6.0 General Conclusions

The following comments provide some general conclusions regarding the analysis of the two years of fire data accumulated for this report.

The figures (Figures 4.2 and 4.3) of the two years of fire affected areas show a significant difference between the area fire affected mapped in the north of Australia and that mapped in the south. There is very much less area mapped in the southern half for both years. In the second year there was a considerably larger area mapped, with the dominant months being September and October 1999.

The maps of annual fire hot spot density (Figure 3.10) give a detailed view of the great spatial variation in density throughout Australia. There is a bias towards high density in northern latitudes. There are localised heat sources, some of which are industrial regions.

The variation through seasons and between years (Figure 3.11) of the fire hot spot distribution shows that there is a high degree of similarity between years for the same season. In summer the far north of Australia shows little if any fire activity. In autumn most parts of Australia show some fire activity. The distribution of fires in winter and spring are similar.

From these broad scale fire hot spot density data it is apparent that the season of maximum FHS density generally moves from winter to summer as the IGAER move from north so south latitudes. The exception to this is IGAER 11. In the IGAER that showed significant FAAs, the same movement in season is present as is shown in the FHSs.

The graphs of fire hot spot density monthly variations for each of the 11 IGAER (Figure 3.13) show that the highest single month values were in IGAER 2, 3, 4 and 6.

The graphs of fire affected area monthly values for each of the 11 IGAER show that the greatest total area burns were in IGAER 1, 2 and 11 for both of the two years of data. By contrast, the remaining 8 IGAER contained only ten percent of the measured fire affected areas. IGAER 1 has a distinct bimodal distribution in both FHS and FAA in both years, peaking in both May and September. IGAER 9 also shows a bimodal distribution in FHS, but this is not reflected in the measured FAA.

The map of monthly maximum fire hot spot activity (Figure 3.14) is a precursor to the building of a fire climatology. Caution is needed however where there are areas of bimodal monthly fire distribution, such as is present in IGAER 11. In general, there appears poor agreement between the IGAER, with the exception of IGAER 10.

The calculation of the monthly variation of fire hot spot density (Figure 3.13) adds further information towards the building of a fire regime GIS. Significant variability of both fire density and distribution are present in the graphs. The scale of the data allows more precise evaluation of fire information than is possible with the larger area coverage presented by the IBRA regions.

During this study, 345 694 hot spots were detected and an area 1 023 190km^2 was mapped as fire affected.

7.0 Future Recommendations

The report as presented has been based on the data acquired from two of the polar orbiting NOAA satellites over a two year period. The afternoon satellite was used for fire affected areas and the early evening/night time satellite used for fire hot spots. The sensor used from these satellites was the AVHRR sensor.

There are a number of opportunities available to enhance the data presented here through further studies. A number of these are presented below.

The data received throughout Australia from the NOAA satellites have been archived from the early 1980s. These data were available for analysis that could extend the results historically a further ten years or more. While this time period is small in terms of human habitation in Australia, there have been recent changes in land management practices which could be assessed with this historical record. The fire return times in most of Australia is greater than two years, so a more complete map of fire burn patterns could also be accumulated from this archived NOAA data.

There are normally three, and sometimes four, active NOAA satellites in orbit. Each satellite passes over Australia heading north at one time, and then twelve hours later heading south. Thus there is the possibility to measure the ground at least six times daily. This study used only two of these six passes. The mapping fire affected areas is difficult to achieve during very low sun illumination conditions and during the night time passes. There may be some possibility of using the thermal bands at night to indicate loss of green vegetation through the more rapid change in temperature compared to the surroundings. The morning satellite, at present NOAA-15, may provide an opportunity to observe fire affected areas in the northern latitudes closer to the December-February months as the afternoon thunder storms clouds restrict the availability of ground data from the afternoon satellite, currently NOAA-14.

There is a diurnal cycle in fire behaviour. The peak intensity of a fire will often be during the day, and many fires may last less than twenty-four hours. The use of the daytime satellite passes, both morning and evening, should lead to the location of many more fires, which are currently missed using the evening satellite pass. There are some limitations in the use of daytime AVHRR data as the highly reflective soils in much of central Australia result in saturation of band 3 and hence an inability to measure any further increase in ground temperature due to the presence of a fire.

There are currently two other sensors flying on satellites that provide broad scale, daily coverage of significant parts of Australia. They are the MODIS sensor flying on the Aqua satellite and the ATSR sensor flying on ERS-2 satellite. Each of these sensors include both visible and mid-thermal bands, providing the ability to map both fire affected areas and fire hot spots. The ATSR sensor has a similar ground resolution to the AVHRR sensor, of about 1.1 kilometres. The MODIS sensor offers 250 metre visible bands that will allow the location of smaller fire affected areas than is possible with AVHRR.

During this study it became obvious that there were a small number of anthropogenic heat sources that were fixed in position and almost continuous in their presence throughout the data collection period. Further information from these sources, in terms of their time of operation, temperature and size, may provide the opportunity to calibrate both the positional accuracy of the satellite data and the intensity of hot spots located in the same satellite pass.

The use of higher ground resolution satellite data from satellite sensors such as Landsat TM would improve the location of fire affected areas. This sensor has a ground resolution of 25 metres and a number of visible bands, but has a significant cost and only revisits the same ground area every sixteen days. The cost of the data is very much higher than AVHRR, but would provide the opportunity to validate the lower resolution satellite data in selected areas or at significant times. There is no fire hot spot band on this sensor.

There are many datasets that could be added to the GIS to improve the analysis of fire regimes. These could include land management and ownership information, soil and vegetation types, topography and rainfall. The products developed and presented in this report are show some of the capabilities of GIS to combine many disparate data types to produce information rather than raw data. Value adding to the raw data of fire hot spots and fire affected areas can only help in providing significant environmental information to be added to the Australian State of the Environment reporting process.

Fires are an active rather than static part on the Australian environment. They have affected almost all parts of the landscape in some form over the recent past. The results presented here provide probably the first continental view of the environments of Australia affected by fire.

8.0 References

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9.0 Appendices

Appendix 1.0 List of IBRA and IGAER, with Area (km^2)

IBRA 80 Region Name	IBRA 80 ID No.	IBRA 80 kmsq	IGAER No.
Central Kimberley	55	77128	1
Daly Basin	73	21030	1
Dampierland	58	90196	1
Northern Kimberley	66	87081	1
Ord-Victoria Plains	51	125785	1
Sturt Plateau	50	99698	1
Victoria Bonaparte	52	73208	1
IGAER 1 totals		574126	North West Wet/Dry Tropics
Central Arnhem	77	36972	2
Gulf Coastal	72	28054	2
Gulf Fall and Uplands	46	119810	2
Gulf Plains	39	213301	2
Pine-Creek Arnhem	75	51622	2
Timor		0	2
Top End Coast	79	69454	2
IGAER 2 Totals		519212	North Wet/Dry Tropics
Cape York Peninsula	40	117318	3
Einasleigh Uplands	44	129326	3
IGAER 3 Totals		246644	North East Wet/Dry Tropics
Wet Tropics	42	18257	4
Central Mackay Coast	43	14622	4
IGAER 4 Totals		32879	Wet Tropical Coasts
Cobar Peneplain	24	73664	5
Desert Uplands	45	68666	5
Mitchell Grass Downs	41	318113	5
Mount Isa Inlier	38	67362	5
Mulga Lands	18	264571	5
IGAER 5 Totals		792377	Semi-arid Tropical/Sub-tropical Plains
Brigalow Belt North	22	112493	6
Darling River Plains	17	106787	6
South Brigalow	76	287534	6
IGAER 6 Totals		506814	Sub-tropical Slopes and Plains
NSW North Coast	27	61050	7
South Eastern Queensland	74	68774	7
Sydney Basin	20	35933	7
IGAER 7 Totals		165757	Wet Sub-tropical Coasts
Ben Lomond	11	8670	8
DEntrecasteaux	15	4318	8
Freycinet	13	6503	8
Furneaux	9	2409	8
Lofty Block	36	23773	8

Naracoorte Coastal Plain	2	28397	8
South East Coastal Plain	4	18893	8
South East Corner	10	27073	8
Swan Coastal Plain	69	15173	8
Victorian Volcanic Plain	3	21980	8
Warren	62	10472	8
West and South West	14	18498	8
Woolnorth	80	9731	8
IGAER 8 Totals		195888	Wet Temperate Coasts
Australian Alps	6	11577	9
Central Highlands	16	11034	9
Nandewar	23	27560	9
New England Tableland	26	29386	9
South Eastern Highlands	5	80836	9
Tasmanian Midlands	12	7719	9
IGAER 9 Totals		168112	Temperate Highlands
Avon Wheatbelt	70	95316	10
Esperance Plains	57	35329	10
Eyre and Yorke Blocks	35	61447	10
Geraldton Sandplains	67	37639	10
Jarrah Forest	61	46385	10
Mallee	64	80052	10
Murray-Darling Depression	1	201234	10
NSW SouthWestern Slopes	7	84037	10
Riverina	8	90288	10
Victorian Midlands	78	37158	10
IGAER 10 Totals		768884	Temperate Slopes and Plains
Broken Hill Complex	25	56975	11
Burt Plain	48	71815	11
Carnarvon	54	90755	11
Central Ranges	54	97741	11
Channel Country	21	305309	11
Coolgardie	56	127076	11
Finke	29	55820	11
Flinders and Olary Ranges	37	77381	11
Gascoyne	53	181185	11
Gawler	31	64439	11
Great Sandy Desert	60	385885	11
Great Victoria Desert	32	421637	11
Hampton	34	11875	11
Little Sandy Desert	63	104090	11
MacDonnell Ranges	47	37010	11
Murchison	65	275282	11
Nullarbor	33	196418	11
Pilbara	68	178712	11

Simpson-Strzelecki Dunefields	19	274902	11
Stony Plains	30	181431	11
Tanami	49	320207	11
Yalgoo	71	36032	11
IGAER 11 Totals		3551977	Arid Interior

Appendix 2 Fire Hot Spots – April 1998 to March 1999

IBRA 80 Region Name	IBRA 80 kmsq	IBRA Province No.	Total No. FHS	1998_APR	1998_MAY	1998_JUN	1998_JUL	1998_AUG	1998_SEP	1998_OCT	1998_NOV	1998_DEC	1999_JAN	1999_FEB	1999 MAR
1: North West Wet/Dry Tropics															
Central Kimberley	77128	1	2348	140	858	409	101	19	264	336	98	21	12	47	43
Daly Basin	21030	1	2446	200	625	446	425	424	83	205	24	9	5		
Dampierland	90196	1	5994	281	621	87	273	886	2758	608	213	83	103	16	65
Northern Kimberley	87081	1	8105	63	774	1109	656	1743	3008	571	164	5	5	3	4
Ord-Victoria Plains	125785	1	2194	663	124	75	162	138	177	408	125	138	86	33	65
Sturt Plateau	99698	1	2415	178	142	151	103	618	256	618	95	197	39	5	13
Victoria Bonaparte	73208	1	7793	844	2709	1302	523	580	978	705	77	39	18	3	15
IBRA 1 Totals	574126		31295	2369	5853	3579	2243	4408	7524	3451	796	492	268	107	205
2: North Wet/Dry Tropics															
Central Arnhem	36972	2	2013	35	24	33	105	677	684	422	28	5			
Gulf Coastal	28054	2	1297	2	63	135	315	491	87	100	63	33	8		
Gulf Fall and Uplands	119810	2	6246	95	703	533	719	1654	639	1293	399	153	45	7	6
Gulf Plains	213301	2	4997	40	111	196	206	743	230	2151	889	295	78	32	26
Pine-Creek Arnhem	51622	2	6425	193	815	1320	770	1687	1070	459	105	5	1		
Timor	0	2	232	13	7	20	8	13	39	109		10		12	1
Top End Coast	69454	2	9750	162	831	1247	1693	3727	1474	510	101	4			1
Gibson Desert	145389	11	193	1				2	18	64	34	18	23	12	21
IBRA 2 Totals	519212		27843	504	2467	3316	3396	7826	3470	4586	1528	485	147	63	55
3: North East Wet/Dry Tropics															
Cape York Peninsula	117318	3	5998	22	65	163	616	1169	1649	1837	375	99	3		
Einasleigh Uplands	129326	3	3814	41	58	82	187	1071	654	845	492	270	38	59	17
IBRA 3 Totals	246644		9812	63	123	245	803	2240	2303	2682	867	369	41	59	17
4: Wet Tropical Coasts															
Wet Tropics	18257	4	510	12	4	32	134	101	24	94	84	18	2	5	
Central Mackay Coast	14622	4	754		28	111	194	133	110	105	41	21	7	3	1
IBRA 4 Totals	32879		1264	12	32	143	328	234	134	199	125	39	9	8	1
5: Semi Arid Tropical/Subtropical Plains															
Cobar Peneplain	73664	5	1109	78	70	62	25	81	62	47	26	34	64	239	321
Desert Uplands	68666	5	1514	3	2	13	14	226	196	246	67	391	86	250	20
Mitchell Grass Downs	318113	5	1177	27	35	15	6	59	69	123	70	493	160	75	45
Mount Isa Inlier	67362	5	2540	12	176	39	46	96	419	372	441	596	112	98	133
Mulga Lands	264571	5	2236	69	77	29	20	81	65	146	108	903	334	276	128
IBRA 5 Totals	792377		8576	189	360	158	111	543	811	934	712	2417	756	938	647
6: Subtropical Slopes and Plains															
Brigalow Belt North	112493	6	3738	39	138	274	545	678	556	677	71	462	128	81	89
Darling Riverine Plains	106787	6	1521	128	64	86	7	38	75	80	157	259	164	238	225
South Brigalow	287534	6	6850	194	205	175	202	1099	705	915	449	1251	543	669	443
IBRA 6 Totals	506814		12109	361	407	535	754	1815	1336	1672	677	1972	835	988	757
7: Wet Subtropical Coasts															
NSW North Coast	61050	7	1472	19	22	18	50	209	672	367	68	21	9	14	3
South Eastern Queensland	68774	7	2590	26	106	62	272	765	389	349	218	158	85	62	98
Sydney Basin	35933	7	381	27	15	8	40	28	59	53	9	39	26	33	44
IBRA 7 Totals	165757		4443	72	143	88	362	1002	1120	769	295	218	120	109	145
8: Wet Temperate Coasts															
Ben Lomond	8670	8	200	20	18				19	21	17	6	5	3	91
DEntrecasteaux	4318	8	72	31	4						3		7		27
Freycinet	6503	8	70	8	3				6	14	6	5	1		27
Furneaux	2409	8	10				9		1						
Lofty Block	23773	8	43	18	10	1		2	4	3		4	1		
Naracoorte Coastal Plain	28397	8	107	19	43	10		3	5	7	5	3	2	3	7
South East Coastal Plain	18893	8	180	3	15				3	3		27	45	25	59
South East Corner	27073	8	272	44	54	41	14	21	45	29		1	4		19
Swan Coastal Plain	15173	8	311	79	97	16	1	11	32	32	8	20	4	11	
Victorian Volcanic Plain	21980	8	91	24	6			4	2	8	4	7	15	4	17
Warren	10472	8	513	107	87	9	3		1	4	12	102	30	40	118
West and South West	18498	8	25	3	5						3		1		13
Woolnorth	9731	8	238	73	6				5	3		9	10	24	108
IBRA 8 Totals	195888		2132	429	348	77	27	41	123	124	58	184	125	110	486
9: Temperate Highlands															
Australian Alps	11577	9	64	23	10					13					18
Central Highlands	11034	9	74	3	2							4	11	2	52
Nandewar	27560	9	250	8	54	18	7	29	30	65	4	22	6	6	1
New England Tableland	29386	9	451	21	3		4	20	169	134	19	15	20	34	12
South Eastern Highlands	80836	9	907	160	110	10		5	56	37	1	11	3	366	148
Tasmanian Midlands	7719	9	74	12	7				3	8	6	4	1	14	19
IBRA 9 Totals	168112		1820	227	186	28	11	54	258	257	30	56	41	422	250
10: Temperate Slopes and Plains															
Avon Wheatbelt	95316	10	1778	1121	227	4	1	15	18	19		39	52	51	231
Esperance Plains	35329	10	216	61	83	8		9	2	10		23	5	3	12
Eyre and Yorke Blocks	61447	10	152	85	21			10		8		3	6	15	4
Geraldton Sandplains	37639	10	436	189	105	19	3	3	18	4	13	14	12	9	47
Jarrah Forest	46385	10	2050	637	460	43	21	53	79	212	289	69	11	15	161
Mallee	80052	10	555	248	85	2		1	2	9		9	9	54	136
Murray-Darling Depression	201234	10	825	186	27	22	9	106	37	35	10	128	210	26	29
NSW SouthWestern Slopes	84037	10	498	71	54			9	28	27		42	12	87	168
Riverina	90288	10	577	102	32	4		47	70	24	6	32	21	108	131
Victorian Midlands	37158	10	145	29	26	3		3	8	2		8	19	1	46
IBRA 10 Totals	768884		7232	2729	1120	105	34	256	262	350	318	367	357	369	965
11: Arid Interior															
Broken Hill Complex	56975	11	33	2				14	1	1			3	4	8
Burt Plain	71815	11	78				1	18	1	9		14	27	6	2
Carnarvon	90755	11	682	12	10	10	7	6	8		24	91	395	107	12
Central Ranges	97741	11	107		5		2			24		35	10	5	26
Channel Country	305309	11	523	5		3	5	55	40	14	2	100	247	18	34
Coolgardie	127076	11	338	59	24	30	9	23	18	10	9	39	73	20	24
Finke	55820	11	61		2	1				1		16	28	8	5
Flinders and Olary Ranges	77381	11	44	2	2			8	12	1		1	12	4	2
Gascoyne	181185	11	345	3	1				1	7	24	129	107	59	14
Gawler	64439	11	201	20	10	5	1	23	15	2		26	33	15	51
Great Sandy Desert	385885	11	1284	43	51	32	45	23	110	144	185	104	237	44	266
Great Victoria Desert	421637	11	352	1				3		26		89	73	134	26
Hampton	11875	11	3									1	2		
Little Sandy Desert	104090	11	215	3	5		1	10	18	18	58	26	60	3	13
MacDonnell Ranges	37010	11	70	8	11	1	4	4	4	1		13	19	3	2
Murchison	275282	11	393	22	6	2		10	4		18	79	118	79	55
Nullarbor	196418	11	113	2								65	24	19	3
Pilbara	178712	11	1592	50	100	48	36	109	99	129	103	386	374	37	121
Simpson-Strzelecki Dunefields	274902	11	459	15	1	5	4	22	13	39		42	189	71	58
Stony Plains	181431	11	115	1		1	1	16	5	4		38	36	4	9
Tanami	320207	11	2017	397	54	188	99	294	79	266	64	187	197	40	152
Yalgoo	36032	11	97	26	8							7	24	28	4
IBRA 11 Totals	3551977		9122	671	290	326	215	638	428	696	487	1488	2288	708	887

Appendix 2 Fire Hot Spots – April 1999 to March 2000

IBRA 80 Region Name	IBRA 80 Area kmsq	Ibra Province No.	Total No. FHS	1999_APR	1999_MAY	1999_JUN	1999_JUL	1999_AUG	1999_SEP	1999_OCT	1999_NOV	1999_DEC	2000_JAN	2000_FEB	2000_MAR
1: North West Wet/Dry Tropic															
Daly Basin	21030.24	1	1289	22	220	292	54	147	391	102	31	28	1		1
Dampierland	90195.9	1	7266	262	1527	174	892	1026	525	1070	1523	144	48	70	5
Central Kimberley	77128.22	1	4510	335	1207	269	371	672	933	306	289	30	28	68	2
Northern Kimberley	87080.64	1	6038	15	943	559	967	827	1396	911	352	51	12	3	2
Ord-Victoria Plains	125784.93	1	4800	308	537	118	427	513	1078	603	993	160	27	31	5
Sturt Plateau	99698.2	1	7399	62	303	271	131	126	3620	1907	584	352	40		3
Victoria Bonaparte	73208.04	1	5086	273	1074	491	741	614	982	617	183	104	3	1	3
IBRA 1 Totals	574126.17		36388	1277	5811	2174	3583	3925	8925	5516	3955	869	159	173	21
2: North Wet Dry Tropics															
Central Arnhem	36972.12	2	5619	7	6	149	219	1288	2750	1150	14	30	5		1
Gulf Coastal	28053.68	2	1695	1	55	86	473	510	183	310	60	9	3	2	3
Gulf Fall and Uplands	119809.67	2	9428	18	615	537	1509	1151	3135	1682	464	270	36		11
Gulf Plains	213301.15	2	9509	35	44	402	318	393	1238	3919	1533	1457	116	26	28
Pine-Creek Arnhem	51621.6	2	6480	15	277	508	688	1492	2647	802	25	20			6
Timor	0	2	138	1		5	14	11	48	55	4				
Top End Coast	69453.76	2	6330	2	170	640	1130	1747	1969	606	39	27			
IBRA 2 Totals	519211.98		39199	79	1167	2327	4351	6592	11970	8524	2139	1813	160	28	49
3: North East Wet/Dry Tropics															
Cape York Peninsula	117317.85	3	11946	6	33	76	642	1228	4680	4526	583	158	6	5	3
Einasleigh Uplands	129325.99	3	12493	72	307	247	312	311	1972	1792	3703	3432	245	76	24
IBRA 3 Totals	246643.84		24439	78	340	323	954	1539	6652	6318	4286	3590	251	81	27
4: Wet Tropical Coasts															
Wet Tropics	18256.96	4	849		4	22	56	77	256	302	78	26	24	1	3
IBRA 4 Totals	18256.96		849	0	4	22	56	77	256	302	78	26	24	1	3
5: Semi Arid Tropical/Subtropical Plains															
Cobar Peneplain	73663.9	5	1496	236	108	146	40	98	210	269	62	55	88	97	87
Desert Uplands	68666.3	5	3604	6	21	23	131	61	317	869	784	578	652	107	55
Mitchell Grass Downs	318113.12	5	1807	20	43	60	44	82	166	415	205	252	338	124	58
Mount Isa Inlier	67362.4	5	2425	42	42	84	74	95	114	479	364	477	538	22	94
Mulga Lands	264570.87	5	2936	34	63	55	40	169	348	979	95	220	294	462	177
IBRA 5 Totals	792376.59		12268	338	277	368	329	505	1155	3011	1510	1582	1910	812	471
6: Subtropical Slopes and Plains															
Brigalow Belt North	112493.38	6	18094	89	128	58	166	499	1800	3952	3716	5570	1602	340	174
Brigalow Belt South	287533.69	6	32423	526	546	420	311	1380	7098	7880	4127	6225	1958	1193	759
Darling Riverine Plains	106787.38	6	4016	280	289	185	197	151	376	262	111	499	688	630	348
IBRA 6 Totals	506814.45		54533	895	963	663	674	2030	9274	12094	7954	12294	4248	2163	1281
7: Wet Subtropical Coasts															
NSW North Coast	61049.81	7	682	12	20	14	12	40	53	78	47	86	64	166	90
South Eastern Queensland	68774.37	7	5837	124	105	133	127	320	1397	891	473	1227	391	260	389
Sydney Basin	35933.17	7	554	34	58	30	57	78	58	53	27	44	46	60	9
IBRA 7 Totals			7073	170	183	177	196	438	1508	1022	547	1357	501	486	488
8: Wet Temperate Coasts															
Ben Lomond	8669.56	8	275	73	14	3	2	4	35	2	34	23	6	45	34
DEntrecasteaux	4317.93	8	126		10			3					5	86	22
Freycinet	6502.75	8	40		7	5				5	10	1	1		11
Furneaux	2408.52	8	30	22	7				1						
Lofty Block	23772.94	8	49	4	13		3	1	4	4	3	13		4	
Naracoorte Coastal Plain	28396.55	8	209	33	69	22	7	2	6	28	4	1	27	9	1
South East Coastal Plain	18893.09	8	186	33	33	2	1	3	4	3	10	15	27	37	18
South East Corner	27073.29	8	337	65	69	18	1	42	5	13	7	2			115
Swan Coastal Plain	15172.61	8	352	129	12	12	15	11	15	49	48	28	1	15	17
Victorian Volcanic Plain	21980.49	8	185	14	28	2		4	13	19	24	23	15	19	24
Warren	10471.63	8	607	102	42	8		7		32	126	88	29	42	131
West and South West	18498.16	8	75	35				1	2		2	3	3		29
Woolnorth	9730.59	8	216	46	8	1		1	7	7	22	4	2	73	45
IBRA 8 Totals	195888.11		2687	556	312	73	29	79	92	162	290	201	116	330	447
9: Temperate Highlands															
Australian Alps	11577.23	9	37	23	4										10
Central Highlands	11033.93	9	91	11					2		6	3	8	16	45
Nandewar	27559.87	9	606	37	38	21	24	71	113	53	36	32	42	61	78
New England Tableland	29386.26	9	357	11	22	2	9	8	33	33	21	66	38	43	71
South Eastern Highlands	80835.98	9	743	362	144	18		4	15	9	22	15		5	149
Tasmanian Midlands	7718.89	9	91	7	3				1	2	17	9	3	48	1
IBRA 9 Totals	168112.16		1925	451	211	41	33	83	164	97	102	125	91	173	354
10: Temperate Slopes and Plains															
Avon Wheatbelt	95316.24	10	1303	653	44	4	5	7	31	36	7	35	31	151	299
Esperance Plains	35328.81	10	186	53	26	2	2	33	14	10	1	10		3	32
Eyre and Yorke Blocks	61447.04	10	115	44	10	2	2		3	7	6	12	23		6
Geraldton Sandplains	37638.97	10	276	90	6	5	3	18	1	6	17	2	61	39	28
Jarrah Forest	46384.62	10	2206	540	217	112	44	54	64	397	513	58	12	22	173
Mallee	80052.23	10	441	242	27	2			4	2	3	3	8	68	82
Murray-Darling Depression	201233.75	10	559	107	85	15	8	20	89	34	22	30	15	41	93
NSW SouthWestern Slopes	84036.78	10	577	102	102	10	13	8	20	46	13	3	60	81	119
Riverina	90287.54	10	609	114	38	7	1	5	18	13	39	76	47	92	159
Victorian Midlands	37158.16	10	150	58	48	1	1	2	7	1	7	13			12
IBRA 10 Totals	768884.14		6422	2003	603	160	79	147	251	552	628	242	257	497	1003
11: Arid Interior															
Burt Plain	71814.64	11	150	3	3	4	14	33	21	16	14	29	2	5	6
Broken Hill Complex	56975.31	11	59	18	2		6	3	16			1	8		5
Carnarvon	90754.84	11	1048	10	25	13	14	29	137	185	80	58	394	94	9
Central Ranges	97740.61	11	2285	27	32	10	108	723	816	438	37	44	23	14	13
Channel Country	305308.83	11	723	41	34	35	61	47	24	16	36	146	42	175	66
Coolgardie	127075.98	11	270	5	4	14	7	27	29	34	20	21	24	61	24
Finke	55820	11	70	5	5	4	4	3		8	3	22	3	11	2
Flinders and Olary Ranges	77380.9	11	64	5	1	7	2		8	4	3	18	1	3	12
Gascoyne	181184.53	11	1696	4	2	5	6	25	61	299	673	424	35	138	24
Gawler	64439.2	11	267	9	12	9	16	51	24	22	20	42	25	27	10
Gibson Desert	145388.99	11	3160	21	21	16	5	43	2233	381	100	119	74	127	20
Great Sandy Desert	385884.69	11	12477	171	296	94	511	175	3591	4830	1515	1010	55	134	95
Great Victoria Desert	421636.75	11	1020	13	16	61	17	20	266	351	38	105	36	71	26
Hampton	11875.29	11	6						1		4	1			
Little Sandy Desert	104090.03	11	1553	31	32	6	27	36	417	438	253	254	19	33	7
MacDonnell Ranges	37010.21	11	69	6	11	5	2	4	6	8	13	3	2	8	1
Murchison	275281.96	11	598	5	11	5	4	10	33	164	53	168	61	63	21
Nullarbor	196418.18	11	391	1	3	6	1	6	312	10	7	19	8	12	6
Pilbara	178712.16	11	8482	59	93	273	533	762	1173	1360	2889	1040	155	134	11
Simpson-Strzelecki Dunefields	274902.37	11	390	19	11	16	15	11	6	23	35	68	51	96	39
Stony Plains	181431.47	11	220	5	4	15	6	21	3	17	21	61	35	24	8
Tanami	320207.12	11	6478	245	1056	372	249	1219	1860	1019	146	192	54	45	21
Yalgoo	36032.36	11	62	6	7	1		8	2	2		8	13	11	4
IBRA 11 Totals	3697366.42		41538	709	1681	971	1608	3256	11039	9625	5960	3853	1120	1286	430

Appendix 3 Fire Affected areas April 1998 to May1999

lbra80name	SumOfArea_kmsq	lbra_11	Total Of Faa_kmsq	1998_APR	1998_AUG	1998_DEC	1998_JUL	1998_JUN	1998_MAY	1998_NOV	1998_OCT	1998_SEP	1999_FEB	1999_JAN	1999_MAR
Avon Wheatbelt	95316.24	10	259.95	43.9	14.17	145.4							56.48		
Brigalow Belt North	112493.38	6	918.76	94.43	28.36	42.88	117.3	104.41		166.97	198.77	165.64			
Burt Plain	71814.64	11	32.57		12.8									19.77	
Cape York Peninsula	117317.85	3	16354.1		3815.64		2417.57	1487.87	241.28	3430.94	3032.77	1928.03			
Carnarvon	90754.84	11	848.53				47.91			81.13	39.62		679.87		
Central Arnhem	36972.12	2	7474.15		2040.08		729.59	99.39	14.58	13.33	2480.97	2096.21			
Central Kimberley	77128.22	1	15748.9	1247.54	1531.27		5.24	2032.74	2317.09	3383.52		5231.5			
Central Ranges	97740.61	11	37.55				37.55								
Channel Country	305308.83	11	269.31	45.29				89.74			27.49			106.79	
Cobar Peneplain	73663.9	5	216.35							128.36	32.01	55.98			
Coolgardie	127075.98	11	304.96		204.42								100.54		
Daly Basin	21030.24	1	13413.35	437.74	2499.4		2398.94	2375.37	4495.88	143.47	444.35	618.2			
Dampierland	90195.9	1	23869.63	540.08	1287.5	17.09	298.57	839.18	1336.8	1986.34	1540.71	15886.06		76	61.3
Darling Riverine Plains	106787.38	6	1243.19	64.08				417.95	37.84	339.8	121.45	262.07			
Desert Uplands	68666.3	5	1934.52		191.77		79.18			67.67	577.18	1018.72			
Einasleigh Uplands	129325.99	3	8177.39		3942.33		359.22	458.85	290.62	136.1	414.48	2575.79			
Esperance Plains	35328.81	10	160.05			160.05									
Gascoyne	181184.53	11	448.95					353.94		6.69	30.35		57.97		
Geraldton Sandplains	37638.97	10	171.16		88.03					83.13					
Gibson Desert	145388.99	11	367.42				22.71	49.03		129.32		15.37	32.47	118.52	
Great Sandy Desert	385884.69	11	1779.47	99.29	82.04	148.39	6.57	310.61	115.17	123.04	91.46	143.6		659.3	
Great Victoria Desert	421636.75	11	709.76					262.04		15.57			432.15		
Gulf Coastal	28053.68	2	7719.36		2808.61	10.69	1037.22	1699.26	374.79	31.5	538.15	1219.14			
Gulf Fall and Uplands	119809.67	2	30489.93	9.77	7236.71	1518.49	2995.71	2708.69	5369.43	1858.48	5744.6	3048.05			
Gulf Plains	213301.15	2	13661.95		4682.76		1216.6	2922.72	488.58	1489.88	1407.36	930.86		523.19	
Jarrah Forest	46384.62	10	528.71			176.56				314.19	37.96				
Little Sandy Desert	104090.03	11	231.76				8.44	2.14		221.18					
Mallee	80052.23	10	10.34											10.34	
Mitchell Grass Downs	318113.12	5	3366.25	29.21	195.72	489.75				1206.54	991.41	398.94		54.68	
Mount Isa Inlier	67362.4	5	4505.79	77.17	100.06	141.45	13.77	84.29	292.95	919.43	1197.56	1679.11			
Mulga Lands	264570.87	5	296.2		4.47					238.23		53.5			
Murchison	275281.96	11	3146.73		322		4.48	1861.9		369.5			520.76		68.09
Murray-Darling Depression	201233.75	10	1815.6							169.97		109	1360.56	176.07	
Naracoorte Coastal Plain	28396.55	8	12.78							12.78					
Northern Kimberley	87080.64	1	32275.79	11.66	4839.57		1463.74	5163.38	1486.88	901.05		18409.51			
NSW North Coast	61049.81	7	7.72			7.72									
NSW SouthWestern Slopes	84036.78	10	54.94	3.04								51.9			
Ord-Victoria Plains	125784.93	1	11471.04	3058.85	1855.08	222.06	543.39	673.75	1429.5	620.86	2179.25	888.3			
Pilbara	178712.16	11	1576.08		133.81	268.18		48.75	50.92	524.83	115.67		427.17	6.75	
Pine-Creek Arnhem	51621.6	2	25014.71		4622.08		1837.94	6926.18	6894.28		1631.56	3102.67			
Riverina	90287.54	10	177.64	3.01				94.82				79.81			
Simpson-Strzelecki Dunefields	274902.37	11	281.42			74.98	101.49	30.59			33.57			40.79	
South Brigalow	287533.69	6	334.67	100.36	24.94						122.66	60.47			26.24
South Eastern Highlands	80835.98	9	166.16												166.16
South Eastern Queensland	68774.37	7	30.86								30.86				
Stony Plains	181431.47	11	10.98								10.98				
Sturt Plateau	99698.2	1	14176.26	525.04	3095.36	473.9	278.64	331.34	3461.08	137.67	4976.45	896.78			
Sydney Basin	35933.17	7	57.54					17.55		39.99					
Tanami	320207.12	11	8003.89	1657.45	1525.16	513.86	7.01	320.19	638.9	209.11	1635.72	332.89	54.18	1057.83	51.59
Top End Coast	69453.76	2	24013.92		7947		4598.88	3636.96	2253.86	16.46	2484.58	3076.17			
Victoria Bonaparte	73208.04	1	33855.25	5129.9	1812.39		2018.55	4830.42	15147.41	523.36	1808.13	2585.09			
Victorian Volcanic Plain	21980.49	8	12.78							12.78					
West and South West	18498.16	8	30.36							30.36					
Wet Tropics	18256.96	4	48.47								48.47				
Yalgoo	36032.36	11	215.21		130.56		28.17						56.48		

Appendix 3 Fire Affected Areas April 1999 to March 2000

Ibra80name	SumOfArea_kmsq	Ibra_11	Total Of Faa_kmsq	1999_APR	1999_AUG	1999_DEC	1999_JUL	1999_JUN	1999_MAY	1999_NOV	1999_OCT	1999_SEP	2000_FEB	2000_JAN	2000_MAR
Avon Wheatbelt	95316.24	10	82.71	4.53									29.76		48.42
Brigalow Belt North	112493.38	6	3614.19		405.07	302.68			16.58	283.75	806.79	1654.34		144.98	
Burt Plain	71814.64	11	493.08		173.41		17.98			38.85	169.88	92.96			
Cape York Peninsula	117317.85	3	37526.92		5775.4	32.34	7191.12	431.01		229.73	11905.91	11961.41			
Carnarvon	90754.84	11	1898.72			186.35				63.13	864.55	82.27	9.08	688.01	5.33
Central Arnhem	36972.12	2	30930.84		8408.74		2246.68	785.01		10.48	8040.55	11439.38			
Central Kimberley	77128.22	1	32681.25	705.14	5456.63	697.82	3128.09	1115.54	10440.82	630.6	1977.7	8528.91			
Central Mackay Coast	14621.68	4	338.56		100.89						71.72	165.95			
Central Ranges	97740.61	11	9696.32		2557.1		581.2		112.36		2103.2	4309.48	27.96	5.02	
Channel Country	305308.83	11	1684.21	13.32	52.19	12.96	6.61	751.91			40.78	806.44			
Cobar Peneplain	73663.9	5	37.06		29.42					7.64					
Coolgardie	127075.98	11	10.99												10.99
Daly Basin	21030.24	1	14724.16	49.93	629.44		1422.67	5069.19	4376.34	133.99	1693.59	1349.01			
Dampierland	90195.9	1	38905.89	746.59	6527.68		5694.89	971.59	9416.32	3396.17	8196.91	3955.74			
Darling Riverine Plains	106787.38	6	744.85	147.73	153.5		79.92	348.03				15.67			
Desert Uplands	68666.3	5	1333.37		17.22	81.18	45.34	41.55	3.07	141.29	451.45	311.58		240.69	
Einasleigh Uplands	129325.99	3	13296.99		2421.52	612	936.21	1627.93	905.4	1304.25	2460.01	3029.67			
Esperance Plains	35328.81	10	14.66								4.65		10.01		
Finke	0	11	13.15		5.06					8.09					
Gascoyne	181184.53	11	3662.9		4.56	1318.33	10.04			246.61	1796.14	146.52	76.93	63.77	
Geraldton Sandplains	37638.97	10	466.01	1.89									9	447.27	7.85
Gibson Desert	145388.99	11	18594.74		12.28		24.13			75.55	7214.05	10567.47	646.95	54.31	
Great Sandy Desert	385884.69	11	51381.42	129.81	1215.3	481.98	3038.49	349.75	1766.32	235.42	29842.08	14133.55	32.78	155.94	
Great Victoria Desert	421636.75	11	5889.39		63.37	5.32	7.62	5.02			2471.22	3308.37	28.47		
Gulf Coastal	28053.68	2	13660.49		2143.89		3824.47	2302.47	535.05	30.06	1027.96	3796.59			
Gulf Fall and Uplands	119809.67	2	61121.77	27.76	7576.18	60.55	6896.87	8296.35	2609.19	1460.86	14833.65	19255.26	17.9	87.2	
Gulf Plains	213301.15	2	45969.12		8489	1664.3	3157.8	4110.04	683.82	9216.44	7224.79	11321.14		101.8	
Jarrah Forest	46384.62	10	166.1	38.67						30.97	19.25		44.53		32.68
Little Sandy Desert	104090.03	11	7727.55		65.01	16.39	74.47		43.94	115.19	4776.48	2636.07			
MacDonnell Ranges	37010.21	11	2.46	2.46											
Mallee	80052.23	10	2.92										2.92		
Mitchell Grass Downs	318113.12	5	2609.76		730.86	395.12	37.5			24.91	65.94	1234.96	76.9	43.57	
Mount Isa Inlier	67362.4	5	4346.94	51.95	465.67	362.31	14.6	115.52	85.23	1788.53	151.12	827.65	34.61	446.32	3.43
Mulga Lands	264570.87	5	807.31		300.96			127.03			71.6	307.72			
Murchison	275281.96	11	1392.91			217.77				33.56	1004.78	85.89	44.25	6.66	
Murray-Darling Depression	201233.75	10	10.84						2.97				7.87		
Nandewar	27559.87	9	26.92		26.92										
Naracoorte Coastal Plain	28396.55	8	16.66										16.66		
Northern Kimberley	87080.64	1	38117.01		4198.58		12521.56	2147.29	6954.03	380.13	2418.59	9496.83			
Ord-Victoria Plains	125784.93	1	28121.98	1663.68	2872.32	300.84	2357.02	1905	3548.93	1687.5	6472.74	7180.04	133.91		
Pilbara	178712.16	11	19564.11		1138.8	6526.45	763.04	381.07		2031.73	5082.56	2893.61		746.85	
Pine-Creek Arnhem	51621.6	2	39944.38		6776.05		4542.65	9123.39	5323.04	29.94	3673.27	10476.04			
Riverina	90287.54	10	15.66										15.66		
Simpson-Strzelecki Dunefields	274902.37	11	613.11		14.38			598.73							
South Brigalow	287533.69	6	3319.54	60.33	927.18	25.12	12.14		61.98	89.21	490.03	1633.58		19.97	
South Eastern Queensland	68774.37	7	284.53	28.24	182.97							73.32			
Sturt Plateau	99698.2	1	48025.14	370.59	3202.6	18.04	907.32	4025.37	4109.58	1853.16	16264.03	17095.75	178.7		
Swan Coastal Plain	15172.61	8	10.25								4.1		6.15		
Tanami	320207.12	11	56307.74	924.47	10994.76	24.36	2151.91	4296.39	8641.78	375.03	12598.13	16115.78	37.93	147.2	
Top End Coast	69453.76	2	35648.65		9412.81		6929.75	8395.21	1163.88	142.53	2632.79	6971.68			
Victoria Bonaparte	73208.04	1	34321.47	1271.18	3412.14	29.51	4228.99	9412.32	9434.3	207.27	4031.44	2294.32			
Warren	10471.63	8	48.32							32.89			5.82		9.61
Wet Tropics	18256.96	4	621.11		37.44						199.36	384.31			

Appendix 4 Fire Hot Spots in Fire Affected Areas – April 1998 to March 1999

Ibra_11	Ibra80name	Total Of Finf	1998_APR	1998_MAY	1998_JUN	1998_JUL	1998_AUG	1998_SEP	1998_OCT	1998_NOV	1998_DEC	1999_JAN	1999_FEB	1999_MAR
1	Central Kimberley	1023	22	425	216	38	4	193	102	17	0	0	4	2
1	Daly Basin	1404	132	492	292	214	216	42	16	0	0	0		
1	Dampierland	3615	105	301	27	105	734	1853	394	73	0	1	3	19
1	Northern Kimberley	5391	9	338	773	408	1397	2280	171	15	0	0	0	0
1	Ord-Victoria Plains	804	337	59	26	39	56	63	206	7	0	0	0	11
1	Sturt Plateau	1128	74	100	92	55	470	140	182	1	2	0	0	12
1	Victoria Bonaparte	4767	546	2293	816	238	192	520	152	6	0	0	1	3
		18132	1225	4008	2242	1097	3069	5091	1223	119	2	1	8	47
2	Central Arnhem	792	0	1	12	53	428	209	89	0	0			
2	Gulf Coastal	717	1	15	108	230	318	28	14	0	3	0		
2	Gulf Fall and Upland	3371	30	432	388	469	1089	430	367	163	3	0	0	0
2	Gulf Plains	922	2	38	137	73	476	42	98	56	0	0	0	0
2	Pine-Creek Arnhem	3745	98	669	954	446	1140	377	61	0	0			
2	Timor	0	0	0	0	0	0	0	0		0		0	0
2	Top End Coast	5213	18	524	847	963	2170	548	143	0	0			0
		14760	149	1679	2446	2234	5621	1634	772	219	6	0	0	0
3	Cape York Peninsula	1702	0	12	52	218	504	434	442	40	0	0		
3	Einasleigh Uplands	918	0	26	24	45	613	198	9	3	0	0	0	0
		2620	0	38	76	263	1117	632	451	43	0	0	0	0
4	Central Mackay Coast	0		0	0	0	0	0	0	0	0	0	0	0
4	Wet Tropics	24	0	0	0	0	0	0	24	0	0	0	0	
		24	0	0	0	0	0	0	24	0	0	0	0	0
5	Cobar Peneplain	10	0	0	0	0	0	0	10	0	0	0	0	0
5	Desert Uplands	201	0	0	0	0	62	86	50	3	0	0	0	0
5	Mitchell Grass Downs	53	0	0	0	0	0	22	28	1	1	1	0	0
5	Mount Isa Inlier	600	0	75	22	2	47	296	129	26	2	0	0	1
5	Mulga Lands	1	0	0	0	0	1	0	0	0	0	0	0	0
		865	0	75	22	2	110	404	217	30	3	1	0	1
6	Brigalow Belt North	36	5	6	0	0	6	3	9	0	7	0	0	0
6	Brigalow Belt South	77	2	0	0	0	3	5	28	0	0	2	34	3
6	Darling Riverine Pla	70	20	4	7	0	0	0	1	0	0	0	6	32
		183	27	10	7	0	9	8	38	0	7	2	40	35
7	NSW North Coast	0	0	0	0	0	0	0	0	0	0	0	0	0
7	South Eastern Queens	11	0	0	0	0	11	0	0	0	0	0	0	0
7	Sydney Basin	1	0	0	0	0	0	0	1	0	0	0	0	0
		12	0	0	0	0	11	0	1	0	0	0	0	0
8	Ben Lomond	0	0	0				0	0	0	0	0	0	0
8	DEntrecasteaux	0	0	0						0		0		0
8	Freycinet	0	0	0				0	0	0	0	0		0
8	Furneaux	0				0		0						
8	Lofty Block	0	0	0	0		0	0	0		0	0		
8	Naracoorte Coastal P	3	0	0	0		0	0	0	3	0	0	0	0
8	South East Coastal P	0	0	0				0	0		0	0	0	0
8	South East Corner	0	0	0	0	0	0	0	0		0	0		0
8	Swan Coastal Plain	0	0	0	0	0	0	0	0	0	0	0	0	
8	Victorian Volcanic P	0	0	0			0	0	0	0	0	0	0	0
8	Warren	0	0	0	0	0		0	0	0	0	0	0	0
8	West and South West	0	0	0						0		0		0
8	Woolnorth	0	0	0				0	0		0	0	0	0
		3	0	0	0	0	0	0	0	3	0	0	0	0
9	Australian Alps	0	0	0					0					0
9	Central Highlands	0	0	0							0	0	0	0
9	Nandewar	0	0	0	0	0	0	0	0	0	0	0	0	0
9	New England Tablelan	0	0	0		0	0	0	0	0	0	0	0	0
9	South Eastern Highla	244	0	0	0		0	0	0	0	0	0	244	0
9	Tasmanian Midlands	0	0	0				0	0	0	0	0	0	0
		244	0	0	0	0	0	0	0	0	0	0	244	0
10	Avon Wheatbelt	26	6	0	0	0	0	0	0		0	20	0	0
10	Esperance Plains	7	0	0	0		0	0	0		7	0	0	0
10	Eyre and Yorke Block	0	0	0			0		0		0	0	0	0
10	Geraldton Sandplains	2	0	0	0	0	0	0	0	2	0	0	0	0
10	Jarrah Forest	190	0	0	0	0	0	27	58	105	0	0	0	0
10	Mallee	0	0	0	0		0	0	0		0	0	0	0
10	Murray-Darling Depre	137	0	0	0	0	0	0	0	0	16	121	0	0
10	NSW SouthWestern Slo	1	1	0			0	0	0		0	0	0	0
10	Riverina	1	1	0	0		0	0	0	0	0	0	0	0
10	Victorian Midlands	0	0	0	0		0	0	0		0	0	0	0
		364	8	0	0	0	0	27	58	107	23	141	0	0
11	Broken Hill Complex	0	0				0	0	0			0	0	0
11	Burt Plain	4				0	4	0	0		0	0	0	0
11	Carnarvon	221	0	0	0	0	0	0		10	3	208	0	0
11	Central Ranges	0		0		0			0		0	0	0	0
11	Channel Country	13	1		0	0	0	0	0	0	0	4	0	8
11	Coolgardie	11	0	0	0	0	0	0	0	0	0	11	0	0
11	Finke	0		0	0				0		0	0	0	0
11	Flinders and Olary R	0	0	0			0	0	0			0	0	0
11	Gascoyne	13	0	0				1	2	3	0	7	0	0
11	Gawler	0	0	0	0	0	0	0	0		0	0	0	0
11	Gibson Desert	0	0				0	0	0	0	0	0	0	0
11	Great Sandy Desert	96	0	10	0	0	0	36	24	25	0	0	0	1
11	Great Victoria Deser	56	0				0		0		0	1	55	0
11	Hampton	0									0	0		
11	Little Sandy Desert	1	0	0		0	0	0	0	1	0	0	0	0
11	MacDonnell Ranges	0	0	0	0	0	0	0	0		0	0	0	0
11	Murchison	27	3	0	0		0	0		1	0	21	2	0
11	Nullarbor	0	0								0	0	0	0
11	Pilbara	96	0	0	11	0	1	0	42	4	19	19	0	0
11	Simpson-Strzelecki D	0	0	0	0	0	0	0	0		0	0	0	0
11	Stony Plains	0	0		0	0	0	0	0		0	0	0	0
11	Tanami	548	188	2	59	7	141	14	83	3	1	19	0	31
11	Yalgoo	0	0	0							0	0	0	0
		1086	192	12	70	7	146	51	151	47	23	290	57	40

Appendix 4 Fire Hot Spots in Fire Affected Areas – April 1999 to March 2000

Ibra80name	Ibra_11	Ibra80name	IBRA 80 Area kmsq	Total Of Finf	1999_APR	1999_MAY	1999_JUN	1999_JUL	1999_AUG	1999_SEP	1999_OCT	1999_NOV	1999_DEC	2000_JAN
Central Kimberley	1	Central Kimberley	77128.22	3145	162	940	133	325	574	799	140	71	1	0
Daly Basin	1	Daly Basin	21030.24	786	13	150	213	39	87	266	17	1	0	0
Dampierland	1	Dampierland	90195.9	3927	171	1078	110	624	820	356	473	295	0	0
Northern Kimberley	1	Northern Kimberley	87080.64	4143	3	723	446	818	728	1161	224	40	0	0
Ord-Victoria Plains	1	Ord-Victoria Plains	125784.93	2102	101	288	41	323	305	716	117	202	0	9
Sturt Plateau	1	Sturt Plateau	99698.2	5056	44	199	172	105	95	2828	1416	191	3	3
Victoria Bonaparte	1	Victoria Bonaparte	73208.04	3109	191	808	426	576	368	635	92	13	0	0
finf99_IPR1_TOTALS					685	4186	1541	2810	2977	6761	2479	813	4	12
		Central Arnhem												
Central Arnhem	2	Gulf Coastal	36972.12	4947	1	4	143	188	1171	2493	947	0	0	0
Gulf Coastal	2	Gulf Fall and Upland	28053.68	1089	1	38	74	440	332	147	45	12	0	0
Gulf Plains	2	Gulf Plains	213301.15	3550	1	10	180	235	297	923	1566	214	124	0
Pine-Creek Arnhem	2	Pine-Creek Arnhem	51621.6	4787	6	210	414	451	1114	2032	560	0	0	
Top End Coast	2	Timor	69453.76	3936	2	101	508	876	1195	1146	108	0	0	
finf99_IPR2_TOTALS		Top End Coast	329948.55	14373	9	262	811	1314	2914	5595	3118	226	124	0
Cape York Peninsula	3	Cape York Peninsula	117317.85	6381	0	9	36	444	792	3059	2027	14	0	0
Einasleigh Uplands	3	Einasleigh Uplands	129325.99	2310	4	75	99	156	180	1332	248	136	80	0
finf99_IPR3_TOTALS			246643.84	8691	4	84	135	600	972	4391	2275	150	80	0
		Central Mackay Coast												
Central Mackay Coast	4	Wet Tropics	14621.68	126	0	0	1	3	8	69	45	0	0	0
Wet Tropics	4		18256.96	81		0	2	0	21	52	6	0	0	0
finf99_IPR4_TOTALS		Cobar Peneplain	32878.64	207	0	0	3	3	29	121	51	0	0	0
		Desert Uplands												
Cobar Peneplain	5	Mitchell Grass Downs	73663.9	20	0	0	0	4	3	0	10	3	0	0
Desert Uplands	5	Mount Isa Inlier	68666.3	384	0	0	5	42	7	96	127	56	3	48
Mitchell Grass Downs	5	Mulga Lands	318113.12	63	0	0	0	3	7	27	9	11	4	2
Mount Isa Inlier	5		67362.4	670	12	14	53	56	64	55	251	47	51	67
Mulga Lands	5	Brigalow Belt North	264570.87	59	0	0	0	0	41	18	0	0	0	0
finf99_IPR5_TOTALS		Darling Riverine Pla	792376.59	1196	12	14	58	105	122	196	397	117	58	117
		South Brigalow												
Brigalow Belt North	6		112493.38	1045	0	0	1	9	76	407	324	108	108	12
South Brigalow	6	NSW North Coast	287533.69	1372	33	19	6	18	138	883	220	41	1	13
finf99_IPR6_TOTALS		South Eastern Queens	400027.07	2417	33	19	7	27	214	1290	544	149	109	25
		Sydney Basin												
NSW North Coast	7		61049.81	0	0	0	0	0	0	0	0	0	0	0
Sydney Basin	7	Ben Lomond	35933.17	0	0	0	0	0	0	0	0	0	0	0
finf99_IPR7_TOTALS		DEntrecastreau	96982.98	0	0	0	0	0	0	0	0	0	0	0
		Freycinet												
Ben Lomond	8	Furneaux	8669.56	0	0	0	0	0	0	0	0	0	0	0
DEntrecasteaux	8	Lofty Block	4317.93	0		0			0					0
Freycinet	8	Naracoorte Coastal P	6502.75	0		0	0				0	0	0	0
Furneaux	8	South East Coastal P	2408.52	0	0	0				0				
Lofty Block	8	South East Corner	23772.94	0	0	0		0	0	0	0	0	0	
South East Corner	8	Swan Coastal Plain	27073.29	0	0	0	0	0	0	0	0	0	0	
Swan Coastal Plain	8	Victorian Volcanic P	15172.61	2	0	0	0	0	0	0	2	0	0	0
Warren	8	Warren	10471.63	7	0	0	0		0		0	7	0	0
West and South West	8	West and South West	18498.16	0	0				0	0		0	0	0
Woolnorth	8	Woolnorth	9730.59	0	0	0	0		0	0	0	0		0
finf99_IPR8_TOTALS			126617.98	9	0	0	0	0	0	0	2	7	0	0
		Australian Alps												
Australian Alps	9	Central Highlands	11577.23	0	0	0								
Central Highlands	9	Nandewar	11033.93	0	0					0		0	0	0
Nandewar	9	New England Tablelan	27559.87	0	0	0	0	0	0	0	0	0	0	0
Tasmanian Midlands	9	South Eastern Highla	7718.89	0	0	0				0	0	0	0	0
finf99_IPR9_TOTALS		Tasmanian Midlands	57889.92	0	0	0	0	0	0	0	0	0	0	0
Avon Wheatbelt	10	Avon Wheatbelt	95316.24	13	5	0	0	0	0	0	0	0	0	8
Esperance Plains	10	Esperance Plains	35328.81	0	0	0	0	0	0	0	0	0	0	
Geraldton Sandplains	10	Eyre and Yorke Block	37638.97	18	2	0	0	0	0	0	0	0	2	14
Jarrah Forest	10	Geraldton Sandplains	46384.62	20	4	0	0	0	2	1	10	3	0	0
Mallee	10	Jarrah Forest	80052.23	0	0	0	0			0	0	0	0	0
Riverina	10	Mallee	90287.54	0	0	0	0	0	0	0	0	0	0	0
Victorian Midlands	10	Murray-Darling Depre	37158.16	0	0	0	0	0	0	0	0	0	0	
finf99_IPR10_TOTALS		NSW SouthWestern Slo	422166.57	51	11	0	0	0	2	1	10	3	2	22
		Riverina												
Broken Hill Complex	11	Victorian Midlands	56975.31	0	0	0		0	0	0				0
Burt Plain	11		71814.64	13	0	0	0	0	12	0	1	0	0	0
Carnarvon	11	Broken Hill Complex	90754.84	296	0	0	0	0	0	69	98	36	1	92
Central Ranges	11	Burt Plain	97740.61	1125	0	3	4	81	494	347	196	0	0	0
Channel Country	11	Carnarvon	305308.83	16	6	0	0	0	0	4	0	0	6	0
Coolgardie	11	Central Ranges	127075.98	0	0	0	0	0	0	0	0	0	0	0
Finke	11	Channel Country	55820	0	0	0	0	0	0		0	0	0	0
Gascoyne	11	Coolgardie	181184.53	707	0	0	0	0	7	21	101	310	268	0
Gawler	11	Finke	64439.2	0	0	0	0	0	0	0	0	0	0	0
Gibson Desert	11	Flinders and Olary R	145388.99	2065	0	0	0	0	11	1785	233	36	0	0
Great Sandy Desert	11	Gascoyne	385884.69	7410	25	177	22	375	60	2823	3883	7	38	0
Hampton	11	Gawler	11875.29	0						0		0	0	
Little Sandy Desert	11	Gibson Desert	104090.03	698	0	3	0	5	20	326	312	32	0	0
MacDonnell Ranges	11	Great Sandy Desert	37010.21	2	2	0	0	0	0	0	0	0	0	0
Murchison	11	Great Victoria Deser	275281.96	186	0	0	0	1	0	7	109	5	63	1
Pilbara	11	Hampton	178712.16	3707	0	1	76	145	392	696	887	1182	308	20
Nullarbor	11	Little Sandy Desert	196418.18	0	0	0	0	0	0	0	0	0	0	0
Stony Plains	11	MacDonnell Ranges	181431.47	0	0	0	0	0	0	0	0	0	0	0
Tanami	11	Murchison	320207.12	3931	104	742	209	147	890	1203	611	13	6	6
Yalgoo	11	Nullarbor	36032.36	0	0	0	0		0	0	0		0	0
finf99_IPR11_TOTALS		Pilbara	2923446.4	20156	137	926	311	754	1886	7281	6431	1621	690	119