

Davey, A.S. and Bartle, J.R.

An Evaluation Of Northern Jarrah Forest Arboreta
For Potential Reafforestation Species

ATTACHMENT 2

MARRINUP ARBORETUM - FIELD GUIDE AND 1985 PERFORMANCE ANALYSIS

MARRINUP

LIST OF TABLES AND FIGURES.

Figure MA-1	Location Map
Figure MA-2	Plan of Arboretum
Table MA-1	Plot Information
Table MA-2	20 Best Plots (Ranked Best To Worst)
Figure MA-3	Graph of Height
Figure MA-4	Graph of Diameter
Figure MA-5	Graph of Form
Figure MA-6	Graph of Vigour
Figure MA-7	Graph of Survival
Figure MA-8	Graph of Rating
Table MA-3	Plot-by-Plot Table Of Results

INTRODUCTION

This booklet has been designed primarily for use as a directory for observers. It presents location maps, field guides, plot information and results for Marrinup Arboretum.

Separate graphs are presented for height, diameter, form, vigour, survival and "Rating" (ie. equal combination of height, diameter, form and vigour). For each parameter measured, plots are presented in logical sequence (starting with plot 1). Hence, travelling through an arboretum the point on the graph corresponding to a particular plot can be readily located and compared with neighbouring plots (means and 95% confidence intervals are supplied for all graphs except that for survival).

Figure MA-1: Location of Marrinup

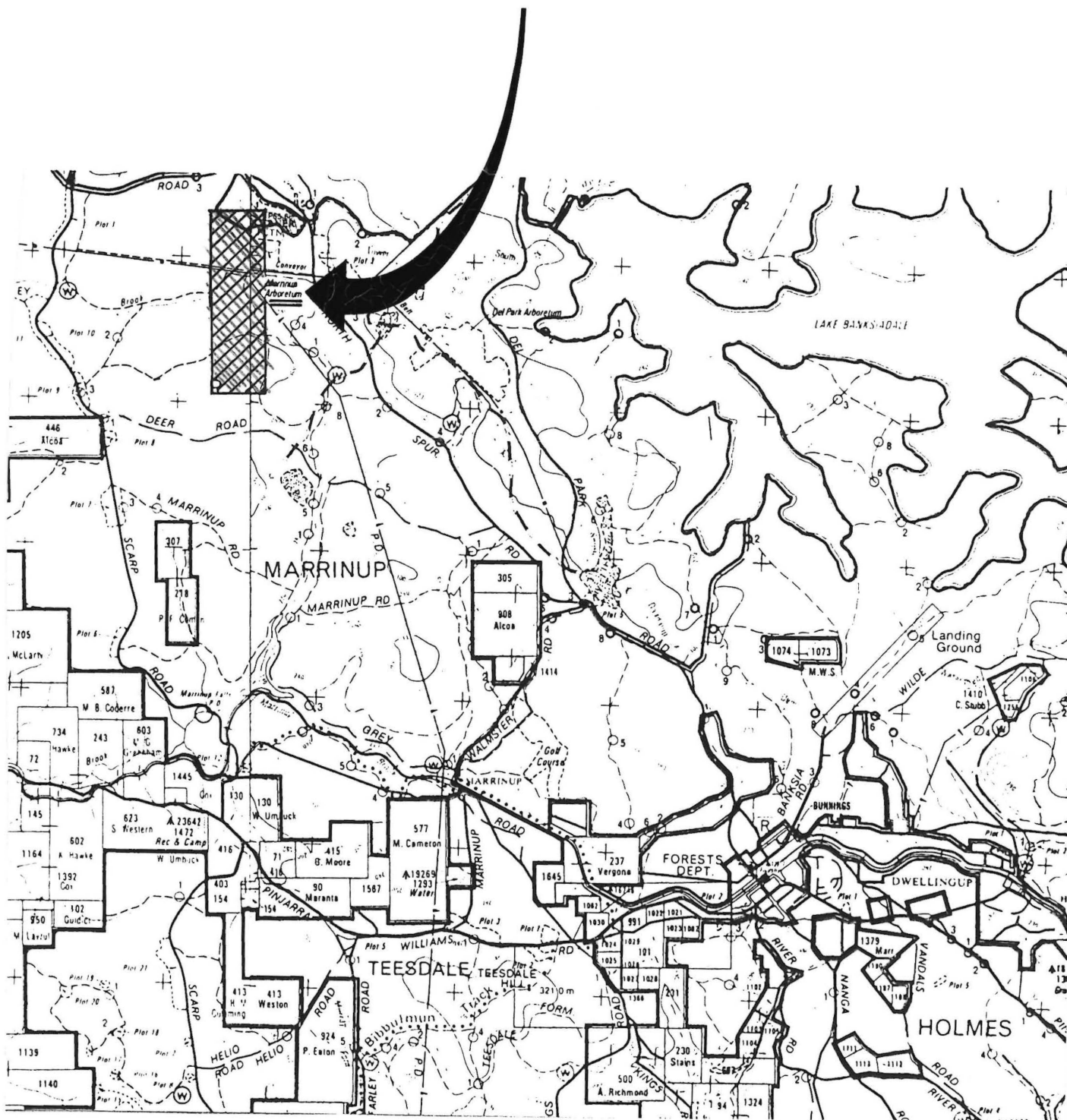


Figure MA-2: Plot layout of MARRINUP

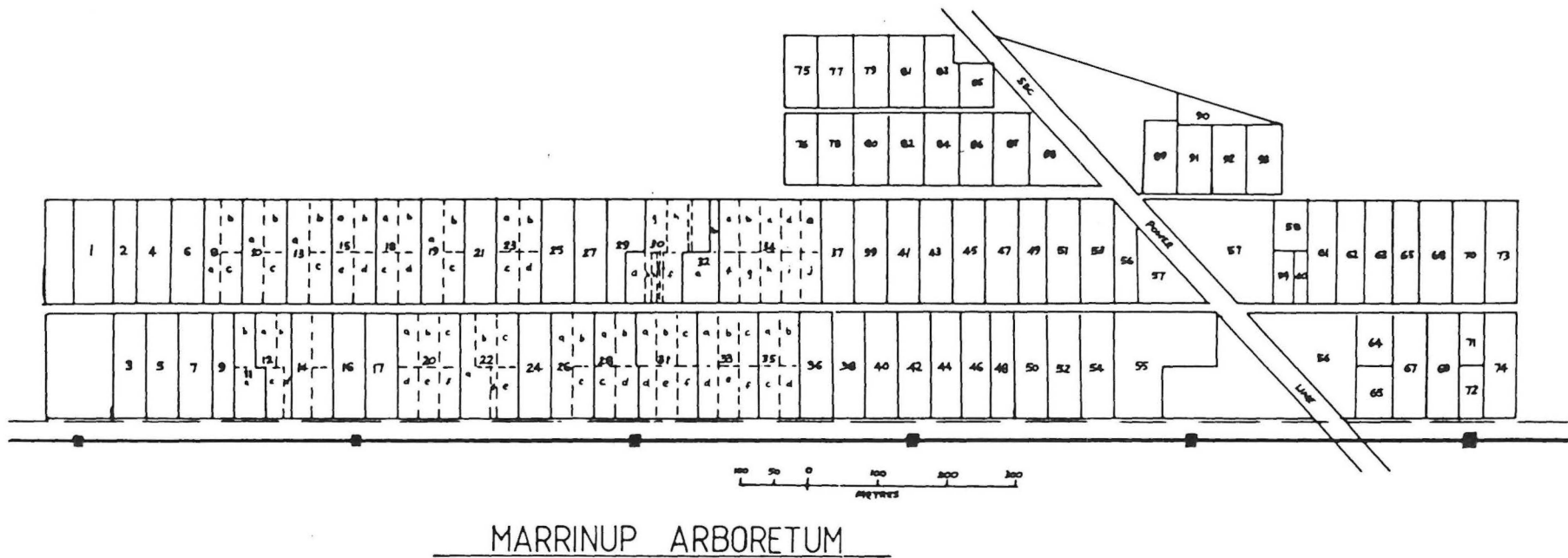


TABLE MA-1 : PROVENANCE INFORMATION FOR
MARRINUP ARBORETUM

Plot	Species	Seedlot	Provenance
1	<i>E.camaldulensis</i>	4357	Jigalong Mission W.A.
2	<i>E.accedens</i>	6215	
3	<i>E.paniculata</i>	6197	Aust.Seed Collectors Pty.Ltd.
4	<i>E.citriodora</i>	6196	Aust.Seed Collectors Pty.Ltd.
5	<i>E.saligna</i>	4729	Harvey(Plantation) WA
6	<i>E.cladocalyx</i>	6470	Collie(Plantation) WA
7	<i>E.longifolia</i>	6200	Aust.Seed Collectors Pty.Ltd.
8a	<i>E.sideroxylon</i> (<i>sideroxylon</i>)	12001	Inglewood Qld 360m.
8b	(<i>sideroxylon</i>)	11844	SE Gilgandra NSW 300m.
8c	(<i>sideroxylon</i>)	12017	Goonoo SF not Dubbo NSW 73m.
9	<i>E.fasciculosa</i>	7251	Williamstown SA 430m.
10a	<i>E.paniculata</i>	12137	Yerriyong SF NSW 213m.
10b		11600	N Raymond Terrace NSW 225m.
10c		11741	SW Grafton NSW 300m.
11a	<i>E.drepanophylla</i>	11412	N Marlborough Qld 120m.
11b		8208	Cape York Pen. N Qld 120m.
12a	<i>E.melanophloia</i>	10783	NE Narrabri NSW 360m.
12b		11031	Mackay Qld 200m.
12c		9723	Hebel District Qld 150m.
12d		10998	Yuleba Qld 390m.
13a	<i>E.decorticans</i>	10148	Murgon Qld 300m.
13b		11646	S Rolleston Qld 520m.
13c		11561	Barakula Qld 400m.
14a	<i>E.intertexta</i>	11330	4.8km Kenmore Pk. SA 400m.
14b		11630	Nyngan NSW 170m.
14c		11736	Girilambone NSW 250m.
15a	<i>E.ochrophloia</i>	8583	Norley St(Thargomindah)Qld
15b		8584	Tongo NSW 80M
15c		11633	51km N Yantabulla NSW 140m
15d		11731	S Quilpie Qld 180m
16	<i>E.rudderi</i>	11695	Kiwarra SF (Taree)NSW 160m
17	<i>E.conica</i>	11826	29km E Gilgandra NSW 300m
18a	<i>E.crebra</i>	12010	E Coonabarabran NSW 510m.
18b		8756	Dubbo NSW 340m.
18c		11958	Torrens Creek N.Qld 305m.
18d		11784	Gilgandra Dist.NSW 280m.
19a	<i>E.largiflorens</i>	11974	32km E Walgett NSW 132m.
19b		8646	Yantabulla NSW 120m
19c		10676	L.Albacutya Vic. 75m.
20a	<i>E.populnea</i>	11703	Shoalwater Qld ?
20b		9556	48km NE Warren NSW 220m.
20c		8969	St.George SW Qld 210m.
20d		11722	S Quilpie Qld 160m.
20e		9714	Warren District NSW 170m.
20f		8658	Yantabulla NSW 120m.
21	<i>E.dawsonii</i>	9977	Jerry Plains NSW 45m.
22a	<i>E.melliodora</i>	10820	E. Armidale NSW 1040m.
22b	(<i>rosea</i>)	11827	E. Trangie NSW 210m.
22c		11860	Kambah ACT 600m
22d		10825	8.6m NE Tenterfield 910m.
22e		11787	Castlereach R. NSW 280m.
23a	<i>E.polyanthemos</i>	11812	New England area NSW ?

TABLE MA-1 : (continued)

23b		10730	Heathcote Vic. 240m.
23c		11829	Stuart Town(WNW Orange)NSW
23d	<i>E.polyanthemos</i>	11307	Glenmaggie Vic. 25m.
24	<i>E.woollsiana</i>	12105	W Wyalong NSW ?
25	<i>E.albens</i>	10457	Gilgandra NSW 290m.
26a	<i>E.microcarpa</i>	11782	E Mandooran NSW ?
26b		10868	NW Chinchilla Qld 340m.
26c		8758	Parkes NSW 270m.
27	<i>E.thozetiana</i>	11032	Exe Crk. Mackay Qld 250m.
28a	<i>E.botryoides</i>	12104	W Orbost Vic. 183m.
28b		7340	Orbost Vic. 240m.
28c		12134	Merdo Point NSW 9m.
28d		7509	Bodalla NSW 30m.
29	<i>E.odorata</i>	6073	Wirrabara SA 240m.
30a	<i>E.leucoxylon</i> (<i>Petiolaris</i>)	10096	Port Lincoln SA
30b	(<i>Leucoxylon</i>)	10099	Dugholm Vic. 125m.
30c		9604	Flinders Ranges SA 460m.
30d	(<i>Leucoxylon</i>)	9602	Williamstown SA 430m.
30e	(<i>Pruinosa</i>)	9603	JamesTown SA 460m.
30f	(<i>Leucoxylon</i>)	9601	Ashbourne SA 150m.
30g	(<i>Megalocarpa</i>)	10095	Kangaroo Island SA 10m.
30h	(<i>Leucoxylon</i>)	9608	Rushworth Vic. 120m.
30i	(<i>Pauperita</i>)	10097	Pichie Richi Pass 340m.
30j	(<i>Pruinosa</i>)	9598	E Horsham Vic. 120m.
31a	<i>E.robusta</i>	11893	SF 611 Beerburum Qld 30m.
31b		9424	Cooperbrook SF NSW 60m.
31c		10176	Huskisson NSW 3m.
31d		11029	Bowenia SF Qld 100m.
31e		11969	Newfoundland SF NSW 12m.
31f		10063	Port Stephens NSW 30m.
32a	<i>E.cladocalyx</i>	11834	Gilgandra NSW 280m.
32b		10756	Kangaroo Island SA 80m.
33a	<i>E.resinifera</i>	10962	S Helenvale Qld 170m.
33b		11011	SW Ingham SF 268 Qld 850m.
33c		11209	Beerwah Qld 45m.
33d		11963	Medowie SF NSW 20m.
33e		10113	N Woolgoolga NSW 6m.
33f		10431	N Woolgoolga NSW 6m.
34a	<i>E.maculata</i>	10728	Beaufort Vic. 460m.
34b		9461	Belmore SS NSW550m.
34c		11965	Coffs Harbour NSW 300m.
34d		11240	Richmond Range SF NSW 400m.
34e		10865	Barakula SF Qld 410m.
34f		10846	Clouds Creek Forest NSW 630m.
34g		9580	SW Kempsey NSW 210m.
34h		12135	Termail SF NSW 61m.
34i		11181	Hunter Valley NSW 20m.
34j		11005	Gundish Qld 100m.
35a	<i>E.citriodora</i>	12012	Dawson Range Qld 180m.
35b		11640	Fairview Station Qld 400m.
35c		12379	Herberton area Qld 600m
35d		11762	Kalpower area Qld 300m
36	<i>E.marginata</i>	6536	Marrinup block WA
37	<i>E.gomphocephala</i>	6090	Ludlow WA
38	<i>E.megacarpa</i>	6535	Federal Block WA
39	<i>E.laeliae</i>	6534	Nth.Dandalup WA
40	<i>E.rudis</i>	6533	Holyoke WA

TABLE MA-1 : (continued)

41	<i>E.wandoo</i>	6532	Nth. Dandalup WA
42	<i>E.patens</i>	6531	Dawn Creek Road WA
43	<i>E.wandoo</i>	6530	Dryandra WA
44	<i>E.accedens</i>	6537	Dryandra WA
45	<i>E.astringens</i>	6529	Dryandra WA
46	<i>E.kondininensis</i>	6528	Lake Grace WA
47	<i>E.gardnerii</i>	6527	Harrismith
48	<i>E.loxophleba</i>	6526	Narrogin WA
49	<i>E.occidentalis</i>	6510	S Scadden
50	<i>E.sargentii</i>	6509	SW Hines Hill WA
51	<i>E.falcata</i>	6525	Dryandra WA
52	<i>E.calophylla</i>	6524	Marrinup Block WA
53	<i>E.spathulata</i>	6523	Ongerup WA
54	<i>E.calophylla</i>	6522	Dryandra WA
55	<i>E.diversicolor</i>	6521	Manjimup WA
56	<i>E.radiata</i>	5086-7	Grimwade, Manjimup WA
57	<i>E.pinaster</i>	5083	Joondalup WA
58	<i>E.transcontinentalis</i>	6128	Kalgoorlie WA
59	<i>E.flocktoniae</i>	6508	23km N Higginsville
60	<i>E.platypus</i>	6520	Ongerup WA
61	<i>E.woodwardii</i>	6515	16km SW Cundeelee
62	<i>E.brockwayi</i>	6507	16km NW Norseman
63	<i>E.calycogona</i>	6145	Kalgoorlie WA
64	<i>E.dundasii</i>	6516	10km NW Norseman
65	<i>E.lehmanii</i>	6519	Pallingup River
66	<i>E.salmonphloia</i>	6514	12km NE Coolgardie WA
67	<i>E.oleosa</i> (var obtuse)	6513	Kalgoorlie/Kambalda Rd. WA
68	<i>E.griffithsii</i>	6512	Bonnievale
69	<i>E.torquata</i>	6129	Bonnievale
70	<i>E.stricklandii</i>	6132	Shargoville WA
71	<i>E.diptera</i>	6517	30km S Norseman WA
72	<i>E.salubris</i>	6511	12km SE Coolgardie WA
73	<i>E.longicornis</i>	6518	Yellowdine
74	<i>E.clelandii</i>	6131	Kalgoorlie WA
75	<i>E.calophylla</i>	6524	Marrinup Block WA
76	<i>E.occidentalis</i>	6510	2km S Scadden
77	<i>E.citriodora</i>	11640	Fairview Station Qld 400m.
78	<i>E.wandoo</i>	6532	Nth. Dandalup WA
79	<i>E.leucoxylon</i> (Leucoxylon)	9602	Williamstown SA 430m
80	<i>E.marginata</i>	6536	Marrinup Block WA
81	<i>E.melliadora</i>	11860	Kambah ACT 600m
82	<i>E.maculata</i>	11181	Hunter Valley NSW 20m.
83	<i>E.gomphocephala</i>	6090	Ludlow WA
84	<i>E.resinifera</i>	10962	S Helenvale Qld 170m.
85	<i>E.accedens</i>	6537	Dryandra WA
86	<i>E.crebra</i>	11958	Torrens crk. N.Qld 305m.
87	<i>E.botryoides</i>	7340	Recorded as Mel.unctinata
88	<i>E.gardnerii</i>	6527	Harrismith
89	<i>E.cladocalyx</i>	11834	Gilgandra NSW 280M
90	<i>E.robusta</i>	11029	Yeppoon Qld
91	<i>E.laeliae</i>	6534	Nth. Dandalup WA
92	<i>E.falcata</i>	6525	Dryandra WA
93	<i>E.kondininensis</i>	6528	Lake Grace WA

RESULTS

Plot by plot results detailing means, upper and lower 95% confidence limits for height, diameter, form, vigour and rating are listed in Table MA-3 towards the end of this booklet. Survival, and the presence/absence of evidence of stem borers, termites and cambial splits within each plot is also noted in Table MA-3.

Comparing the mean rating of each of the plots, the top 20 plots (ranked from best to worst) are listed in Table MA-2. Plots which have had the caprock shattered with explosives have been excluded.

Comparing the mean rating of each of the plots, the top 10 plots (ranked from best to worst) are listed in Table MA-2, below.

The following figures display plot-by-plot graphs of mean and 95% confidence interval for height (Figure MA-3), diameter (Figure MA-4) form (Figure MA-5), vigour (Figure MA-6) and mean for survival (Figure MA-7).

Figure MA-8 presents a plot-by-plot graph of Rating (ie combination of height, diameter, form and vigour).

TABLE MA-2 LISTING OF TOP 20 PLOTS (IN ORDER OF RATING)

PLOT	SPECIES	SEEDLOT	DEFECT	B_E_S_I
6	E.cladocalyx	6470		
28b	E.botryoides	7340		
28a	E.botryoides	12104		
28d	E.botryoides	7509		
28c	E.botryoides	12134		
31b	E.robusta	9424		
34e	E.maculata	10865	C	
56	Pinus radiata	5086/7		
33d	E.resinifera	11963		
55	E.diversicolor	6521	B T C	
32b	E.cladocalyx	10756	B	
34i	E.maculata	11181	C	
5	E.saligna	4729	C	
35b	E.citriodora	11640	C	
57	Pinus pinaster	5083	S	
34h	E.maculata	12135	C	
10a	E.paniculata	12137		
32a	E.cladocalyx	11834		
37	E.gomphocephala	6090	T	

SYMBOLS : B = BORER OCCURRENCE NOTED IN PLOT
T = TERMITE OCCURRENCE NOTED IN PLOT
C = CAMBIAL SPLITS NOTED IN PLOT
S = SURVIVAL LESS THAN 50%

FIGURE MA-3 : GRAPH OF MARRINUP MEAN PLOT HEIGHTS

2805
(.POLY)

FIGURE MA-4 : GRAPH OF MARRINUP MEAN PLOT DIAMETERS

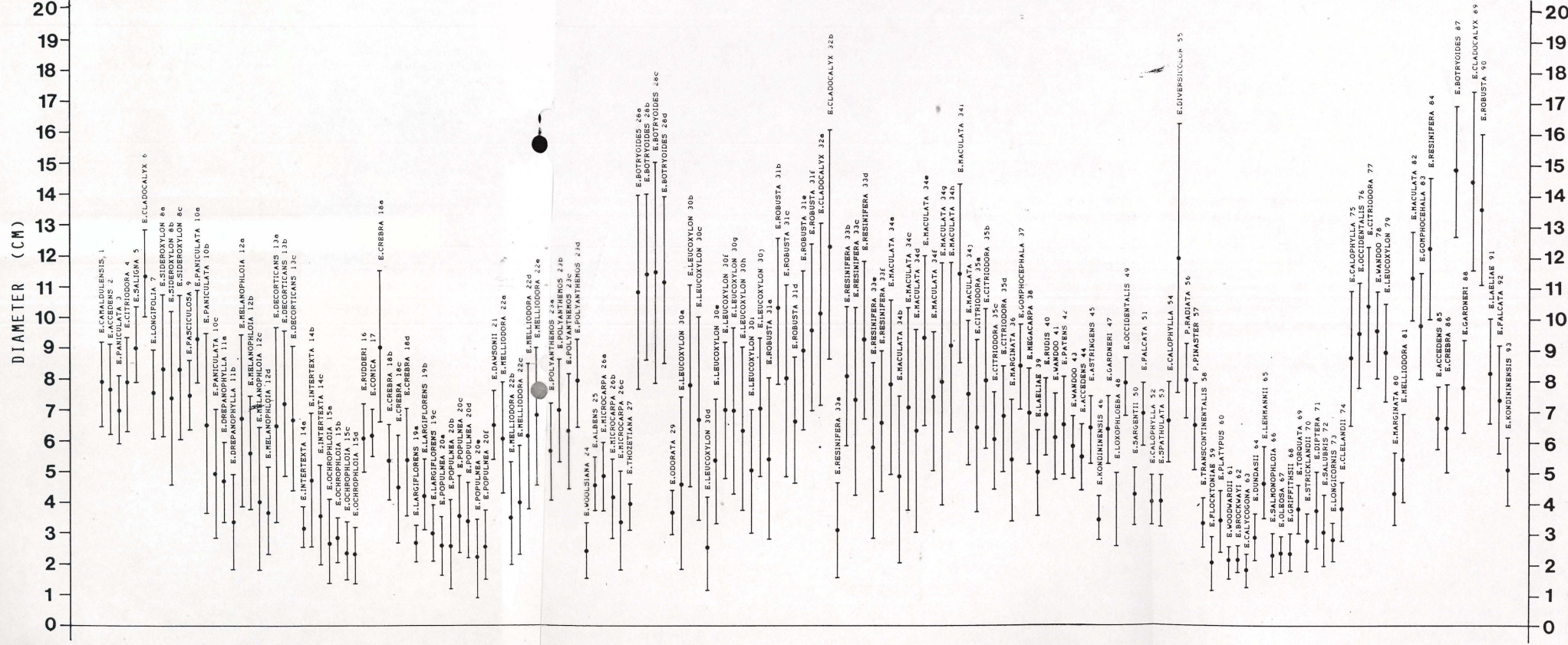


FIGURE MA-5 : GRAPH OF MARRINUP MEAN PLOT FORM

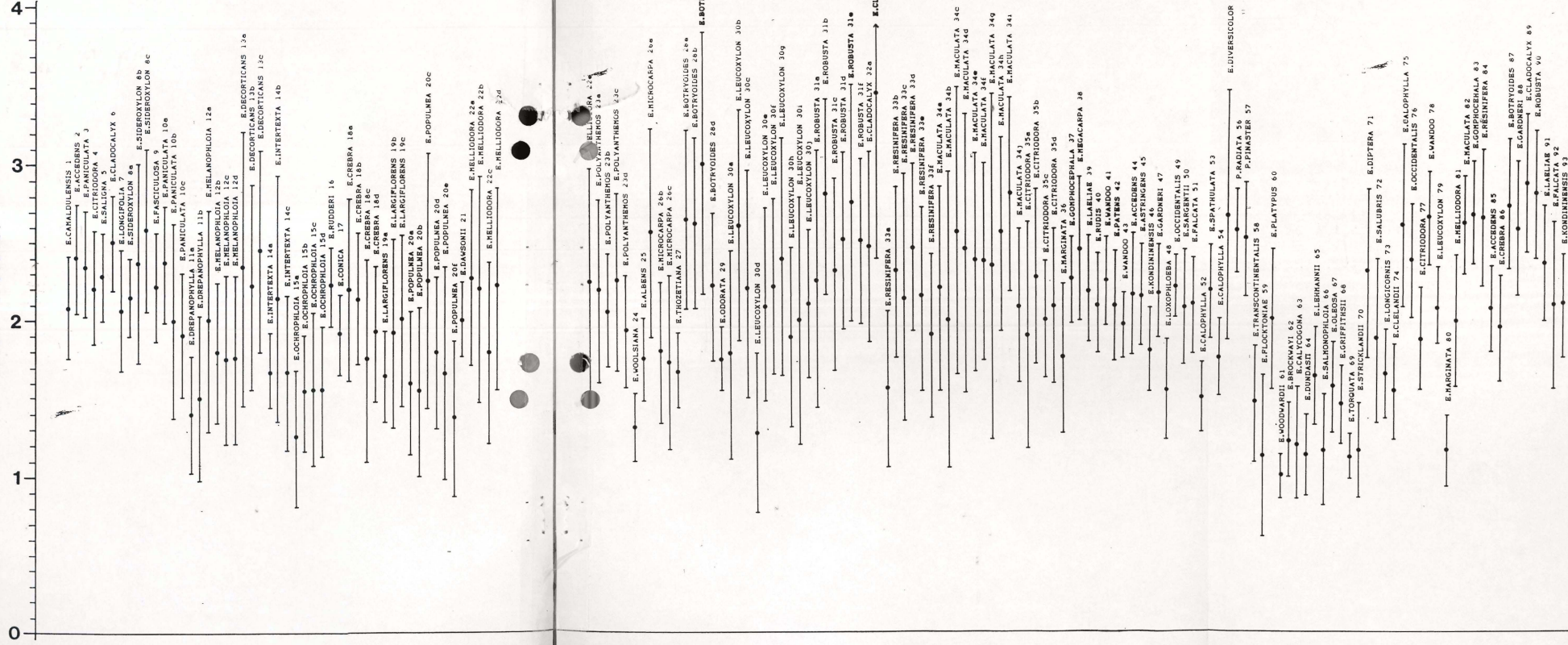


FIGURE MA-6 : GRAPH OF MARRINUP MEAN PLOT VIGOUR

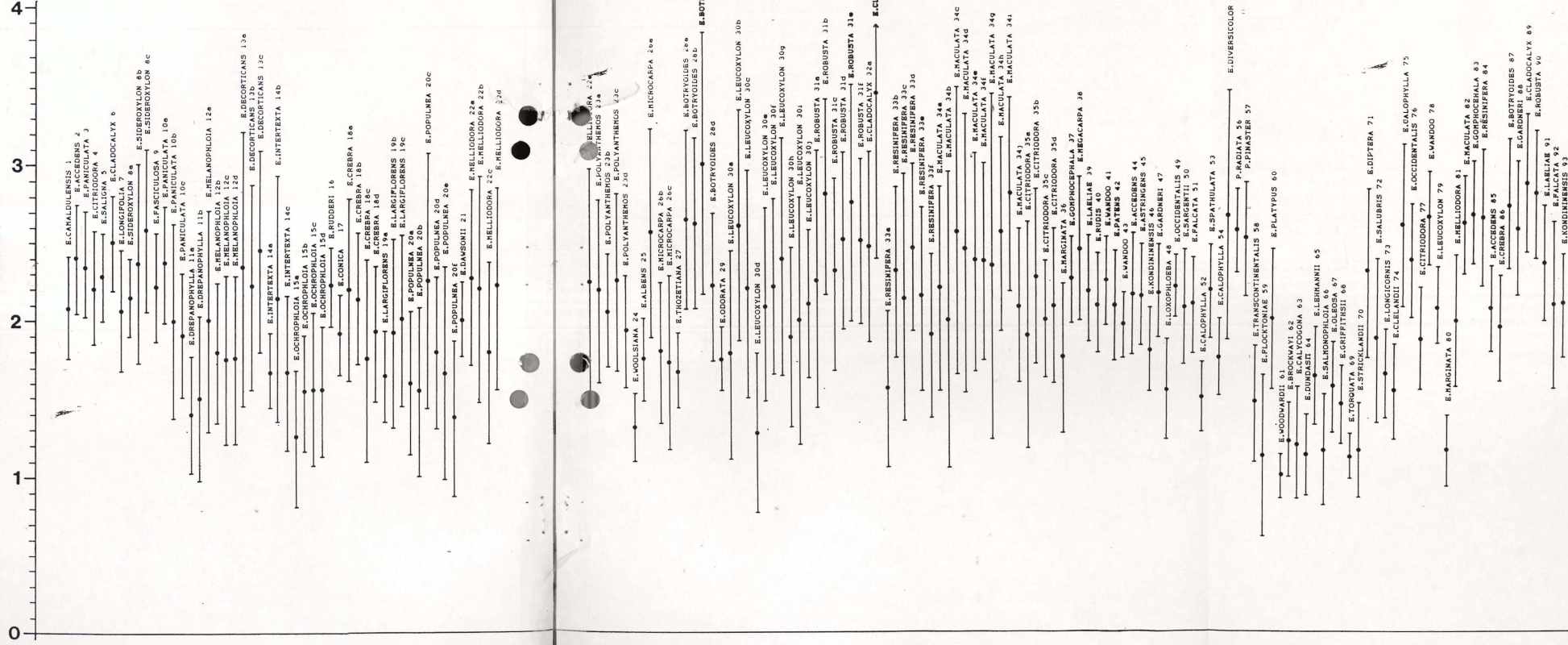


FIGURE MA-7 : GRAPH OF MARRINUP MEAN PLOT SURVIVAL

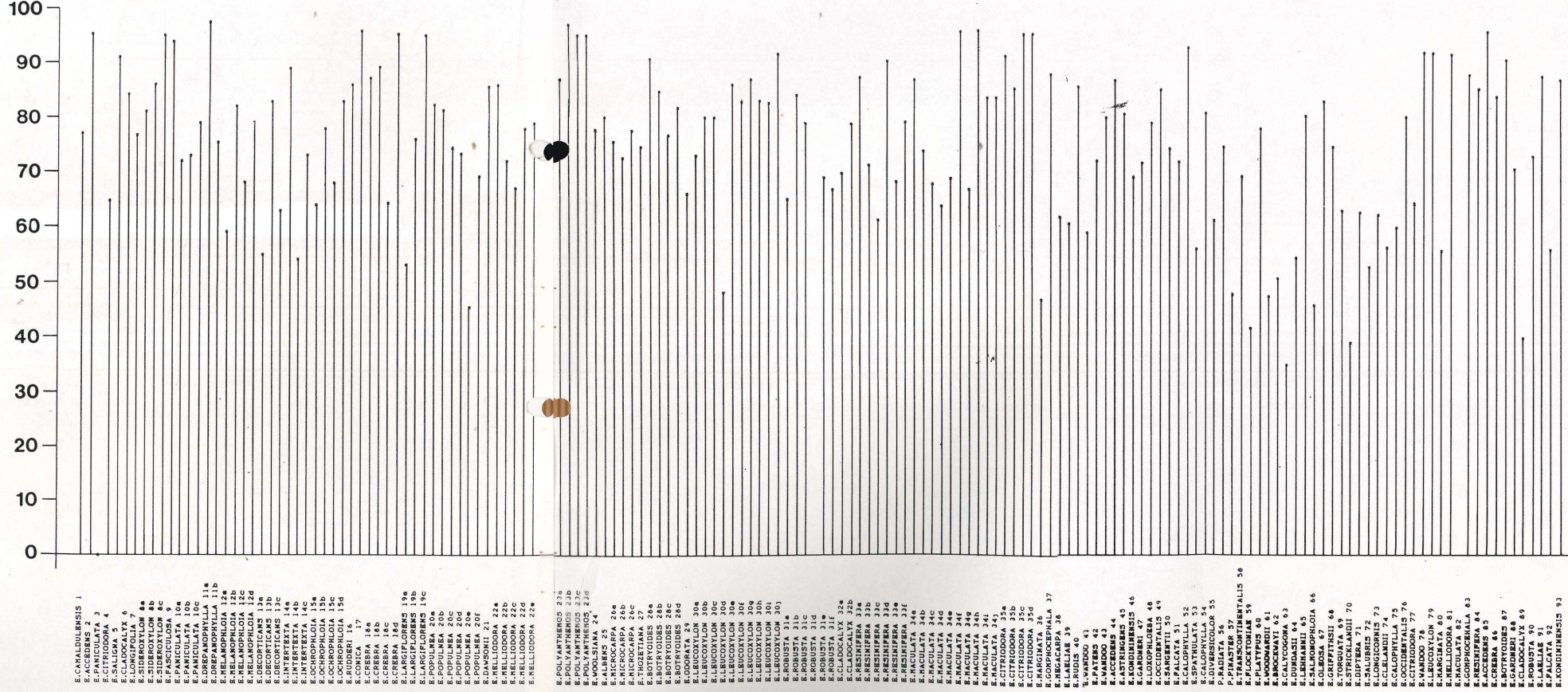


FIGURE MA-8 GRAPH OF RATING

MARRINUP

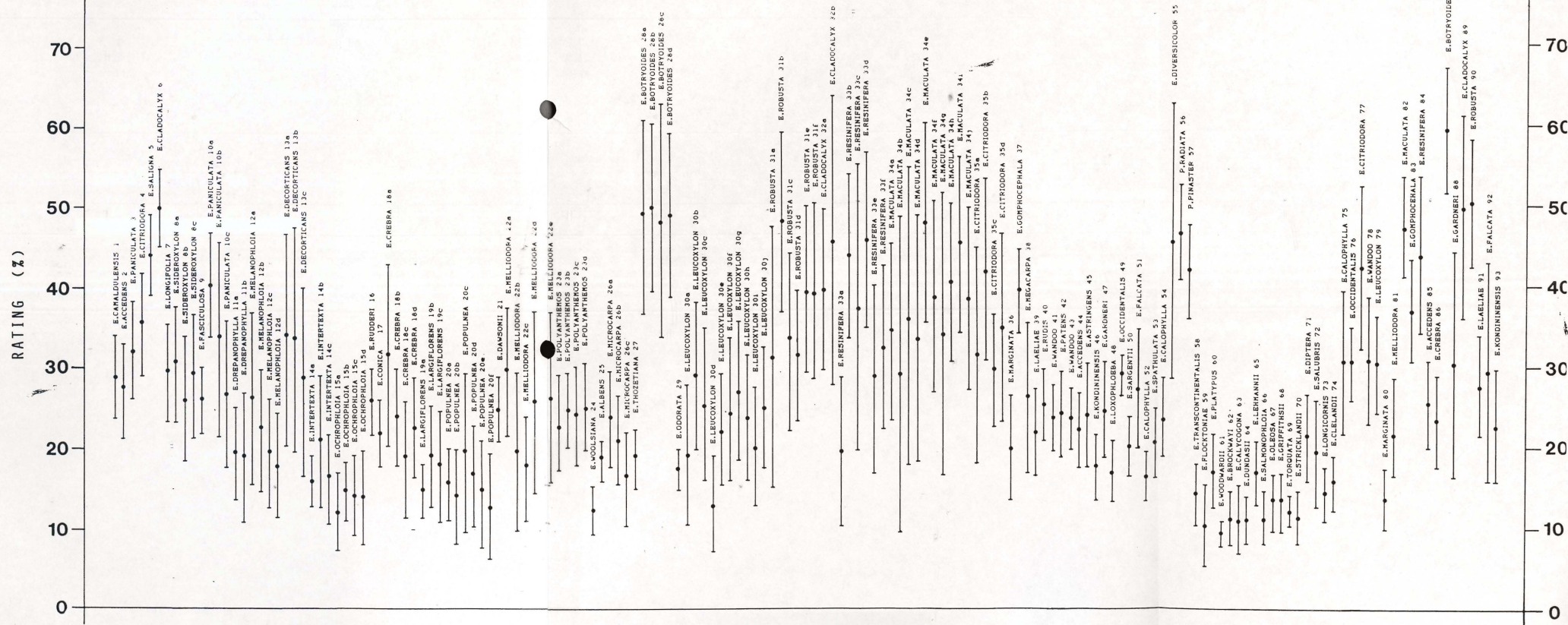


TABLE MA-3 :

PLOT BY PLOT TABLE OF RESULTS

--MEANS AND 95% CONFIDENCE INTERVALS--

PLOT NO	SPECIES & SEEDLOT	ARB	SURV (%)	S	S	HEIGHT			DIAMETER			FORM			VIGOUR			RATING		
						YOU	YOU	X	YOU	YOU	X	YOU	YOU	X	YOU	YOU	X	YOU	YOU	X
1	E. CAMALDULENSIS 4357	MA	77	--	--	7.03	5.27	6.15	9.2	6.5	7.9	0.46	0.08	0.27	2.41	1.77	2.09	33.5	23.7	28.6
2	E. ACEDENS 6215	MA	95	--	Y	5.62	3.96	4.80	9.1	6.3	7.7	0.00	0.00	0.00	2.74	2.07	2.41	32.9	21.1	27.0
3	E. PANICULATA 6197	MA	81	--	Y	5.49	4.06	4.78	8.1	5.9	7.0	1.45	0.48	0.96	2.70	2.04	2.37	38.2	26.1	32.1
4	E. CITRIODORA 6196	MA	65	--	Y	6.88	4.98	5.93	9.4	6.4	7.9	1.82	0.79	1.30	2.57	1.86	2.22	41.7	29.1	35.4
5	E. SALIGNA 4729	MA	91	--	Y	7.26	5.90	6.59	10.3	7.9	9.1	2.70	1.88	2.29	2.56	2.01	2.29	48.9	39.1	44.0
6	E. CLADOCALYX 6470	MA	84	--	--	9.01	7.46	8.24	12.8	10.1	11.4	2.73	2.05	2.39	2.80	2.20	2.50	54.5	45.1	49.8
7	E. LONGIFOLIA 6200	MA	77	--	--	5.26	3.72	4.49	8.9	6.2	7.6	1.28	0.35	0.81	2.45	1.70	2.07	35.3	23.4	29.4
8a	E. SIDEROXYLON 12001	MA	81	--	--	6.73	4.21	5.47	10.7	6.2	8.4	0.95	0.19	0.58	2.40	1.91	2.15	37.2	23.5	30.3
8b	E. SIDEROXYLON 11844	MA	66	--	--	5.82	3.06	4.44	10.2	4.6	7.4	0.00	0.00	0.00	3.00	1.73	2.36	33.5	18.3	25.9
8c	E. SIDEROXYLON 12017	MA	95	--	--	6.23	3.74	4.99	10.7	6.1	8.4	0.00	0.00	0.00	3.10	2.07	2.58	36.8	21.1	28.9
9	E. FRASCICULOSA 7251	MA	94	--	Y	4.75	3.58	4.17	8.6	6.3	7.5	0.39	0.06	0.17	2.55	1.87	2.21	29.9	21.8	25.8
10a	E. PANICULATA 12137	MA	72	--	--	7.60	5.57	6.58	10.8	7.8	9.3	2.11	1.05	1.58	2.73	2.00	2.37	46.7	33.6	40.2
10b	E. PANICULATA 11600	MA	73	--	--	6.71	3.16	4.94	9.5	3.7	6.6	2.30	0.70	1.50	2.61	1.39	2.00	45.2	21.3	33.3
10c	E. PANICULATA 11741	MA	79	--	--	5.01	2.36	3.68	7.0	2.8	4.9	1.75	0.25	1.00	2.30	1.52	1.91	35.3	17.5	26.4
11a	E. DREPANOPHYLLA 11412	MA	97	--	--	3.68	2.52	3.20	5.9	3.4	4.7	0.84	0.09	0.47	1.77	1.03	1.40	24.8	13.3	19.1
11b	E. DREPANOPHYLLA 8208	MA	75	--	--	3.59	1.75	2.57	4.9	1.9	3.4	1.14	0.11	0.63	2.02	0.98	1.50	26.8	11.0	18.9
12a	E. MELANOPHLOIA 10783	MA	59	--	--	6.41	2.91	4.66	9.4	3.9	6.7	0.99	0.14	0.43	2.70	1.30	2.00	36.7	15.3	26.0
12b	E. MELANOPHLOIA 11031	MA	82	--	--	5.21	2.99	4.10	7.4	3.8	5.6	0.58	0.18	0.20	2.24	1.36	1.80	29.5	14.5	22.0
12c	E. MELANOPHLOIA 9723	MA	68	--	--	4.69	1.45	3.07	6.3	1.8	4.0	0.72	0.22	0.25	2.28	1.22	1.75	25.8	12.5	19.1
12d	E. MELANOPHLOIA 10998	MA	79	--	--	4.30	2.10	3.20	5.1	2.3	3.7	0.00	0.00	0.00	2.26	1.22	1.75	23.1	11.9	17.5
13a	E. DECORTICANS 10148	MA	55	--	--	6.03	2.58	4.31	9.7	3.4	6.6	2.34	0.33	1.33	3.20	1.47	2.33	46.5	20.2	33.3
13b	E. DECORTICANS 11646	MA	83	--	--	6.91	3.72	5.32	9.6	4.8	7.2	2.00	0.22	1.11	2.87	1.57	2.22	47.1	15.2	33.1
13c	E. DECORTICANS 11561	MA	63	Y	--	5.41	2.51	3.96	9.0	4.4	6.7	1.09	0.20	0.44	3.08	1.81	2.44	39.6	16.4	28.0
14a	E. INTERTEXTA 11330	MA	89	--	--	2.61	1.71	2.16	3.8	2.6	3.2	0.12	0.04	0.04	1.91	1.45	1.68	18.3	12.8	15.8
14b	E. INTERTEXTA 11630	MA	54	--	--	4.31	1.80	3.06	6.8	2.6	4.7	0.00	0.00	0.00	2.92	1.36	2.14	28.5	12.6	20.6
14c	E. INTERTEXTA 11736	MA	73	--	--	3.47	1.50	2.49	5.2	2.0	3.6	0.00	0.00	0.00	2.15	1.16	1.67	21.2	11.0	16.1
15a	E. OCHROPHLOIA 8583	MA	64	--	--	2.76	1.08	1.92	4.1	1.4	2.8	0.00	0.00	0.00	1.69	0.81	1.25	16.6	7.4	12.0
15b	E. OCHROPHLOIA 8584	MA	78	--	--	2.85	1.76	2.30	3.5	2.1	2.8	0.00	0.00	0.00	1.90	1.17	1.54	17.7	11.2	14.5
15c	E. OCHROPHLOIA 11633	MA	68	--	--	2.98	1.35	2.17	3.4	1.5	2.4	0.00	0.00	0.00	2.03	1.08	1.56	18.5	9.3	13.9
15d	E. OCHROPHLOIA 11731	MA	83	--	--	2.92	1.60	2.26	3.2	1.3	2.3	0.00	0.00	0.00	1.96	1.13	1.55	19.5	8.2	13.6
16	E. RUDDERI 11695	MA	86	--	--	4.38	3.15	3.79	7.2	5.0	6.1	0.64	0.18	0.41	2.46	1.95	2.21	29.5	21.9	25.7
17	E. CONICA 11826	MA	96	--	--	3.85	2.84	3.34	7.0	5.5	6.2	0.26	0.02	0.12	2.15	1.66	1.91	25.6	17.7	21.6
18a	E. CREBRA 12010	MA	67	--	--	5.81	3.60	4.70	11.5	6.6	9.1	1.35	0.05	0.70	2.78	1.62	2.20	42.5	20.1	31.3
18b	E. CREBRA 8756	MA	89	--	--	3.72	2.49	3.11	5.5	4.1	5.3	0.77	0.09	0.43	2.55	1.73	2.14	29.6	17.9	23.8
18c	E. CREBRA 11958	MA	64	--	--	3.77	1.68	2.62	6.2	2.7	4.5	0.36	0.11	0.13	2.39	1.11	1.75	25.3	11.5	18.4
18d	E. CREBRA 11784	MA	95	--	--	4.13	2.40	3.27	7.0	3.7	5.4	0.70	0.03	0.33	2.34	1.45	1.92	28.1	16.1	22.1
19a	E. LARGIFLORENS 11974	MA	53	--	--	2.56	1.80	2.18	3.2	2.1	2.7	0.00	0.00	0.00	1.92	1.35	1.64	17.6	11.7	14.6
19b	E. LARGIFLORENS 8646	MA	76	--	--	3.75	2.33	3.04	5.3	3.1	4.2	0.00	0.00	0.00	2.50	1.32	1.91	24.9	12.7	18.8
19c	E. LARGIFLORENS 10676	MA	95	--	--	3.13	1.97	2.55	3.8	2.2	3.0	0.00	0.00	0.00	2.53	1.47	2.00	24.2	11.1	17.7
20a	E. POPULNEA 11703	MA	82	--	--	3.73	2.11	2.92	3.5	1.7	2.6	0.00	0.00	0.00	2.05	1.15	1.60	19.6	11.2	15.4
20b	E. POPULNEA 9556	MA	81	--	--	2.93	1.12	2.02	4.0	1.2	2.6	0.00	0.00	0.00	2.09	1.00	1.56	19.5	8.2	13.6
20c	E. POPULNEA 8969	MA	74	--	--	3.11	1.61	2.36	4.8	2.3	3.6	0.00	0.00	0.00	3.06	1.44	2.25	28.9	9.9	19.4
20d	E. POPULNEA 11733	MA	73	--	--	3.24	1.69	2.47	4.6	2.2	3.4	0.00	0.00	0.00	2.26	1.30	1.78	22.4	10.5	16.4
20e	E. POPULNEA 9714	MA	45	--	--	3.04	1.03	2.03	3.4	0.9	2.2	0.00	0.00	0.00	2.34	0.99	1.57	20.3	8.0	14.2
20f	E. POPULNEA 8658	MA	69	--	--	2.50	1.03	1.76	3.7	1.5	2.6	0.00	0.00	0.00	1.86	0.89	1.38	18.6	6.4	12.5
21	E. DAWSONII 9977	MA	86	--	--	4.53	3.47	4.00	7.6	5.4	6.5	0.51	0.13	0.32	2.23	1.77	2.00	28.3	20.6	24.4
22a	E. MELLIODORA 10820	MA	86	--	--	5.18	3.09	4.13	7.8	4.4	6.1	1.34	0.29	0.62	2.63	1.72	2.27	37.0	21.0	29.0
22b	E. MELLIODORA 11827	MA	72	--	--	3.16	1.01	2.09	5.3	2.0	3.6	0.00	0.00	0.00	2.91	1.45	2.20	26.2	9.8	19.0
22c	E. MELLIODORA 11660	MA	67	--	--	3.47	1.50	2.48	5.8	2.3	4.1	0.00	0.00	0.00	2.39	1.21	1.80	23.5	11.1	17.3
22d	E. MELLIODORA 10825	MA	78	--	--	5.85	2.83	4.34	8.5	3.9	6.2	0.50	0.06	0.22	2.87	1.57	2.22	36.8	13.7	25.2
22e	E. MELLIODORA 11787	MA	79	--	--	6.12	2.94	4.53	9.0	4.6	6.8	0.36	0.11	0.13	2.98	1.52	2.25	36.4	15.1	25.8

23a	E. POLYANTHEMOS 11812	MA	87	-	Y	4.57	2.71	3.64	7.3	4.2	5.8	0.00	0.00	0.00	2.78	1.62	2.20	28.4	16.6	22.6
	E. POLYANTHEMOS 10730	MA	97	-	Y	5.66	3.63	4.65	8.7	5.4	7.0	0.00	0.00	0.00	2.42	1.71	2.07	28.7	19.7	24.2
23c	E. POLYANTHEMOS 11829	MA	95	-	Y	4.84	3.10	3.97	8.2	4.5	6.3	0.00	0.00	0.00	2.81	1.69	2.25	29.5	17.8	23.7
23d	E. POLYANTHEMOS 11307	MA	95	-	-	5.47	3.76	4.61	9.3	6.5	7.9	0.31	-0.04	0.13	2.28	1.59	1.93	30.1	19.7	24.9
24	E. WOODLSIANA 12105	MA	78	-	-	2.40	1.33	1.65	3.3	1.6	2.5	0.11	-0.03	0.04	1.52	1.12	1.32	15.0	9.6	12.3
25	E. ALBENS 10437	MA	80	-	Y	3.80	2.70	3.25	5.4	3.8	4.6	0.12	-0.04	0.04	2.01	1.49	1.75	21.4	15.6	18.5
26a	E. MICROCARPA 11782	MA	76	-	Y	3.80	2.25	3.02	5.9	3.7	4.8	0.00	0.00	0.00	3.21	1.90	2.56	29.1	17.5	23.3
26b	E. MICROCARPA 10868	MA	73	-	-	3.96	2.36	3.16	5.3	2.9	4.1	0.72	0.08	0.40	2.24	1.36	1.60	26.1	15.3	20.7
26c	E. MICROCARPA 8758	MA	78	-	-	3.17	1.84	2.41	5.0	1.8	3.4	0.00	0.00	0.00	2.26	1.18	1.73	21.7	10.8	16.2
27	E. THOZETIANA 11032	MA	75	-	-	3.85	2.73	3.29	4.6	3.1	3.9	0.36	0.04	0.20	1.91	1.45	1.68	22.1	15.0	18.6
28a	E. BOTRYDIDES 12104	MA	91	-	-	9.99	6.09	8.04	13.9	7.7	10.8	2.92	1.45	2.18	3.20	2.08	2.54	60.4	36.9	48.6
28b	E. BOTRYDIDES 7340	MA	85	-	-	7.73	5.08	6.41	14.0	8.7	11.4	3.23	2.00	2.62	3.15	2.08	2.62	59.8	39.3	49.8
28c	E. BOTRYDIDES 12134	MA	77	-	-	8.60	4.38	6.48	15.0	7.8	11.4	2.68	1.07	1.68	3.83	2.17	3.00	62.2	33.3	47.8
28d	E. BOTRYDIDES 7509	MA	82	-	-	7.94	5.24	6.55	13.8	8.5	11.2	3.46	2.11	2.79	2.69	1.73	2.21	58.1	38.5	48.3
29	E. ODRATA 6703	MA	86	-	-	3.35	2.57	2.96	4.3	3.0	3.7	0.00	0.00	0.00	1.93	1.55	1.74	15.3	14.8	17.0
30a	E. LEUCOXYLON 10096	MA	73	-	Y	5.34	1.51	3.43	7.3	1.9	4.6	0.00	0.00	0.00	2.43	1.12	1.78	27.4	10.4	18.9
30b	E. LEUCOXYLON 10099	MA	80	-	-	7.15	3.17	5.16	11.0	4.6	7.8	0.00	0.00	0.00	3.33	1.87	2.60	37.8	19.6	28.7
30c	E. LEUCOXYLON 9604	MA	80	-	Y	7.01	2.82	4.92	10.0	3.5	6.7	0.00	0.00	0.00	2.94	1.50	2.22	34.4	15.8	25.1
30d	E. LEUCOXYLON 9602	MA	48	-	Y	3.58	1.05	2.31	4.1	1.2	2.6	0.00	0.00	0.00	1.79	0.78	1.29	18.3	7.2	12.7
30e	E. LEUCOXYLON 9603	MA	86	-	Y	5.09	2.61	3.85	7.4	3.4	5.4	0.00	0.00	0.00	2.71	1.49	2.10	28.6	15.2	21.9
30f	E. LEUCOXYLON 9601	MA	83	-	Y	5.36	2.77	4.06	9.2	4.8	7.0	0.00	0.00	0.00	2.79	1.66	2.22	33.0	15.9	24.4
30g	E. LEUCOXYLON 10095	MA	87	-	Y	6.73	3.24	4.99	9.7	4.3	7.0	0.00	0.00	0.00	3.15	1.65	2.40	35.4	17.8	26.6
30h	E. LEUCOXYLON 9608	MA	83	-	-	7.18	3.07	5.13	9.0	3.8	6.4	0.00	0.00	0.00	2.45	1.32	1.89	31.2	15.5	23.3
30i	E. LEUCOXYLON 10097	MA	83	-	Y	4.02	1.94	2.98	7.0	3.1	5.1	0.00	0.00	0.00	2.79	1.21	2.00	27.1	12.7	19.9
30j	E. LEUCOXYLON 9598	MA	92	-	Y	6.34	3.34	4.64	9.4	5.0	7.2	0.00	0.00	0.00	2.56	1.64	2.10	32.3	17.1	24.7
31a	E. ROBUSTA 11893	MA	65	-	-	5.73	2.50	4.11	8.0	2.8	5.4	2.20	0.30	1.25	3.06	1.44	2.25	47.0	15.0	31.0
31b	E. ROBUSTA 9424	MA	84	-	-	8.14	5.26	6.70	12.6	7.9	10.3	3.06	1.34	2.20	3.41	2.19	2.80	56.4	37.0	47.7
31c	E. ROBUSTA 10176	MA	79	-	-	6.17	3.29	4.73	11.1	4.9	8.0	1.66	0.34	1.00	2.91	1.69	2.30	43.7	21.9	32.8
31d	E. ROBUSTA 11029	MA	100	-	-	6.13	3.89	5.01	8.7	4.7	6.7	1.22	0.11	0.67	3.06	1.94	2.50	39.1	23.0	31.1
31e	E. ROBUSTA 11969	MA	69	-	-	8.04	4.64	6.34	11.5	6.4	8.9	2.00	0.25	1.13	3.50	2.00	2.75	49.9	28.3	39.1
31f	E. ROBUSTA 10063	MA	67	-	-	6.05	3.73	4.90	12.4	7.0	9.7	2.36	0.81	1.58	3.01	1.99	2.50	50.1	28.2	39.2
32a	E. CLADOCALYX 11834	MA	70	-	-	8.52	5.23	6.88	13.1	7.2	10.2	1.85	0.48	1.18	3.05	1.66	2.45	49.0	29.6	39.3
32b	E. CLADOCALYX 10756	MA	75	Y	-	10.10	5.69	7.90	16.2	8.7	12.4	1.38	-0.05	0.67	4.49	2.40	3.44	63.1	27.7	45.4
33a	E. RESINIFERA 10962	MA	88	Y	-	4.00	1.71	2.85	4.6	1.7	3.1	1.29	-0.02	0.64	2.03	1.06	1.53	28.1	10.3	19.2
33b	E. RESINIFERA 11011	MA	72	Y	-	7.57	4.35	5.97	10.3	5.9	6.1	3.10	1.70	2.40	2.84	1.76	2.30	53.4	33.2	43.3
33c	E. RESINIFERA 11209	MA	62	Y	-	6.12	2.80	4.46	10.4	4.3	7.4	3.14	0.86	2.00	2.92	1.36	2.14	54.7	19.6	37.1
33d	E. RESINIFERA 11963	MA	91	-	-	8.06	4.53	6.30	11.9	6.8	9.3	3.15	1.76	2.45	2.99	1.92	2.45	56.6	34.9	45.7
33e	E. RESINIFERA 10113	MA	69	-	-	5.85	2.43	4.14	8.6	2.9	5.8	1.73	0.02	0.88	2.71	1.54	2.13	40.0	16.5	28.3
33f	E. RESINIFERA 10431	MA	80	Y	-	4.62	2.71	3.67	8.9	4.5	6.7	2.47	0.93	1.70	2.41	1.39	1.90	42.3	22.1	32.2
34a	E. MACULATA 10728	MA	87	-	Y	7.15	3.55	5.35	10.7	5.0	7.8	1.80	0.60	1.20	2.85	1.55	2.20	45.1	23.1	34.1
34b	E. MACULATA 9461	MA	74	-	-	6.65	2.11	4.38	7.5	2.1	4.8	2.23	0.10	1.17	2.94	1.06	2.00	48.0	9.7	25.8
34c	E. MACULATA 11965	MA	66	-	-	7.71	3.35	5.53	10.3	3.8	7.1	2.01	0.44	1.22	3.47	1.65	2.56	54.3	17.7	36.0
34d	E. MACULATA 11240	MA	64	-	Y	7.08	2.54	4.61	9.7	3.1	6.4	1.95	0.33	1.14	3.31	1.54	2.43	48.1	17.9	33.0
34e	E. MACULATA 10865	MA	69	-	Y	9.93	5.71	7.82	12.1	6.6	9.4	3.22	1.78	2.50	3.06	1.69	2.38	60.0	35.3	47.6
34f	E. MACULATA 10846	MA	95	-	Y	7.25	4.35	5.80	9.7	5.2	7.5	2.53	0.92	1.73	3.00	1.73	2.36	50.2	26.9	36.5
34g	E. MACULATA 9580	MA	67	-	Y	7.80	2.86	5.33	11.8	4.0	7.9	2.00	0.00	1.00	3.43	1.24	2.33	51.1	16.3	33.7
34h	E. MACULATA 12135	MA	96	-	Y	6.97	4.53	5.75	11.8	6.4	9.1	2.43	0.84	1.64	3.15	1.94	2.55	50.0	30.9	40.5
34i	E. MACULATA 11181	MA	84	-	Y	5.76	6.08	7.92	14.4	8.7	11.6	2.04	0.76	1.40	3.41	2.19	2.60	56.2	34.0	45.1
34j	E. MACULATA 11005	MA	84	-	Y	8.56	4.97	6.77	9.9	5.3	7.6	2.60	0.85	1.73	2.58	1.60	2.09	49.3	27.2	36.3
35a	E. CITRIODORA 12012	MA	92	-	Y	7.53	3.79	5.66	9.3	3.8	6.5	2.16	0.24	1.20	2.61	1.19	1.90	44.9	17.7	31.3
35b	E. CITRIODORA 11640	MA	86	-	Y	8.25	5.06	6.66	10.3	5.8	8.0	2.85	1.34	2.09	2.83	1.72	2.27	53.0	30.8	41.9
35c	E. CITRIODORA 12379	MA	96	-	-	6.62	4.22	6.37	7.6	4.6	6.1	1.93	0.29	0.91	2.36	1.64	2.00	36.9	22.4	29.6
35d	E. CITRIODORA 11762	MA	95	-	Y	7.56	4.64	6.10	8.5	5.1	6.8	2.28	0.52	1.45	2.58	1.60	2.09	46.7	23.2	34.9
36	E. MARGINATA 6536	MA	47	-	-	3.52	1.65	2.59	7.4	3.5	5.4	0.53	-0.03	0.25	2.22	1.28	1.75	26.2	13.4	19.8
37	E. GOMPHOCEPHALA 6090	MA	88	Y	-	7.30	5.72	6.51	9.8	7.2	8.5	2.17	1.19	1.68	2.52	1.96	2.25	44.5	34.1	39.3
38	E. MEGACARPA 6535	MA	62	Y	Y	4.81	3.46	4.14	8.4	5.3	6.9	0.18	-0.06	0.06	2.90	1.97	2.44	35.5	16.8	26.1
39	E. LAELIAE 6534	MA	61	Y	Y	4.04	2.46	3.25	6.4	3.7	5.0	0.18	-0.06	0.06	2.52	1.85	2.19	27.3	16.2	21.8
40	E. RUBIA 6533	MA	86	-	-	5.12	3.99	4.55	8.0	5.7	6.9	0.39	-0.05	0.17	2.42	1.79	2.10	29.5	20.7	25.1
41	E. WANDOO 6532	MA	59	-	-	4.40	3.02	3.71	7.6	4.8	6.2	0.14	-0.05	0.05	2.52	1.96	2.24	27.6	15.5	23.6
42	E. PATENS 6531	MA	72	-	Y	4.01	2.92	3.46	8.1	5.0	6.6	0.51	0.01	0.26	2.44	1.74	2.09	29.4	18.7	24.0
43	E. WANDOO 6530	MA	80	-	-	4.56	3.54	4.05	6.8	4.9	5.8	0.45	0.07	0.28	2.17	1.75	1.96	27.1	15.8	23.6
44	E. ACCEDENS 6537	MA	87	-	Y	4.09	2.88	3.49	6.6	4.5	5.5	0.11	-0.04	0.04	2.53	1.77	2.15	26.7	17.5	22.1
45	E. ASTRINGENS 6529	MA	81	-	-	5.17	3.80	4.48	7.5	5.4	6.5	0.00	0.00	0.00	2.46	1.83	2.15	30.4	17.6	24.0

	E. KONDININENSIS 6528	MA	70	-	-	Y	3.70	2.57	3.13	4.2	2.9	3.5	0.00	0.00	0.00	2.07	1.53	1.80	21.4	13.8	17.6
47	E. GARDNERI 6527	MA	72	-	-	-	5.71	4.32	5.02	7.5	5.3	6.4	0.00	0.00	0.00	2.45	1.85	2.17	30.4	18.9	24.7
48	E. LIXOPHLEBA 6526	MA	79	-	-	-	4.42	2.70	3.56	5.0	2.7	3.9	0.00	0.00	0.00	1.87	1.25	1.56	20.7	13.0	16.9
49	E. OCCIDENTALIS 6510	MA	86	-	-	-	6.56	5.47	6.01	8.8	7.0	7.9	0.45	0.09	0.27	2.41	2.02	2.21	31.6	26.4	29.0
50	E. SARGENTII 6509	MA	75	-	-	-	3.86	2.82	3.34	5.2	3.4	4.3	0.00	0.00	0.00	2.44	1.71	2.08	23.9	16.5	20.2
51	E. FALCATA 6525	MA	72	-	-	-	7.05	5.25	6.15	7.9	5.9	6.9	0.42	0.04	0.19	2.40	1.75	2.10	34.6	20.0	27.3
52	E. CALOPHYLLA 6524	MA	93	-	-	-	2.91	2.09	2.50	4.9	3.4	4.1	0.32	0.10	0.11	1.72	1.26	1.50	19.1	13.2	16.2
53	E. SPATHULATA 6523	MA	56	-	-	Y	3.47	2.46	2.97	4.9	3.3	4.1	0.00	0.00	0.00	2.49	1.89	2.19	24.8	16.1	20.5
54	E. CALOPHYLLA 6522	MA	81	-	-	-	4.27	2.95	3.61	7.9	5.4	6.7	0.77	0.13	0.45	2.00	1.52	1.75	26.3	16.6	23.4
55	E. DIVERGICOLOR 6521	MA	62	Y	Y	Y	12.08	6.48	9.28	15.3	7.7	12.0	2.02	0.42	1.22	3.47	1.86	2.67	62.6	28.5	45.6
56	P. RADIIATA 5086-7	MA	75	-	-	-	6.39	4.73	5.56	9.2	6.8	8.0	3.24	2.36	2.80	2.53	2.30	2.57	52.4	41.0	46.7
57	P. PINASTER 5085	MA	48	-	-	-	3.71	2.73	3.22	7.9	5.2	6.6	3.15	2.27	2.71	2.88	2.17	2.52	47.6	36.1	41.9
58	E. TRANSCONTINENTAL 6128	MA	70	-	-	-	2.29	1.60	1.95	4.2	2.7	3.4	0.00	0.00	0.00	1.82	1.11	1.46	17.7	10.3	14.0
59	E. FLOCKTONIAE 6508	MA	42	-	-	Y	2.16	1.19	1.68	2.9	1.3	2.1	0.00	0.00	0.00	1.63	0.62	1.13	15.2	5.8	10.5
60	E. PLATYPUS 6520	MA	78	-	-	-	2.10	1.40	1.75	4.4	2.5	3.4	0.00	0.00	0.00	2.45	1.55	2.00	21.4	12.5	16.9
61	E. WOODWARDII 6515	MA	48	-	-	Y	1.92	1.33	1.63	2.6	1.7	2.2	0.00	0.00	0.00	1.13	0.87	1.00	11.0	6.3	9.7
62	E. BRADCKWAYI 6507	MA	51	-	-	-	2.02	1.54	1.78	2.6	1.6	2.2	0.00	0.00	0.00	1.44	0.98	1.21	14.2	8.1	11.2
63	E. CALYCOGONA 6145	MA	35	-	-	-	2.26	1.46	1.86	2.3	1.3	1.8	0.00	0.00	0.00	1.55	0.85	1.20	15.2	7.0	11.1
64	E. DUNDASII 6516	MA	55	-	-	Y	1.92	1.32	1.62	3.7	2.2	2.9	0.00	0.00	0.00	1.39	0.89	1.14	13.7	8.4	11.1
65	E. LEHMANNII 6519	MA	81	-	-	Y	3.25	2.06	2.66	5.8	3.6	4.7	0.00	0.00	0.00	1.94	1.31	1.63	20.9	12.8	16.9
66	E. SALMONOPHLOIA 6514	MA	46	-	-	-	2.32	1.54	1.93	3.0	1.7	2.4	0.00	0.00	0.00	1.50	0.81	1.15	14.3	8.3	11.3
67	E. OLEOSA 6513	MA	83	-	-	-	1.69	1.11	1.40	2.9	1.8	2.4	0.00	0.00	0.00	1.85	1.29	1.57	16.4	9.9	13.2
68	E. GRIFFITHSII 6512	MA	76	-	-	-	2.41	1.74	2.06	3.0	1.9	2.4	0.00	0.00	0.00	1.70	1.22	1.46	16.8	9.7	13.3
69	E. TORQUATA 6129	MA	63	-	-	-	2.12	1.63	1.88	4.6	3.1	3.8	0.00	0.00	0.00	1.25	0.97	1.11	13.7	10.3	12.0
70	E. STRICKLANDII 6132	MA	40	-	-	Y	2.37	1.29	1.83	3.7	1.9	2.6	0.00	0.00	0.00	1.46	0.88	1.17	14.4	8.4	11.4
71	E. DIPTERA 6517	MA	63	-	-	-	3.70	2.16	2.93	5.0	2.7	3.8	0.29	0.09	0.10	2.84	1.76	2.30	26.9	15.7	21.3
72	E. SALUBRIS 6511	MA	53	-	-	-	3.43	1.55	2.49	4.3	2.0	3.1	0.73	0.02	0.38	2.40	1.35	1.88	25.6	12.6	19.1
73	E. LONGICORNIS 6518	MA	63	-	-	-	1.81	1.29	1.55	3.4	2.2	2.8	0.00	0.00	0.00	1.92	1.38	1.65	17.2	11.1	14.1
74	E. OBLENDII 6131	MA	57	-	-	Y	3.12	1.94	2.53	4.7	2.6	3.8	0.00	0.00	0.00	1.63	1.23	1.53	18.6	12.2	15.4
75	E. CALOPHYLLA 6524	**** MA	60	-	-	Y	6.30	4.15	5.23	10.9	6.6	8.8	0.39	0.12	0.13	3.11	2.09	2.60	39.1	21.6	30.3
76	E. OCCIDENTALIS 6510	**** MA	81	-	-	-	7.47	5.40	6.43	11.2	7.9	9.6	0.00	0.00	0.00	2.75	2.02	2.38	34.9	25.9	30.4
77	E. CITRIDORA 11640	**** MA	65	-	-	Y	10.35	7.52	8.93	12.4	8.7	10.5	2.22	1.31	1.76	2.20	1.56	1.88	52.3	32.2	42.2
78	E. WANDOO 6532	**** MA	92	-	-	-	6.02	4.86	5.44	10.9	8.2	9.6	0.00	0.00	0.00	2.96	2.37	2.67	38.8	22.9	30.8
79	E. LEUCOXYLON 9602	**** MA	92	-	-	-	9.00	6.15	7.57	10.5	7.4	8.9	0.32	0.01	0.17	2.32	1.85	2.08	35.5	24.4	30.5
80	E. MARBINATA 6536	**** MA	56	-	-	Y	3.10	1.89	2.50	5.6	3.3	4.4	0.00	0.00	0.00	1.38	0.95	1.17	17.1	10.1	13.6
81	E. MELLIDORA 11860	**** MA	92	-	-	Y	4.44	2.48	3.46	6.9	4.1	5.5	0.28	0.08	0.09	2.41	1.59	2.00	28.3	14.6	21.5
82	E. MACULATA 11181	**** MA	100	-	-	-	8.16	6.44	7.30	12.9	10.0	11.5	2.51	1.64	2.08	2.93	2.30	2.62	53.4	41.5	47.6
83	E. GOMPHOCEPHALA 6090	**** MA	88	-	-	Y	8.40	5.98	7.19	11.5	8.1	9.8	0.97	0.21	0.59	3.00	2.37	2.68	43.5	30.7	37.1
84	E. RESINIFERA 10962	**** MA	86	-	-	-	9.16	6.36	7.76	14.6	10.1	12.4	1.81	0.69	1.25	3.09	2.21	2.65	53.5	34.1	43.8
85	E. ACCEDENS 6537	**** MA	96	-	-	-	5.07	3.83	4.45	7.8	5.8	6.8	0.51	0.01	0.25	2.35	1.80	2.07	30.6	20.0	25.3
86	E. CREBRA 11958	**** MA	84	-	-	-	4.36	2.93	3.65	7.9	5.1	6.5	0.51	0.03	0.24	2.29	1.61	1.95	28.9	17.5	23.2
87	E. BOTRYOIDES 7340	**** MA	91	-	-	-	12.63	9.63	11.23	16.9	12.8	14.8	3.05	2.15	2.61	3.15	2.33	2.74	67.0	51.8	59.4
88	E. GARDNERI 6527	**** MA	71	-	-	-	7.52	5.42	6.47	9.3	6.4	7.8	0.00	0.00	0.00	3.01	2.17	2.59	44.3	16.3	30.3
89	E. CLADDALYX 11834	**** MA	40	-	-	-	10.79	7.42	9.11	17.4	11.7	14.6	1.87	0.63	1.25	3.31	2.44	2.88	61.4	36.3	48.9
90	E. ROBUSTA 11029	**** MA	73	Y	-	-	10.35	7.77	9.06	16.0	11.2	13.6	2.25	1.12	1.69	3.21	2.41	2.61	58.1	42.6	50.3
91	E. LAELIAE 6534	**** MA	88	-	-	Y	5.72	4.19	4.96	10.0	6.7	8.3	0.00	0.00	0.00	2.73	1.99	2.36	33.5	21.5	27.5
92	E. FALCATA 6525	**** MA	56	-	-	-	9.19	5.66	7.42	9.2	5.6	7.4	0.58	0.18	0.20	2.64	1.56	2.10	42.9	15.7	29.3
93	E. KONDININENSIS 6528	**** MA	86	-	-	-	5.11	3.73	4.42	6.1	4.0	5.1	0.00	0.00	0.00	2.42	1.78	2.10	29.5	15.3	22.4