Supporting Information 2

Article title: Extinction pulse at Eocene–Oligocene boundary drives diversification dynamics of the two Australian temperate floras

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Details of genera across 21 plant families used in the diversification rate analyses: total number of species across all genera, species found in the southwest and southeast, percentage of species within each genera in each region, and divergence time for each genera.

Apiaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Actinotus	21	11	8	52	38	66
Apiopetalum	2	0	0	0	0	66
Mackinlaya	2	0	1	0	50	57
Chlaenosciadium	1	1	0	100	0	38.58
Xanthosia	20	15	10	75	50	38.58
Pentapeltis	2	2	0	100	0	29.81
Platysace	29	19	7	66	24	18.4
Homalosciadium	1	1	0	100	0	18.4
Centella	3	1	2	33	67	15.78
Schoenolaena	1	1	0	100	0	15.78

Asparagaraceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Laxmannia	13	9	4	69	31	19.1
Sowerbaea	5	2	1	40	20	19.1
Lomandra	52	27	27	52	52	18.5
Arthropodium	15	5	9	33	60	17.2
Thysanotus	58	45	11	78	19	17.2
Acanthocarpus	9	7	0	78	0	11.4
Chamaexeros	4	4	0	100	0	11.4
Dichopogon	3	3	1	100	33	NA

Asteraceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Millotia	16	11	7	69	44	15
Myriocephalus	15	9	2	60	13	15
Ewartia	4	0	4	0	100	14
Rhodanthe	45	27	17	60	38	14
Schoenia	5	2	2	40	40	14
Argentipallium	6	3	0	50	0	13
Ozothamnus	54	7	44	13	81	13
Acomis	4	0	1	0	25	12
Gnephosis	17	15	4	88	24	11
Craspedia	30	3	25	10	83	11
Acanthocladium	1	0	1	0	100	10
Siloxerus	4	4	1	100	25	10
Chrysocephalum	9	3	6	33	67	9
Leptorhynchos	10	3	10	30	100	9
Xerochrysum	12	1	9	8	75	9
Ammobium	3	0	2	0	67	8
Pogonolepis	2	2	1	100	50	7
Argyroglottis	1	1	0	100	0	7
Ixodia	2	0	2	0	100	7
Asteridea	9	8	1	89	11	7
Podolepis	14	11	15	79	107	7
Calocephalus	11	3	4	27	36	6
Lawrencella	2	2	0	100	0	6
Stuartina	2	1	2	50	100	6
Odixia	2	0	2	0	100	5
Pterygopappus	1	0	1	0	100	5
Quinetia	1	1	1	100	100	5
Leucochrysum	6	1	4	17	67	5
Decazesia	1	1	0	100	0	5
Calomeria	1	0	1	0	100	5
Cassinia	44	1	42	2	95	4
Haeckeria	2	0	2	0	100	4
Hyalochlamys	1	1	0	100	0	4
Triptilodiscus	1	1	1	100	100	4
Dithyrostegia	2	2	0	100	0	3
Leucophyta	1	1	1	100	100	2
Argyrotegium	4	0	3	0	75	2
Parantennaria	1	0	1	0	100	2
Feldstonia	1	1	0	100	0	2
Podotheca	6	5	1	83	17	2
Polycalymma	1	0	1	0	100	2
Sondottia	2	1	0	50	0	2
Angianthus	20	14	6	70	30	2

Asteraceae continued.

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Lemooria	1	1	1	100	100	2
Pterochaeta	1	1	0	100	0	2
Waitzia	5	5	1	100	20	2
Blennospora	2	2	1	100	50	2
Anemocarpa	3	1	2	33	67	2
Hyalosperma	9	9	4	100	44	2
Eriochlamys	4	0	4	0	100	1
Fitzwillia	1	1	0	100	0	1
Gilruthia	1	1	0	100	0	1
Quinqueremulus	1	1	0	100	0	1
Cephalosorus	1	1	0	100	0	1
Erymophyllum	5	3	0	60	0	1
Bellida	1	1	0	100	0	1
Pithocarpa	4	4	1	100	25	1
Actinobole	4	3	1	75	25	1
Gilberta	1	1	0	100	0	1
Leiocarpa	10	0	10	0	100	1
Chthonocephalus	7	3	1	43	14	0
Trichanthodium	4	2	2	50	50	0

Cyperaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Oreobolus	9	0	6	0	67	69.0
Cladium	2	0	1	0	50	60.0
Morelotia	2	0	0	0	0	58.0
Gymnoschoenus	2	1	1	50	50	51.0
Schoenus	107	77	39	72	36	51.0
Tetraria	10	10	1	100	10	51.0
Costularia	7	3	9	43	129	50.0
Tricostularia	7	5	1	71	14	37.0
Gahnia	36	15	19	42	53	35.0
Mesomelaena	5	5	0	100	0	35.0
Caustis	6	3	4	50	67	23.0
Evandra	2	2	0	100	0	23.0
Lepidosperma	107	68	32	64	30	22.0
Ptilothrix	1	0	1	0	100	19.5
Baumea	17	10	13	59	76	12.73

***Drosera* sections (Droseraceae)**

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Section *Regiae*	1	0	0	0	0	35
Section *Coelophylla*	1	1	1	100	100	28
Section *Arcturia*	2	0	1	0	50	26
Section *Thelocalyx*	2	0	0	0	0	22
Section *Phycopsis*	1	1	1	100	100	20
Section *Ergaleium*	31	26	5	84	16	20
Section *Drosera*	73	0	0	0	0	19
Section *Lasiocephala*	14	0	0	0	0	17
Section *Prolifera*	3	0	0	0	0	14
Section *Meristocaulis*	1	0	0	0	0	12
Section *Arachnopus*	2	0	0	0	0	11
Section *Lamprolepis*	44	35	0	80	0	11
Section *Stelogyne*	1	1	0	100	0	10.5
Section *Stolonifera*	10	10	0	100	0	8
Section *Erythrorhiza*	14	10	4	71	29	8
Section *Ptycnostigma*	3	0	0	0	0	5.5
Section *Bryastrum*	1	0	1	0	100	1

Elaeocarpaceae (Tremandraceae)

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Tetratheca	56	31	23	55	41	38
Tremandra	2	2	0	100	0	24.3
Platytheca	4	4	0	100	0	24.3

Ericaceae (Epacrids)

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Archeria	7	0	5	0	71	43
Needhamiella	1	1	0	100	0	33
Oligarrhena	1	1	0	100	0	33
Sphenotoma	7	7	0	100	0	23.7
Prionotes	1	0	1	0	100	20.5
Cyathodes	3	0	3	0	100	18.6
Dracophyllum	45	0	6	0	13	17.1
Richea	11	0	11	0	100	17.1
Andersonia	41	41	0	100	0	12.9
Sprengelia	7	0	7	0	100	10.8
Cosmelia	1	0	1	0	100	10.8
Leucopogon	249	194	52	78	21	10.8
Pentachondra	4	0	4	0	100	10.8
Astroloma	32	30	3	94	9	10.3
Styphelia	17	7	11	41	65	10.3
Acrothamnus	6	0	3	0	50	8.4
leptecophylla	6	0	5	0	83	8.4
Epacris	53	0	49	0	92	8.3
Rupicola	4	0	4	0	100	8.3
Trochocarpa	8	0	7	0	88	6.8
Acrotriche	19	8	12	42	63	6
Lissanthe	9	5	5	56	56	6
Brachyloma	17	11	8	65	47	5.4
Melichrus	8	1	6	13	75	5.4
Monotoca	12	1	11	8	92	4.13
Montitega	1	0	1	0	100	4.13

Fabaceae (*Acacia*)

Subgenus	total spp.	Divergence (Ma)
Alatae	21	
Botrycephalae	42	3.6
Juliflorae pp.	235	13.45
Lycopodiifoliae	17	NA
Phyllodineae	408	polyphyletic
Plurinerves pp.	212	13.45
Pulchelloidea	27	21.25

Fabaceae (Mirbelioids)

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Gompholobium	46	28	13	61	28	49
Sphaerolobium	22	20	2	91	9	49
Isotropis	14	5	2	36	14	49
Daviesia	126	93	36	74	29	47.5
Goodia	6	2	5	33	83	44
Latrobea	9	9	0	100	0	31
Erichsema	1	1	0	100	0	25.5
Viminaria	1	1	1	100	100	25.5
Aotus	25	20	7	80	28	25
Almaleea	5	0	5	0	100	25
Eutaxia	23	21	2	91	9	25
Pultenaea	131	32	104	24	79	25
Jacksonia	74	47	4	64	5	24
Leptosema	13	4	1	31	8	24
Gastrolobium	112	109	0	97	0	23.5
Muelleranthus	4	0	0	0	0	22.5
Chorizema	26	25	1	96	4	22
Stonesiella	1	0	1	0	100	21.5
Dillwynia	39	17	27	44	69	18.5
Euchilopsis	1	1	0	100	0	17.5
Urodon	4	4	0	100	0	17.5
Mirbelia	38	27	10	71	26	16
Platylobium	9	0	9	0	100	15.5
Bossiaea	80	34	37	43	46	15.5
Podolobium	6	0	6	0	100	15.5
Callistachys	1	1	0	100	0	15
Oxylobium	5	0	5	0	100	14.5
Nemcia	now in *Gastrolobium*					12
Phyllota	10	3	7	30	70	9
Ptychosema	1	1	0	100	0	8
Aenictophyton	2	0	0	0	0	8
Brachysema	now in *Gastrolobium*					7

Goodeniaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Dampiera	71	51	14	72	20	39.4
Lechenaultia	30	24	1	80	3	60.6
Brunonia	1	1	1	100	100	55
Anthotium	5	5	0	100	0	39.4
Goodenia	211	64	51	30	24	30
Scaevola	83	50	16	60	19	30
Coopernookia	6	3	3	50	50	24
Velleia	21	12	10	57	48	21
Diaspasis	1	1	0	100	0	17.65
Pentaptilon	1	1	0	100	0	11.2
Verreauxia	3	3	0	100	0	11.2
Selliera	3	0	1	0	33	6.6

Haemodoraceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Tribonanthes	6	6	0	100	0	42
Dilatris	4	0	0	0	0	42
Lachnanthes	1	0	0	0	0	37
Haemodorum	24	10	5	42	21	37
Schiekia	1	0	0	0	0	31
Xiphidium	2	0	0	0	0	31
Phlebocarya	3	3	0	100	0	24.5
Conostylis	45	45	0	100	0	17.7
Blancoa	1	0	0	0	0	17.7
Wachendorfia	4	0	0	0	0	15.4
Barberetta	1	0	0	0	0	15.4
Anigozanthos	11	11	0	100	0	13.2
Macropidia	1	1	0	100	0	13.2

Hemerocallidaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Tricoryne	14	8	5	57	36	47
Corynotheca	6	1	1	17	17	36
Chamaescilla	4	4	1	100	25	34
Caesia	12	6	4	50	33	33
Arnocrinum	3	3	0	100	0	27
Stawellia	2	2	0	100	0	13
Stypandra	2	2	1	100	50	13
Thelionema	3	0	3	0	100	10
Herpolirion	1	0	1	0	100	10
Johnsonia	6	6	0	100	0	9
Dianella	30	2	17	7	57	9
Hodgsoniola	1	1	0	100	0	5
Hensmania	3	3	0	100	0	5

Lamiaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Brachysola	2	2	0	100	0	37
Physopsis	5	4	0	80	0	31
Prostanthera	104	23	74	22	71	29.5
Westringia	31	9	24	29	77	29.5
Pityrodia	20	6	1	30	5	26
Dicrastylis	33	16	2	48	6	25.1
Cyanostegia	5	4	0	80	0	25
Lachnostachys	6	6	0	100	0	24
Chloanthes	4	1	3	25	75	19
Hemiphora	5	5	0	100	0	19
Newcastelia	10	2	2	20	20	15

Loganiaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Strychnos	4	0	2	0	50	38
Logania	35	19	13	54	37	23.12
Mitrasacme	49	3	11	6	22	22.81
Geniostoma	25	0	1	0	4	20
Orianthera	13	10	2	77	15	17.35
Mitreola	1	0	0	0	0	17.35
Schizacme	4	0	2	0	50	16.44
Phyllangium	5	4	3	80	60	16.44
Adelphacme	1	1	0	100	0	NA

Malvaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Strychnos	4	0	2	0	50	38
Logania	35	19	13	54	37	23.12
Mitrasacme	49	3	11	6	22	22.81
Geniostoma	25	0	1	0	4	20
Orianthera	13	10	2	77	15	17.35
Mitreola	1	0	0	0	0	17.35
Schizacme	4	0	2	0	50	16.44
Phyllangium	5	4	3	80	60	16.44
Adelphacme	1	1	0	100	0	NA

Myrtaceae (Chamelaucieae tribe)

genera	total species	SW species	SE species	% SW	% SE	divergence (Ma)
Ochrosperma	6	0	6	0	100	47
Micromyrtus	50	19	15	38	30	40
Baeckea	111	69	13	62	12	38
Thryptomene	44	24	5	55	11	38
Homalocalyx	11	9	1	82	9	34
Calytrix	91	56	9	62	10	31
Hypocalymma	33	32	0	97	0	31
Pileanthus	8	7	0	88	0	30
Babingtonia	2	NA	NA	0	0	29
Actinodium	2	2	0	100	0	29
Euryomyrtus	7	4	2	57	29	25
Sannantha	12	0	10	0	83	25
Chamelaucium	39	37	0	95	0	25
Verticordia	102	96	0	94	0	25
Homoranthus	31	0	23	0	74	16
Darwinia	71	59	13	83	18	16
Balaustion	1	1	0	100	0	NA
Corynanthera	1	1	0	100	0	NA
Cheyniana	2	2	0	100	0	NA
Aluta	5	3	0	60	0	NA
Triplarina	7	0	5	0	71	NA
Enekbatus	10	9	0	90	0	NA
Malleostemon	13	8	0	62	0	NA
Rinzia	13	13	NA	100	NA	NA
Astartea	27	26	0	96	0	NA
Scholtzia	49	49	0	100	0	NA

Myrtaceae (Melaleuceae tribe)

genera	total species	SW species	SE species	% SW	% SE	divergence (Ma)
Melaleuca	253	184	57	72.7	22.5	33
Calothamnus	42	41	0	97.6	0	26.1
Lamarchea	2	1	0	50.0	0	NA
Conothamnus	3	3	0	100	0	NA
Beaufortia	20	20	0	100	0	26.1
Regelia	5	5	0	100	0	NA
Phymatocarpus	3	3	0	100	0	NA
Eremaea	17	17	0	100	0	NA
Callistemon	48	7	39	14.6	81.3	36
Melaleuca	253	184	57	72.7	22.5	33
Calothamnus	42	41	0	97.6	0	26.1
Beaufortia	20	20	0	100	0	26.1
Callistemon	48	7	39	14.6	81.3	36

Myrtaceae (Leptospermeae tribe)

genera	total species	SW species	SE species	%SW	%SE	divergence (Ma)
Agonis	4	4	0	100	0	22.9
Asteromyrtus	6	0	0	0	0	29.7
Homalospermum	1	1	0	100	0	NA
Kunzea	60	30	22	50	36.7	33
Leptospermum	89	19	64	21.3	71.9	32
Neofabricia	3	0	0	0	0	NA
Pericalymma	4	4	0	100	0	22.9
Taxandria	11	11	0	100	0	NA

Orchidaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Megastylis	7	0	0	0	0	50
Waireia	1	0	0	0	0	41.5
Cryptostylis	23	1	2	4	9	40
Aporostylis	1	0	0	0	0	35
Burnettia	1	0	1	0	100	35
Genoplesium	47	0	6	0	13	33
Microtis	19	6	5	32	26	31.5
Rhizanthella	3	1	1	33	33	31.5
Townsonia	2	0	1	0	50	31
Adenochilus	2	0	0	0	0	28.5
Leporella	1	1	1	100	100	28
Spiculaea	1	1	0	100	0	22
Acianthus	20	0	2	0	10	21
Eriochilus	9	-	-	0	0	19.5
Corybas	132	1	4	1	3	19
Cyrtostylis	5	1	1	20	20	19
Paracaleana	13	1	0	8	0	19
Lyperanthus	2	1	1	50	50	18
Pyrorchis	2	2	1	100	50	18
Arthrochilus	15	0	1	0	7	16
Chiloglottis	23	0	3	0	13	16
Drakaea	10	5	0	50	0	16
Rimacola	1	0	1	0	100	12
Diuris	71	51	15	72	21	10.5
Orthoceras	2	0	1	0	50	10.5
Leptoceras	1	1	1	100	100	10
Epiblema	1	1	0	100	0	10
*Pheladenia**	1	1	1	100	100	7.5
Cyanicula	10	1	0	10	0	7
Caleana	1	0	1	0	100	7
Calochilus	27	1	5	4	19	7
Thelymitra	110	45	15	41	14	7
Glossodia	2	1	1	50	50	6
Ericksonella	1	-	-	0	0	5.5
Elythranthera	2	2	0	100	0	5
Praecoxanthus	1	1	0	100	0	5
Caladenia	267	165	205	62	77	5

Proteaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Bellendena	1	0	1	0	100	90
Eidothea	2	0	1	0	50	86
Franklandia	2	2	0	100	0	79
Banksia	170	156	16	92	9	61
Lomatia	12	0	7	0	58	61
Agastachys	1	0	1	0	100	59
Symphionema	2	0	2	0	100	59
Stirlingia	7	7	0	100	0	58
Petrophile	66	58	6	88	9	56
Xylomelum	6	2	3	33	50	54
Isopogon	38	30	8	79	21	44
Telopea	5	0	5	0	100	43
Conospermum	53	43	10	81	19	41
Synaphea	51	51	0	100	0	41
Orites	8	0	6	0	75	41
Macademia	9	0	4	0	44	41
Stenocarpus	23	0	2	0	9	39
Strangea	3	2	1	67	33	39
Alloxylon	4	0	1	0	25	38
Cenarrhenes	1	0	1	0	100	37
Adenanthos	33	31	2	94	6	36.7
Triunia	4	0	2	0	50	35
Lambertia	10	9	1	90	10	35
Dryandra	94	94	0	100	0	20
Hakea	150	95	43	63	29	17.51
Floydia	1	0	1	0	100	17
Grevillea	362	187	125	52	35	15.8
Persoonia	103	42	58	41	56	14
Hicksbeachia	2	0	1	0	50	12.8
Acidonia	1	1	0	100	0	12
Helicia	97	0	2	0	2	5.91

Restionaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Sporadanthus	8	2	4	25	50	39
Calorophus	2	0	2	0	100	36
Lepyrodia	22	13	9	59	41	36
Alexgeorgea	3	3	0	100	0	36
Loxocarya	5	5	0	100	0	35
Tremulina	2	2	0	100	0	32
Eurychorda	1	0	1	0	100	31
Dapsilanthus	3	0	0	0	0	31
Platychorda	2	2	0	100	0	31
Chordifex	21	17	4	81	19	31
Apodasmia	3	1	1	33	33	29.3
Baloskion	8	0	8	0	100	27.9
Leptocarpus	3	3	1	100	33	26.2
Winifredia	1	0	1	0	100	25.8
Catacolea	1	1	0	100	0	25.6
Empodisma	3	1	1	33	33	23.4
Taraxis	1	1	0	100	0	23.4
Hypolaena	8	8	1	100	13	22.5
Chaetanthus	3	3	0	100	0	22.5
Desmocladus	15	15	1	100	7	22.4
Cytogonidium	1	1	0	100	0	19
Tyrbastes	1	1	0	100	0	19
Harperia	4	4	0	100	0	17.9
Lepidobolus	9	7	1	78	11	15.9
Coleocarya	1	0	1	0	100	15.9
Kulinia	1	1	0	100	0	15.2
Onychosepalum	3	3	0	100	0	15.2

Rhamnaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Cryptandra	57	33	20	58	35	32
Polianthion	4	3	1	75	25	32
Stenanthemum	31	23	4	74	13	31
Spyridium	46	18	33	39	72	29.8
Trymalium	13	12	1	92	8	27.4
Pomaderris	75	6	63	8	84	20.6
Siegfriedia	1	1	0	100	0	20.6
Blackallia	1	1	0	100	0	13.1
Papistylus	2	2	0	100	0	13.1

Rutaceae

genera	total species	SW species	SE species	SW%	SE%	divergence (Ma)
Philotheca	54	24	25	44	46	35
Boronia	148	53	63	36	43	32
Crowea	3	1	2	33	67	24
Correa	12	1	12	8	100	22
Diplolaena	15	15	0	100	0	22
Leionema	26	0	24	0	92	22
Zieria	59	0	49	0	83	22
Chorilaena	1	1	0	100	0	19
Nematolepis	7	1	6	14	86	19
Phebalium	30	13	14	43	47	19
Eriostemon	2	0	1	0	50	18
Geleznowia	2	2	0	100	0	9
Drummondita	10	6	0	60	0	7

Stylidiaceae

genera	total species	SW species	SE species	%SW	%SE	divergence (Ma)
Donatia	2	0	1	0	50	66
Oreostylidium	1	now in *Stylidium*				2
Stylidium	282	202	20	72	7	38
Levenhookia	11	9	4	82	36	38
Forstera	6	0	1	0	16	42
Phyllache	4	0	1	0	25	42