta</i>	<i>Eleusine</i>	<i>Elymus</i>	<i>Enneapogon</i>	<i>Eragrostis</i>	<i>Eulalia</i>	<i>Festuca</i>	<i>Halcus</i>	<i>Hordeum</i>
82	Warrigal	Red Hill										
83	Warrigal	Road						<i>Eragrostis</i> sp.				
84	Brooklyn	Pig's Tail						<i>Eragrostis</i> sp.				
85	Brooklyn	Front					<i>E. nigricans</i>	<i>E. leptostachya</i>				
86	Brooklyn	Cultivation						<i>E. curvilla</i>				
87	Codee	Lucerne					<i>E. indica</i>	<i>Eragrostis</i> sp.				
88	Codee	Sandy						<i>Eragrostis</i> sp.				
89	Codee	Hayshed						<i>E. ciliensis</i>				
90	Rosedale-2	Hayshed										<i>F. pratensis</i>
91	Rosedale-2	Gorge	<i>E. ovatus</i>					<i>Eragrostis</i> sp.				
92	Rosedale-2	Top River	<i>E. ovatus</i>			<i>E. tristachya</i>		<i>Eragrostis</i> sp.				
93	Braeburn	Donahue's Corner				<i>E. tristachya</i>		<i>Eragrostis</i> sp.				
94	Braeburn	Greeny' Hill				<i>E. tristachya</i>		<i>Eragrostis</i> sp.				
95	Braeburn	Salt Water 2	<i>E. caespitosa</i>			<i>E. tristachya</i>		<i>Eragrostis</i> sp.				
96	Baldrock	Reseeding 2				<i>E. tristachya</i>		<i>Eragrostis</i> sp.				
97	Baldrock	Yard				<i>E. tristachya</i>				<i>F. pratensis</i>		
98	Baldrock	Damp				<i>E. tristachya</i>						
99	Timbarra	Sandy Creek	<i>E. ovatus</i>					<i>Eragrostis</i> sp. <i>E. aurea</i>				
100	Timbarra	Demon						<i>Eragrostis</i> sp.				
101	Timbarra	Eastern Top						<i>Eragrostis</i> sp.				

No.	Property	Paddock	<i>Hyparrhenia</i>	<i>Imperata</i>	<i>Lalium</i>	<i>Panicum</i>	<i>Paspalidium</i>	<i>Paspalum</i>	<i>Pennisetum</i>	<i>Phalaris</i>	<i>Poa</i>	<i>Setaria</i>
82	Warrigal	Red Hill				<i>P. effusum</i>					<i>Poa sp.</i>	
83	Warrigal	Road					<i>P. effusum</i>					
84	Brooklyn	Pig's Tail										
85	Brooklyn	Front	<i>H. hirta</i>									
86	Brooklyn	Cultivation										
87	Codee	Lucerne					<i>P. distans</i>	<i>P. dilatatum</i>				
88	Codee	Sandy				<i>P. effusum</i>						
89	Codee	Hayshed										
90	Rosedale-2	Hayshed					<i>P. dilatatum</i>		<i>P. aquatica</i>			
91	Rosedale-2	Gorge							<i>P. alopecuroides</i>		<i>P. pratensis</i>	
92	Rosedale-2	Top River		<i>I. cylindrica</i>		<i>P. effusum</i>	<i>P. dilatatum</i>		<i>P. alopecuroides</i>	<i>P. aquatica</i>		<i>S. gracilis</i>
93	Braeburn	Donahue's Corner										
94	Braeburn	Greeny' Hill				<i>P. effusum</i>					<i>P. pratensis</i>	
95	Braeburn	Salt Water 2										
96	Baldrock	Reseedin 2										
97	Baldrock	Yard					<i>P. dilatatum</i>				<i>S. gracilis</i>	
98	Baldrock	Damp					<i>P. dilatatum</i>				<i>P. pratensis</i>	
99	Timbarra	Sandy Creek		<i>I. cylindrica</i>		<i>P. effusum</i>	<i>P. dilatatum</i>					
100	Timbarra	Demon		<i>I. cylindrica</i>		<i>P. effusum</i>	<i>P. dilatatum</i>				<i>P. pratensis</i>	
101	Timbarra	Eastern Top		<i>I. cylindrica</i>			<i>P. dilatatum</i>	<i>P. alopecuroides</i>			<i>P. pratensis</i>	<i>S. gracilis</i>

Appendix 3.3: Pearson χ^2 values, DF and probability values for the test of independence between abundance of *M. stipoides* and the different paddock characteristics.

Variable	χ^2 -values	Degrees of Freedom	Probability
Zone	33.57	16	.0062 **
Aspect	22.12	8	.0087 **
Latitude	23.17	8	.0032 **
Longitude	20.52	8	.0085 **
Altitude	59.54	16	.0000 **
Parent Material	14.39	8	.0720 ns
Rainfall	47.30	20	.0005 **
Stock	13.85	8	.0858 ns
Graze	9.47	8	.3039 ns
Spell Period	35.83	32	.2935 ns
Tree Density	21.59	8	.0057 **
Period since last cultivation	25.87	20	.1702 **
Degree of cultivation	24.62	12	.0167 *
Total fertiliser	26.00	20	.1659 ns
Lime	8.20	4	.0845 ns
Species sown	10.04	12	.6121 ns
Pasture improvement	30.43	12	.0024 **
pH	28.49	8	.0004 ns

* > .01

** .01-.001

*** < .001

ns not significant

Appendix 3.4: Observed frequency tables for different paddock attributes of the five *M. stipoides* abundance classes.

a) Zone

<i>Microlaena</i> abundance class	S	MS	M	MN	N	Total
1	1	2	3	7	9	22
2	3	7	5	7	2	24
3	6	4	2	4	4	20
4	1	6	0	4	1	12
5	7	5	5	2	0	19
Total	18	24	15	24	16	97

b) Aspect

<i>Microlaena</i> abundance class	West	Middle	East	Total
1	12	8	2	22
2	13	6	7	26
3	5	7	9	21
4	0	8	4	12
5	3	7	9	19
Total	33	36	31	100

c) Latitude

<i>Microlaena</i> abundance class	North	Middle	South	Total
1	18	3	1	22
2	10	14	2	26
3	9	6	6	21
4	5	6	1	12
5	4	10	5	19
Total	46	39	15	100

d) Longitude

<i>Microlaena</i> abundance class	West	Middle	East	Total
1	12	8	2	22
2	13	9	4	26
3	5	11	5	21
4	0	11	1	12
5	3	12	5	19
Total	33	51	16	100

e) Altitude

<i>Microlaena</i> abundance class	1	2	3	4	5	Total
1	2	4	2	8	6	22
2	3	7	9	7	0	21
3	5	6	9	1	0	26
4	1	8	3	0	0	12
5	7	11	1	0	0	19
Total	18	36	24	16	6	100

f) Tree Density

<i>Microlaena</i> abundance class	Complete	Some	None	Total
1	14	7	1	22
2	6	9	9	24
3	3	9	7	19
4	6	6	0	12
5	3	8	6	17
Total	32	39	23	94

g) Pasture improvement

<i>Microlaena</i> abundance class	Native	Natural	Improved	Total
1	3	3	16	22
2	10	6	8	24
3	3	6	10	19
4	1	3	8	12
5	7	7	3	17
Total	24	25	45	94

h) Period since last cultivation

<i>Microlaena</i> abundance class	1-5	6-20	Never	Total
1	9	7	6	22
2	2	6	16	24
3	6	2	11	19
4	1	4	7	12
5	1	2	14	17
Total	19	21	54	94

i) Degree of cultivation

<i>Microlaena</i> abundance class	Regular	Intermit	Pasture	Never	Total
1	4	3	11	4	22
2	1	2	7	14	24
3	0	1	7	11	19
4	0	0	5	7	12
5	0	0	3	14	17
Total	5	6	33	50	94

j) Spell Period

<i>Microlaena</i> abundance class	Not	1 Mo.	2-3 Mos.	Total
1	3	6	13	22
2	9	3	12	24
3	1	1	17	19
4	5	1	6	12
5	8	1	8	17
Total	26	12	56	94

k) Stock

<i>Microlaena</i> abundance class	Sheep	Cattle	Sheep+cattle	Total
1	4	4	13	21
2	11	7	6	24
3	5	6	8	19
4	6	4	2	12
5	2	5	10	17
Total	28	26	39	93

l) Grazing Method

<i>Microlaena</i> abundance class	Set	Rotation	Opportunity	Total
1	5	14	3	22
2	12	9	3	24
3	4	11	4	19
4	5	4	3	12
5	8	5	4	17
Total	34	43	17	94

m) Species sown

<i>Microlaena</i> abundance class	1	2	3	4	5	Total
1	4	11	1	1	6	23
2	3	11	0	0	10	24
3	3	14	0	0	3	20
4	1	8	0	0	3	12
5	5	6	0	0	6	17
Total	16	50	1	1	28	96

n) Total fertiliser

<i>Microlaena</i> abundance class	1	2	3	4	Total
1	2	10	7	3	22
2	2	8	11	3	24
3	0	7	10	2	19
4	0	4	6	2	12
5	0	6	7	4	17
Total	4	35	41	14	94

o) Lime

<i>Microlaena</i> abundance class	Yes	No	Total
1	4	18	22
2	1	23	24
3	1	19	19
4	3	9	12
5	0	17	17
Total	9	85	94

p) pH

<i>Microlaena</i> abundance class	pH 4-5	pH 5-6	pH 6-7	Total
1	1	14	6	21
2	8	13	1	22
3	4	11	0	15
4	8	3	0	11
5	7	6	0	13
Total	28	47	7	82

q) Parent Material

<i>Microlaena</i> abundance class	Basalt	Granite	Sediment	Total
1	6	4	12	22
2	3	13	8	24
3	6	8	3	17
4	6	3	3	12
5	2	5	5	12
Total	23	33	31	87

r) Rainfall

<i>Microlaena</i> abundance class	1	2	3	4	5	6	7	Total
1	6	8	7	0	0	0	1	22
2	0	14	7	0	1	0	2	24
3	0	8	11	0	0	0	1	20
4	0	4	5	2	0	0	1	12
5	0	2	15	1	0	0	1	19
Total	6	36	45	3	1	0	6	97

Appendix 4.1. Percentage composition by basal cover of the species identified in the 1990 survey.

Quadrat No.	<i>Mst</i>	<i>Tre</i>	<i>Lpe</i>	<i>Dgl</i>	<i>Cin</i>	<i>Ppr</i>	<i>Pdi</i>	<i>Esc</i>	<i>Scr</i>	<i>Bma</i>	<i>Psi</i>
1	50	12	43	1	1	3					
2	15	4	28	2		30	1				
3	56	8	33	1	1	11					
4	38	34	23	1	1	13					
5	21	57	13	18	1						
6	40	42	14	13	1						
7	18	70	1	21							
8	51	54	5								
9	45	63			1	1					
10	23	62	24				1				
11	45	39	16	6	1	3					
12	31	33	40	3			3				
13	25	32	26	26							
14	8	85	14	3							
15	66	41			2	1					
16	40	51	5	1							
17	22	42	37	7			2				
18	45	14	26	5	1	19					
19	38	36	26	1	1	8					
20	76	18	7	2			7				
21	56	32	7	5			10				
22	64	24	3				19				
23	28	7	65			10					
24	26	59	4	21							
25	30	33	29	2			16				
26	55	12	13	10	9	6		5			
27	41	21	26		3	19					
28	51	12	6	1	2	38					
29			64			46					
30	29	17	50		12		2				
31	13	23	15			17	42				
32	45	6	46		2		11				
33	42	37	10		3	2		16			
34	15	32	53		1		9				
35	28	38	44								
36	53	51		6							
37	41	38	30		1						
38	48	53	5		1	3					
39	50	37	18	3	2						
40	18	38	32	22							
41	34	45	27	2			2				
42	35	32	34	7	2						
43	35	67	2	6							
44	8	30	34	37		1					
45	57	25	26		2						
46	23	33	52			1	1				
47	44	25	39		2						
48	32	17	55	6							
49	51	26	23			10					
50	48	13	28			21					
51	39	26	26	17	2						
52	29	6	50	8	4	4	1		8		
53	11	48	48						3		

Quadrat No.	Mst	Tre	Lpe	Dgl	Cin	Ppr	Pdl	Esc	Scr	Bma	Psi
54	16	57			2	34					
55	10	22	78								
56	13	22	56			9				10	
57	8	23	57	22							
58	13	45	51								1
59	16	44	48			2					
60		42	61	5		2					
61	22	37	51								
62	23	33	52	2							
63	89	18	2								1
64	10	50	50								
65	19	24	49		18						
66	64	15	24	7							
67	21	3	84							2	
68	28	10	14	58							
69	32	15		63							
70	34	20	21	5							
71	39	4	54	8						5	
72	38	32	5			18				13	4
73	64	19	22	5							
74	15	7	13	75							
75	41	47	5			17					
76	42	16	16	31		1					4
77	37	25	20	21	1	1	4				
78	61	10	36	1		1					1
79	87	2	3			18					
80	55	9		46							
81	15	9	56	30							
82	47	1	3	26		33					
83	74	11	11	4		5					5
84	30	1	3	74		2					
85	53	14	4	39							
86	21	31	46		3	9					
87	36	41	21		1	10					1
88	29	14	24		1	7				35	
89	24	21	49			12					4
90	35	42	18			13					2
91	58	26	16								10
92	42	46	11	5		1					5
93	46	16	27	21							
94	44	9	13	41		3					
95	49	9	20	32							
96	6	5	22	73			4				
97	41	3		66							
98	31	15	30	34							
99	51	3	52	4							
100	10	13	22	65							
101	17	13	21	59							
102	58	1	4	47							
103	23	15	16	56							
104	44	11	53	2							
105	8	4	78	20							

Appendix 4.2. Percentage composition by basal cover of the species identified in the 1993 survey.

Quadrat No	Mst	Lpe	Ppr	Dgl	Pdi	Etr	Cda	Fel	Tre	Cin	Hla	Emo	Hun	J	Pal	Lfi	Pes	J2	Bma	Dpi	Dan
1	33	18	22	16	1				10												
2	68	3	15	1	6				7												
3	2	9	19		2				16	13	2	1	7	1	10						
4	51	8	8	1	1	13			11	7											
5	45	5	28	13						5	4										
6	24	2	29	25	3	1			4	3	6							2	1		
7	6	19	1	47					25	2											
8	58	5	21	3	1				10	2											
9	44	3	11	1	28	3				9										1	
10	63	3	7	3	1					7	2	1						10	3		
11	45	15	4	2	8					22	2							4			
12	41	21	5	1	11					20											
13	37	34			16	1				9								1	1		
14	34	30			27					9											
15	42	25	3	3	1					21								5			
16	20	15		9						55	1										
17	8		44							48											
18	67	25	2	2	2					2											
19	9	47		1	18	8	2	5	9		1										
20	55	23			4					18											
21	34	51		1	12	2												1			
22	25	31		1	26	2				14											
23	43	31		3						22	1										
24	28	39		20						13											
25	30	26		7	29	2				4	2										
26	1	45		1	16	8	24	2	2	2	2						1				
27	8	15	11	2	8	4	11		40	1											
28	62	18	4		12	3					1										
29	32	4	15	1	6					38	4										
30	20	35	3		27	3				3	1						1	7			
31	51	22	4	2	3	6				11							1				
32	37	32	3	1	15	8				4											
33	6	29	17		42	3				3											
34	21	24	9	7	34	5															
35	28	34	6	6	22	2			2								13				

Quadrat No	<i>Mst</i>	<i>Lpe</i>	<i>Ppr</i>	<i>Dgl</i>	<i>Pdi</i>	<i>Etr</i>	<i>Cda</i>	<i>Fel</i>	<i>Tre</i>	<i>Cin</i>	<i>Hla</i>	<i>Emo</i>	<i>Hun</i>	<i>J</i>	<i>Pal</i>	<i>Lfi</i>	<i>Pes</i>	<i>J2</i>	<i>Bma</i>	<i>Dpi</i>	<i>Dan</i>
36	42	8	7		2	3			19	6											
37	23	52	1	17	1				6												
38	3	18	12	4	39	3	13		5	1	2										
39	1	19	2	4	6	3	16		10												
40	2	15	13	6	26	14	18		6	5											
41	2	6		18	2														44		26
42	45	23		7	11				14												
43	12	11	10	45	14	6			2												
44	36	13	7	2	25	1			11	2											
45	33	17		38					12												
46	17	13		48					21	1											
47	11	42		3	37	1			5		1										
48	42	34	3	1	3	5			10	1											1
49	53	13	4	10	16	1			2	1											
50	32	25	1	5	4				31	2											
51	23	39		5	9		1		21											2	
52	42	55			1					1											
53	18	15		45					14	3	5										
54	31	50		2		1			15		1										
55	19	8		54		1			18												
56	7	38		3	11	10	27		4												
57	1	21		2	3	18	53				2										
58		33			37		3		27												
59	2	9		1	8	7	73														
60	45	15	4	23		3	8				2										
61	15	4	2	55					24												
62	15	9		63					13												
63	61			39																	
64	26	4		63					6	1											
65	86	8		4						1	1										
66	25	11		36	1				25	2											
67	62	17			13	1			6	1											
68	7	1	37	1	19				22	12									1		
69	29	1	27	1	19				7	1	2							1		12	
70	59	4	18		4				3										1		11
71	36	16	11		11				22	3									1		

Quadrat No	Mst	Lpe	Ppr	Dgl	Pdi	Etr	Cda	Fel	Tre	Cin	Hla	Emo	Hun	J	Pal	Lfi	Pes	J2	Bma	Dpi	Dan
72	14	31	12	5	19	5	4		6	1	2								1		
73	4	29	2	29	28	2			6										1		
74	13	49		5	14	7	8		3										1		
75	34	9		3	16	34													4		
76	16	27			35	1	9		3										8		
77	26	28			23				1								4			18	
78	8	11		1	17	12			1	3						9			38		
79	45	8	2	10		5			26	2	1								1		
80	56	3		17					24												
81	37			25		1			36	1											
82	14	30		8	18	1			24	2									3		
83	4	3		73					17	3											
84	25	43		4					28												
85	36	24		17	6	2			15												
86	36	12		40		2			8							1			1		
87	3	14		2		1	75		3	1									1		
88	68	2		24		3	2												1		
89	24	39		2	32				3												
90	23	26		1	24				24	2											
91	9	12		1	6	4	67			1											
92	10	46		9	33				2										2		
93	19	35		4	24	16															
94	19	25			10	20	10		16												
95	78	1		1	5	13	1		1												
96	16	29		4	4	1			46												
97	22	25		39	1	2			11												
98	58	15		10	1	3	1		12												
99	80	13			1	1			5												
100	38	28		4	9	9	1		11												
101	12	14		5	3	3			41	15	2					2					
102	1	26			30				31	9	2					1					
103	37	14			5	4	7		1							2			30		
104	26	19		1	32	6	9		2										5		
105	36	9			29	2	1												23		

Appendix 5.3: ANOVA results for the effects of light intensity on the growth performance of four *M. stipoides* populations.

a) Total Dry Mass

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	4140.175	1380.058	84.227	< 0.0001
Population	4	312.053	78.013	4.761	0.0022
Treatment*Population	12	482.663	40.222	2.455	0.0120
Residual	56	9 17.558	16.385		

b) Total Tillers

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	146826.868	48942.289	39.663	< 0.0001
Population	4	3001.301	750.325	0.608	0.6587
Treatment*Population	12	36162.123	3013.510	2.442	0.0140
Residual	49	60463.667	1233.952		

c) Total Leaves

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	12138095.740	4046031.913	54.777	< 0.0001
Population	4	476514.985	119128.746	1.613	0.1838
Treatment*Population	12	632223.261	52685.272	0.713	0.7322
Residual	56	4136395.333	73864.202		

d) Chlorophyll

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	2	0.015	0.008	0.100	0.9052
Population	3	1.444	0.481	6.386	0.0010
Treatment*Population	11	0.677	0.062	0.817	0.6234
Residual	46	3.446	0.075		

e) Leaf Length

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	25791.242	8597.081	29.894	< 0.0010
Population	4	2078.548	519.637	1.807	0.1403
Treatment*Population	12	2818.318	234.860	0.817	0.6325
Residual	56	16104.919	287.588		

f) Leaf Width

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	0.338	0.113	0.407	0.7486
Population	4	29.280	7.320	26.454	< 0.0001
Treatment*Population	12	3.325	0.227	1.001	0.4599
Residual	56	15.496	0.277		

g) Height 1

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	21742.879	7247.626	12.912	< 0.0001
Population	4	19459.146	4864.786	8.667	< 0.0001
Treatment*Population	12	7098.560	591.547	1.054	0.4157
Residual	55	30871.167	561.294		

h) Height 2

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	116308.947	38769.649	20.746	< 0.0001
Population	4	842.695	210.674	0.113	0.9775
Treatment*Population	12	10868.799	905.733	0.485	0.9150
Residual	54	100914.083	1868.779		

i) Height 3

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	177870.267	59290.089	22.272	< 0.0001
Population	4	8911.519	2227.880	0.837	0.5077
Treatment*Population	12	30446.868	2537.239	0.953	0.5032
Residual	55	146414.083	2662.074		

j) Height 4

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	341796.096	113932.032	39.196	< 0.0010
Population	4	26098.095	6524.524	2.245	0.0777
Treatment*Population	12	46994.727	3916.227	1.347	0.2237
Residual	49	142428.167	2906.697		

k) Total Panicles

Source of Variation	DF	Sum of Squares	Mean Square	F-Value	P-Value
Treatment	3	27502.473	9167.491	22.305	< 0.0001
Population	4	10713.140	2678.285	6.517	0.0003
Treatment*Population	12	4592.589	382.716	0.931	0.5240
Residual	51	20961.000	411.000		

Appendix 5.4: ANOVA results for the response of the five *M. stipoides* populations to water stress when grown in different pot sizes.

a) 50% leaf mortality

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
pot size	2	10024.436	5012.218	62.373	< 0.0001
population	5	5322.709	1064.542	13.247	< 0.0001
pot size*population	10	1345.145	134.515	1.674	0.0909
residual	162	13018.178	80.359		

b) 100% leaf mortality

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
pot size	2	55421.031	27710.515	73.496	< 0.0001
population	5	11505.037	2301.007	6.103	< 0.0001
pot size*population	10	7937.447	793.745	2.105	0.0268
residual	162	61079.800	377.036		

Appendix 6.2.1 ANOVA results for the total dry weights produced and total panicle numbers exerted by four *M. stipoides* populations at four transplanting sites, in the presence (Treatment 1) or absence (Treatment 2) of associated grass species.

a) Total dry weight. Treatment 1 (*M. stipoides* removed)

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
site	3	3.711	1.237	30.163	<.0001
population	3	0.237	0.079	1.928	0.1339
site*population	9	0.797	0.089	2.159	0.0368
residual	64	2.625	0.041		

b) Total panicle number. Treatment 1 (*M. stipoides* removed)

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
site	3	1.066	0.355	3.191	0.0294
population	3	4.554	1.518	13.632	< 0.0001
site*population	9	2.515	0.279	2.510	0.0158
residual	64	7.127	0.111		

c) Total dry weight. Treatment 2 (*M. stipoides* and associated grass species removed)

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
site	3	2.766	0.922	45.356	< 0.0001
population	3	1.353	0.451	22.184	< 0.0001
site*population	9	0.721	0.080	3.942	0.0005
residual	64	1.301	0.020		

d) Total panicle number. Treatment 2 (*M. stipoides* and associated grass species removed)

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
site	3	1.013	0.338	4.087	0.0102
population	3	5.487	1.829	22.147	< 0.0001
site*population	9	6.598	0.723	8.877	< 0.0001
residual	64	5.285	0.083		

Appendix 6.2.2: Probability values resulting from pairwise comparison of treatments using Bonferroni t-tests of log total plot dry weights to demonstrate population divergence, divergence as a response to competition by the associated grass species and 'genetic species' of population divergence.

	Conditions to demonstrate divergence	Conditions to demonstrate competition	Conditions to demonstrate 'genetic basis'			
Sympatric site (Allopatric population site)	1 & 4	4 & 6	1 & 2	2 & 5	4 & 5	3 & 6
<i>L. perenne</i>					.0141	
(<i>P. pratenses</i>)	.9849	.0008	.0010	.3352		.0121
(<i>D. glomerata</i>)	.0027	.0226	.4160	.1585		.3352
(<i>P. aquatica</i>)	.0188	.7186	.2577	.3078		.9094
<i>P. pratensis</i>					.3342	
(<i>L. perenne</i>)	.0168	.0000***	.2764	.0229		.1168
(<i>D. glomerata</i>)	.0012	.0000***	.9624	.0001**		.2171
(<i>P. aquatica</i>)	.0275	.0000***	.1025	.0000***		.3039
<i>D. glomerata</i>					.8481	
(<i>L. perenne</i>)	.3981	.0002*	.0743	.4416		.2097
(<i>P. pratensis</i>)	.3662	.0011	.0032	.0004*		.0029
(<i>P. aquatica</i>)	.3589	.0915	.2691	.9989		.3536
<i>P. aquatica</i>					.9205	
(<i>L. perenne</i>)	.8964	.0097	.6567	.8300		.5061
(<i>P. pratensis</i>)	.3193	.0002*	.0374	.0049		.0326
(<i>P. aquatica</i>)	.3250	.0753	.7204	.4663		.3303

Notation for Bonferroni significance levels:

A single comparison must have a P value less than .000549 to be significant at the .05 level when comparing 91 pairs of means.

*** 0.0% significance

** 1% significance

* 5% significance

Appendix 6.2.3: Probability values resulting from pairwise t-tests comparing the performance of *M. stipoides* populations transplanted in sympatric and allopatric sites where both native *M. stipoides* and competitor species were removed to determine the effect of local soil conditions.

	Total dry weight	Total panicle number	Number of survivors
Sympatric site/popn (Allopatric site)			
<i>L. perenne</i>			
(<i>P. pratenses</i>)	.0557	.4998	1.0000
(<i>D. glomerata</i>)	.0163	.0234	0.3173
(<i>P. aquatica</i>)	.0054*	.9119	1.0000
<i>P. pratensis</i>			
(<i>L. perenne</i>)	.0001***	.0083	1.0000
(<i>D. glomerata</i>)	.0000***	.0777	1.0000
(<i>P. aquatica</i>)	.0000***	.2334	1.0000
<i>D. glomerata</i>			
(<i>L. perenne</i>)	.0000***	.3487	0.3173
(<i>P. pratensis</i>)	.0000***	.4871	0.3173
(<i>P. aquatica</i>)	.0626	.0872	0.3173
<i>P. aquatica</i>			
(<i>L. perenne</i>)	.0006**	.8559	1.0000
(<i>P. pratensis</i>)	.0164	.4419	1.0000
(<i>P. aquatica</i>)	.5654	.2607	1.0000

Notation for Bonferroni significance levels:

A single comparison must have a P value less than .008333 to be significant at the .05 level when comparing 91 pairs of means.

*** 0.0% significance

** 1% significance

* 5% significance

Appendix 6.2.4: Summary of results of pairwise t-tests and graphs of total plot dry weight to determine coevolution of *M. stipoides* and associated grass species in the field. A plus sign means affirmative, a minus sign means negative and an equals sign means no change for each pairwise comparison following Connell's conditions.

	Divergence		Competition		Genetic Basis		
Sympatric site (Allopatric population site)	4 > 1	4 > 6	2 < 1	5 < 2	4 <= 5	5 <= 2	4 = 6 <= 3
<i>L. perenne</i>					-		
(<i>P. pratenses</i>)	=	-	+	+		+	+
(<i>D. glomerata</i>)	-	+	+	+		+	+
(<i>P. aquatica</i>)	-	-	+	+		+	-
<i>P. pratensis</i>					+		
(<i>L. perenne</i>)	+	+***	+	-		-	+
(<i>D. glomerata</i>)	+	+***	=	-		-	+
(<i>P. aquatica</i>)	+	+***	-	-		-	-
<i>D. glomerata</i>					+		
(<i>L. perenne</i>)	+	-	+	+		+	-
(<i>P. pratensis</i>)	-	-	+	+		+	+
(<i>P. aquatica</i>)	+	-	+	+		+	-
<i>P. aquatica</i>					+		
(<i>L. perenne</i>)	-	-	-	-		-	-
(<i>P. pratensis</i>)	-	-*	+	+		+	+
(<i>P. aquatica</i>)	-	+	-	+		+	+

Appendix 6.2.5: Summary of results of pairwise t-tests and graphs of total panicle number per panel ramet to determine coevolution of *M. stipoides* and associated grass species in the field. A plus sign means affirmative, a minus sign means negative and an equals sign means no change for each pairwise comparison following Connell's conditions.

	Divergence	Competition			Genetic Basis		
Sympatric site	4 > 1	4 > 6	2 < 1	5 < 2	4 <= 5	5 <= 2	4 = 6 <= 3
(Allopatric population site)							
<i>L. perenne</i>					-		
(<i>P. pratenses</i>)	-	-	+	+		+	+**
(<i>D. glomerata</i>)	+	+	=	-		-	+
(<i>P. aquatica</i>)	-	+	=	-		-	+
<i>P. pratensis</i>					+		
(<i>L. perenne</i>)	+**	+	+	-		-	-
(<i>D. glomerata</i>)	+***	+*	+	-		-	-
(<i>P. aquatica</i>)	+***	+	=	--		-	-
<i>D. glomerata</i>					+		
(<i>L. perenne</i>)	+	-	+	+		+	+
(<i>P. pratensis</i>)	-	+	+	+		+	+***
(<i>P. aquatica</i>)	=	-	+	+		+	-
<i>P. aquatica</i>					-		
(<i>L. perenne</i>)	+	-	+	+		+	-
(<i>P. pratensis</i>)	-	=	+	+		+	+***
(<i>P. aquatica</i>)	-	+	+	+		+	+

Appendix 6.3: ANOVA tables for the accumulated biomass yields of *M. stipoides* and associated grass species in the glasshouse experiment on competitive abilities.

a) *M. stipoides*

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
population	3	8.529	2.843	4.684	0.0218
residual	12	7.284	0.607		

b) Associated grass species

Sources of Variation	DF	Sum of squares	Mean Square	F-Value	P-Value
population	3	11.611	3.870	7.690	0.0040
residual	12	6.040	0.503		

Appendix 7:

Publications and poster papers arising from the studies reported in this thesis:

Publications:

Magcale-Macandog, D.B. and Whalley, R.D.B. (1991). Distribution of *Microlaena stipoides* and its association with introduced perennial grasses in a permanent pasture on the Northern Tablelands of New South Wales. *Australian Journal of Botany* **39**: 295-303.

Magcale-Macandog, D.B. and Whalley, R.D.B. (1994). Factors affecting the distribution and abundance of *Microlaena stipoides* (Labill.) R.Br. on the Northern Tablelands of New South Wales. *Rangeland Journal* **16**(1): 26-38.

Poster papers:

Magcale-Macandog, D.B. and Whalley, R.D.B. (1992). Effect of pasture improvement and grazing pressure on the abundance of *Microlaena stipoides* (Labill.) R.Br. on the Northern Tablelands of New South Wales. The Australian Rangeland Society 7th Biennial Conference, Cobar, New South Wales. pp. 311-312.

Magcale-Macandog, D.B. and Whalley, R.D.B. (1993). Factors affecting the distribution of *Microlaena stipoides* on the Northern Tablelands of New South Wales. Proceedings of the XVII International Grassland Congress, Palmerston North, New Zealand. pp. 311-313.