

Short-interval, high-severity wildfire depletes diversity of both extant vegetation and soil seed banks in fire-tolerant eucalypt forests

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Table S1 Fire history for each site sampled as part of this study.

		Wildfire History			Fire History—prior to 2003		Time Since Last Wildfire (years)
Site	Wildfire Frequency (since 2003)	2003	2007	2013	Wildfire	Plan Burn	
Shrubby Dry Forest							
GM38	Unburned				1939	1994	78.9
GM74	Unburned				Unburnt	1990	150.0
GM75	Unburned				Unburnt		150.0
GM77	Unburned				Unburnt	1996	150.0
GM78	Unburned				Unburnt		150.0
GM03	Single 2013			✓	Unburnt	1988	4.8
GM04	Single 2013			✓	Unburnt	1988	4.8
GM80	Single 2013			✓	Unburnt	1995	4.8
GM83	Single 2013			✓	Unburnt	1995	4.8
GM100	Single 2013			✓	Unburnt	1995	4.8
GM18	Single 2007		✓		Unburnt	1994	10.9
GM20	Single 2007		✓		Unburnt	1994	10.9
GM86	Single 2007		✓		Unburnt		10.9
GM102	Single 2007		✓		Unburnt	1987	10.9
GM104	Single 2007		✓		Unburnt	1993	10.9
GM05	Double		✓	✓	Unburnt	1992	4.8
GM07	Double		✓	✓	Unburnt	1992	4.8
GM11	Double		✓	✓	Unburnt	1992	4.8
GM16	Double		✓	✓	1939	1992	4.8
GM25	Double		✓	✓	Unburnt	1992	4.8
Sub-Alpine Woodland							
EPC2	Unburned				1939	None	79.0
EPC3	Unburned				1939	None	79.0
EPC4	Unburned				1939	None	79.0
EPC5	Unburned				1939	None	79.0
EPS2	Single	✓			1939	None	14.9
EPS3	Single	✓			1939	None	14.9
EPS4	Single	✓			1939	None	14.9
EPS5	Single	✓			1939	None	14.9
EPD2	Double	✓		✓	1985	None	4.9
EPD3	Double	✓	✓		1939	None	10.9
EPD4	Double	✓		✓	1985	None	4.9
EPD5	Double	✓		✓	1939	None	4.8
EPT2	Triple	✓	✓	✓	1985	None	4.9
EPT3	Triple	✓	✓	✓	1985	None	4.9
EPT4	Triple	✓	✓	✓	1939	None	4.8
EPT5	Triple	✓	✓	✓	1939	None	4.8

Table S2 Description of plant traits and their defining attributes.

Trait and Attributes	Abbreviation	Description
Life form ^A		
Chamaephyte	C	Persistent buds ≥ 1 cm and $< 20\text{--}30$ cm above ground surface
Geophyte	G	Persistent buds buried to a depth of 2–3 cm
Hemicryptophytes ^B	H	Persistent buds are in the immediate vicinity of the soil surface only, maximum height 1 cm
Erect Rosette	HE	^A All leaves radical, leaves always erect
Flat or Versatile Rosette	HF	All leaves radical, leaves flat or erect depending on conditions
Partial Rosette	HP	Radical and cauline leaves present, largest leaves on lower stem
Proto-hemicryptophyte	HPr	All leaves cauline, largest leaves towards the middle of stem
Phanerophyte	P	Persistent buds $> 20\text{--}30$ cm on stems above the ground, includes twiners, vines, and epiphytes
Therophyte	T	Annual (monocarpic) plants, includes some facultatively perennial plants (polycarpic) that were judged to be predominantly annual
Dispersal mode ^C		
Anemochory	ane	Wind-dispersed; pappus, coma, samara, or similar attachment
Barochory	bar	Gravity-dispersed; no apparent seed dispersal mechanism
Endozoochory	end	Ingestion by vertebrates (mainly mammals and birds); fleshy dispersal units (berries, drupes, or aggregate fruits)
Epizoochory	epi	Dispersal by adhesion to the outside of animals—usually on the hair of mammals, via appendages including barbs, hooks, spines, burrs, or awns
Mobile	mob	Long-distance wind dispersal of small seed; includes barochores with seed dimensions < 0.5 mm, and mass generally < 0.1 mg
Myrmecochory	myr	Ant-dispersed, elaiosome attached to seed to attract ants
Fire Response ^D		
Obligate resprouters	R	Plants that rely on resprouting to regenerate after fire
Obligate seeders	S	Plants that do not resprout and rely on seeding to regenerate after fire
Facultative resprouters	SR	Plants that can resprout and germinate seeds after fire
Weak seeders	Sr	Seeders that also have some capacity to resprout
Weak resprouters	Rs	Resprouters that have some capacity to regenerate from seed

^A[1], ^BGrowth forms within hemicryptophytes follow [2], ^C[3], ^D[4]

Table S3 Total seedling density (germinants m⁻²) per treatment (C, control; S, smoke only; LHS, low heat plus smoke; and HHS, high heat plus smoke) for all species in soils from Shrubby Dry Forest and Sub-Alpine Woodland. For each species, density calculations only included sites in which species had germinated. Significance of differences in soil treatment effects were determined via Kruskal–Wallis followed by Dunn’s pairwise comparisons where *P* ≤0.05. Significant treatment effects are indicated by different letters and are in bold (NS = not significant). For both the soil seed bank and corresponding extant vegetation, frequency (Freq) is the proportion of sites that included a species. Importance Values (IV) were calculated as the sum of frequency of occurrence and relative density with a possible maximum value of 200. Data on plant functional traits were sourced from existing publications [5,6] as well as the AusTraits database [4]. Nomenclature follows VicFlora (<https://vicflora.rbg.vic.gov.au/>).

		Shrubby Dry Forest								Sub-Alpine Woodland												
										Extant Vegetation									Extant Vegetation			
		Soil Seed Bank (density m ⁻²)				Soil Seed Bank					Soil Seed Bank (density m ⁻²)				Soil Seed Bank					Trait		
						Rel Density (%)				Freq (%)					Rel Density (%)				Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C
Family	Species	C	S	LHS	HHS	Freq (%)		IV (%)		C	S	LHS	HHS	Freq (%)		IV (%)						
FABACEAE	<i>Acacia alpina</i>									0.0	0.0	60.5	60.5	6.3	0.13	6.4		18.8	P	myr	S	
FABACEAE	<i>Acacia dealbata</i> subsp. <i>dealbata</i>	0.0	0.0	0.0	80.6	10.0	0.22	10.2	15.0										P	myr	Sr	
FABACEAE	<i>Acacia mearnsii</i>								15.0										P	myr	Sr	
FABACEAE	<i>Acacia mucronata</i> var. <i>longifolia</i>								5.0										P	myr	Rs	
FABACEAE	<i>Acacia obliquinervia</i>																	18.8	P	myr	S	
FABACEAE	<i>Acacia paradoxa</i>	0.0	0.0	30.2	0.0	5.0	0.06	5.1	10.0										P	myr	S	
FABACEAE	<i>Acacia pycnantha</i>	0.0	0.0	30.2	0.0	5.0	0.03	5.0	75.0										P	myr	S	
FABACEAE	<i>Acacia terminalis</i>	0.0	0.0	60.5	0.0	5.0	0.06	5.1	5.0										P	myr	Sr	
FABACEAE	<i>Acacia verniciflua</i> ss								5.0										P	myr	S	
ROSACEAE	<i>Acaena novaezelandiae</i>																	62.5	C	epi	SR	
POLYGONACEAE	<i>Acetocella vulgaris</i> *									43.0a	39.8a	130.5ab	151.2b	68.8	7.57	76.3		81.3	HP	bar	SR	
ORCHIDACEAE	<i>Acianthus</i> spp.	18.1	18.1	0.0	0.0	20.0	0.17	20.2											G	mob	R	
ERICACEAE	<i>Acotriche serrulata</i>								5.0										P	end	R	
ERICACEAE	<i>Acrothamnus hookeri</i>																	18.8	P	end	S	
ERICACEAE	<i>Acrothamnus maccraei</i>																	12.5	P	end	S	
ERICACEAE	<i>Acrothamnus montanus</i>																	50.0	P	end	SR	
PTERIDIACEAE	<i>Adiantum aethiopilum</i>								5.0										HPr	mob	R	
POACEAE	<i>Agrostis capillaris</i> *									0.0	0.0	30.2	0.0	6.3	0.03	6.3			HE	epi	SR	
POACEAE	<i>Agrostis/Lachnagrostis</i> spp.								15.0										T	epi	SR	
POACEAE	<i>Aira caryophyllea</i> *																	6.3	T	mob	S	
LAMIACEAE	<i>Ajuga australis</i>								5.0										HP	myr	S	
POACEAE	<i>Anthosachne rectiseta</i>									0.0	15.1	0.0	15.1	12.5	0.07	12.6			HE	epi	R	
POACEAE	<i>Anthoxanthum odoratum</i> *	30.2	0.0	0.0	0.0	5.0	0.03	5.0		0.0	30.2	0.0	0.0	12.5	0.10	12.6	18.8		HE	epi	Rs	
FABACEAE	<i>Aotus ericoides</i>	0.0	0.0	60.5	0.0	5.0	0.06	5.1	5.0										P	myr	Rs	
ASPARAGACEAE	<i>Arthropodium milleflorum</i> s.l.																	43.8	G	bar	R	
ASPARAGACEAE	<i>Arthropodium</i> spp.								5.0										G	bar	R	
RUBIACEAE	<i>Asperula conferta</i>									30.2	50.4	0.0	0.0	12.5	0.26	12.8	37.5		C	bar	R	
RUBIACEAE	<i>Asperula gunnii</i>									0.0	20.2	0.0	10.1	18.8	0.10	18.8	12.5		C	bar	R	
RUBIACEAE	<i>Asperula polymera</i>																6.3		C	bar		
RUBIACEAE	<i>Asperula pusilla</i>									30.2	0.0	0.0	0.0	6.3	0.03	6.3	12.5		C	bar	R	
RUBIACEAE	<i>Asperula scoparia</i>								5.0	0.0	0.0	60.5	0.0	6.3	0.07	6.3	18.8		C	end	Rs	
ERICACEAE	<i>Astroloma humifusum</i>								20.0										P	end	R	

		Shrubby Dry Forest								Sub-Alpine Woodland												
Family	Species	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Trait				
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)		Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)		IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C
ARALIACEAE	<i>Astrotricha parvifolia</i> subsp. 2								10.0									P	bar	S		
POACEAE	<i>Australopyrum velutinum</i>																6.3	HE	epi	R		
POACEAE	<i>Austrostipa</i> spp.								5.0								6.3	HE	epi	R		
PITTOSPORACEAE	<i>Billardiera mutabilis</i>	17.3	13.0	25.9	30.2 NS	35.0	0.55	35.6	65.0									P	end	SR		
BLECHNACEAE	<i>Blechnum minus</i>									0.0	0.0	30.2	0.0	6.3	0.03	6.3		HPr	mob	R		
RUTACEAE	<i>Boronia algida</i>																12.5	P	bar	Sr		
FABACEAE	<i>Bossiaea bracteosa</i>																12.5	P	myr			
FABACEAE	<i>Bossiaea distichoclada</i>																6.3	P	myr			
FABACEAE	<i>Bossiaea foliosa</i>																12.5	P	myr	SR		
ERICACEAE	<i>Brachyloma daphnoides</i>								15.0									P	myr	Rs		
ASTERACEAE	<i>Brachyscome decipiens</i>									0.0	0.0	15.1	15.1	12.5	0.07	12.6	31.3	HF	ane	S		
ASTERACEAE	<i>Brachyscome spathulata</i>																18.8	HP	ane	R		
GOODENIACEAE	<i>Brunonia australis</i>																6.3	HE	ane	R		
PITTOSPORACEAE	<i>Bursaria spinosa</i> subsp. spinosa								30.0									P	ane	R		
ASPHODELACEAE	<i>Caesia calliantha</i>	30.2	0.0	0.0	0.0	5.0	0.03	5.0										G	myr	Rs		
ORCHIDACEAE	<i>Caladenia alpina</i>																18.8	G	mob	R		
CULCITACEAE	<i>Calochlaena dubia</i>	30.2	0.0	0.0	0.0	5.0	0.03	5.0		22.7	0.0	7.6	0.0	18.8	0.13	18.9		G	mob	R		
BRASSICACEAE	<i>Cardamine lilacina</i>																6.3	HP	bar	S		
BRASSICACEAE	<i>Cardamine occulata</i> *									0.0	0.0	0.0	30.2	6.3		6.3		T	bar	S		
BRASSICACEAE	<i>Cardamine papillata</i>																18.8	HP	bar	S		
CYPERACEAE	<i>Carex breviculmis</i>	10.1	10.1	20.2	10.1	10.0	0.14	10.1	5.0	135.5	133.3	106.4	71.7 NS	93.8	13.19	106.9	75.0	HE	bar	R		
ASTERACEAE	<i>Cassinia aculeata</i>	30.2	24.2	12.1	39.3 NS	30.0	0.97	31.0	5.0	0.0	0.0	60.5	0.0	6.3	0.07	6.3	37.5	P	ane	S		
ASTERACEAE	<i>Cassinia longifolia</i>	53.8	68.9	77.3	72.2 NS	55.0	4.48	59.5	65.0									P	ane	S		
LAURACEAE	<i>Cassytha melantha</i>								15.0									EPI	end	S		
ASTERACEAE	<i>Celmisia</i> sp.																25.0	HF	ane			
ASTERACEAE	<i>Celmisia tomentella</i>																31.3	HF	ane	SR		
GENTIANACEAE	<i>Centaurium erythraea</i> *	133.0	217.7	181.4	211.7 NS	15.0	3.40	18.4										T	mob	Sr		
CARYOPHYLLACEAE	<i>Cerastium glomeratum</i> ss *																6.3	T	mob	S		
CARYOPHYLLACEAE	<i>Cerastium vulgare</i> *	10.1a	20.2ab	10.1a	85.7b	20.0	0.69	20.7		13.4	30.2	33.6	16.8 NS	43.8	0.93	44.7	37.5	HP	bar	S		
PTERIDIACEAE	<i>Chelianthes austrotenuifolia</i>	30.2	0.0	0.0	0.0	10.0	0.06	10.1	5.0									HE	mob	R		
ORCHIDACEAE	<i>Chiloglottis</i> sp.																6.3	G	mob	R		
ASTERACEAE	<i>Chrysocephalum apiculatum</i> subsp. apiculatum																18.8	HP	ane	Rs		
ASTERACEAE	<i>Cirsium vulgare</i> *																12.5	T	ane	Sr		
RANUNCULACEAE	<i>Clematis aristata</i>	30.2	45.4	0.0	0.0	10.0	0.14	10.1	10.0									P	ane	Rs		
RANUNCULACEAE	<i>Clematis glycinoides</i>								10.0									P	ane	R		
RUBIACEAE	<i>Coprosma hirtella</i>																37.5	P	end	R		
RUBIACEAE	<i>Coprosma nivalis</i>																6.3	P	end	S		
RUBIACEAE	<i>Coprosma quadrifida</i>								10.0									P	end	SR		

		Shrubby Dry Forest								Sub-Alpine Woodland												
Family	Species	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Trait				
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)		Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)		IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C
ASTERACEAE	<i>Coronidium monticola</i>									45.4	30.2	30.2	0.0	6.3	0.23	6.5	50.0	HP	ane	R		
ASTERACEAE	<i>Coronidium scorpioides</i>								5.0								12.5	HP	ane	Rs		
RUTACEAE	<i>Correa reflexa</i>	0.0	0.0	0.0	30.2	10.0	0.06	10.1	5.0									P	myr	Rs		
ASTERACEAE	<i>Cotula alpina</i>																12.5	HF	bar	R		
ASTERACEAE	<i>Craspedia gracilis</i>																6.3	HP	ane	R		
ASTERACEAE	<i>Cymbonotus</i> sp.								5.0									HF	bar	R		
POACEAE	<i>Dactylis glomerata</i> *																6.3	HF	bar			
FABACEAE	<i>Daviesia buxifolia</i>	3.8a	1.9a	56.7b	54.8b	55.0	1.71	56.7	60.0									P	myr	R		
FABACEAE	<i>Daviesia latifolia</i>								5.0									P	myr	Rs		
FABACEAE	<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>									30.2	0.0	30.2	30.2	6.3	0.10	6.3	18.8	P	myr	Rs		
FABACEAE	<i>Desmodium gunnii</i>								10.0									HPr	epi	R		
POACEAE	<i>Deyeuxia quadriseta</i>	30.2b	0.0a	33.6b	26.9b	35.0	0.75	35.7	30.0									HE	epi	R		
POACEAE	<i>Deyeuxia</i> sp.									10.1	0.0	20.2	10.1	12.5	0.13	12.6		HE	epi	R		
LILIACEAE	<i>Dianella revoluta</i> var. <i>revoluta</i>								45.0									HE	end	R		
LILIACEAE	<i>Dianella tasmanica</i>									0.0	0.0	60.5	0.0	6.3	0.07	6.3	25.0	HE	end	R		
CONVOLVULACEAE	<i>Dichondra repens</i>	20.2	0.0	342.7	121.0	10.0	1.33	11.3	20.0	10.1a	10.1a	211.7b	151.2ab	12.5	1.26	13.8	12.5	HF	bar	Sr		
FABACEAE	<i>Dillwynia cinerascens</i>	0.0	0.0	0.0	30.2	5.0	0.03	5.0										P	myr	S		
FABACEAE	<i>Dillwynia juniperina</i>	0.0	0.0	20.2	10.1	15.0	0.08	15.1	5.0									P	myr	S		
FABACEAE	<i>Dillwynia sieberi</i>	30.2	0.0	0.0	0.0	5.0	0.03	5.0										P	myr	S		
DROSERACEAE	<i>Drosera auriculata</i>	0.0	10.1	30.2	20.2	10.0	0.17	10.2										G	mob	Rs		
BORAGINACEAE	<i>Echium plantagineum</i> *									0.0	15.1	15.1	90.7	6.3	0.26	6.5		T	end	S		
CHENOPODIACEAE	<i>Einadia hastata</i>	0.0	0.0	30.2	0.0	5.0	0.03	5.0	10.0									C	end	S		
POACEAE	<i>Entolasia marginata</i>	6.0	18.1	18.1	6.0	20.0	0.22	20.2										HPr	bar	R		
ERICACEAE	<i>Epacris impressa</i> var. <i>impressa</i>								10.0									P	mob	SR		
ONOGRACEAE	<i>Epilobium billardiereanum</i> subsp. <i>cinereum</i>									30.2	0.0	0.0	0.0	12.5	0.07	12.6	12.5	HPr	ane	R		
ONAGRACEAE	<i>Epilobium billardiereanum</i> subsp. <i>hydrophilum</i>									22.7	0.0	7.6	22.7	25.0	0.23	25.2		HPr	ane	R		
ONAGRACEAE	<i>Epilobium curtisiae</i>									0.0	0.0	0.0	30.2	6.3	0.03	6.3		HPr				
ONAGRACEAE	<i>Epilobium gunnianum</i>									0.0	0.0	90.7	0.0	6.3	0.10	6.3		HPr		Sr		
ONAGRACEAE	<i>Epilobium</i> sp.																25.0	HPr	ane			
ONAGRACEAE	<i>Eplobium ciliatum</i> *									24.2	12.1	18.1	0.0	18.8	0.30	19.0		HP	ane			
ASTERACEAE	<i>Erigeron bonariense</i> *	7.6ab	3.8a	30.2b	3.8a	35.0	0.33	35.3		0.0	0.0	30.2	0.0	12.5	0.07	12.6		T	ane	S		
ASTERACEAE	<i>Erigeron</i> sp.	4.3	28.8	17.3	14.4 NS	65.0	1.24	66.2	10.0	10.1	0.0	5.0	15.1	31.3	0.20	31.4		T	ane	S		
ASTERACEAE	<i>Erigeron sumatrensis</i> *	13.7	16.5	27.5	5.5 NS	35.0	0.64	35.6		0.0	12.1	0.0	18.1	31.3	0.17	31.4		T	ane	S		
PHRYMACEAE	<i>Erythranthe moschata</i> *									20.2	0.0	0.0	60.5	18.8	0.26	19.0		HPr				
MYRTACEAE	<i>Eucalyptus cypellocarpa</i>	0.0	0.0	30.2	0.0	5.0	0.03	5.0	5.0									P	bar	R		
MYRTACEAE	<i>Eucalyptus delegatensis</i>																6.3	P	bar	S		
MYRTACEAE	<i>Eucalyptus globoidea</i>								10.0									P	bar	R		

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Family	Species	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Trait	Dispersal mode ^B	Fire Response ^C
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)		Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)				
MYRTACEAE	<i>Eucalyptus globulus</i>								20.0									P	bar	R
MYRTACEAE	<i>Eucalyptus goniocalyx</i> subsp. <i>goniocalyx</i>								10.0									P	bar	R
MYRTACEAE	<i>Eucalyptus macroryncha</i>	30.2	0.0	0.0	0.0	10.0	0.06	10.1	40.0									P	bar	R
MYRTACEAE	<i>Eucalyptus muelleriana</i>	15.1	15.1	0.0	0.0	10.0	0.06	10.1	75.0									P	bar	R
MYRTACEAE	<i>Eucalyptus pauciflora</i>																56.3	P	bar	R
MYRTACEAE	<i>Eucalyptus pauciflora</i> subsp. <i>niphophila</i>																43.8	P	bar	R
MYRTACEAE	<i>Eucalyptus pauciflora</i> subsp. <i>pauciflora</i>																6.3	P	bar	R
MYRTACEAE	<i>Eucalyptus polyanthemos</i> subsp. <i>vestita</i>								60.0									P	bar	R
MYRTACEAE	<i>Eucalyptus sieberi</i>	0.0	30.2	0.0	0.0	5.0	0.03	5.0	70.0									P	bar	R
MYRTACEAE	<i>Eucalyptus tricarpa</i>								30.0									P	bar	R
ASTERACEAE	<i>Euchiton involucratus</i>	0.0	0.0	15.1	37.8	15.0	0.19	15.2		10.1	0.0	20.2	10.1	18.8	0.13	18.9		HPr	ane	S
ASTERACEAE	<i>Euchiton japonicus</i>	20.2	20.2	10.1	20.2 NS	20.0	0.39	20.4		24.2	18.1	18.1	18.1 NS	25.0	0.43	25.4		HP	ane	Sr
OROBANCHACEAE	<i>Euphrasia collina</i> subsp. <i>collina</i>																6.3	C		S
SANTALACEAE	<i>Exocarpos cuppressiformis</i>								5.0									P	end	Rs
SANTALACEAE	<i>Exocarpos</i> sp.								10.0									P		
SANTALACEAE	<i>Exocarpos strictus</i>								5.0									P	end	R
CYPERACEAE	<i>Gahnia microstachya</i>	0.0	0.0	0.0	30.2	5.0	0.03	5.0	35.0									HE	bar	R
RUBIACEAE	<i>Galium binifolium</i> subsp. <i>conforme</i>	51.8	75.6	62.6	75.6 NS	40.0	3.40	43.4		0.0	0.0	60.5	0.0	6.3	0.13	6.4		C	bar	S
RUBIACEAE	<i>Galium leiocarpum</i>	0.0	0.0	0.0	151.2	5.0	0.14	5.1	10.0									C	bar	S
RUBIACEAE	<i>Galium</i> sp.	15.1	7.6	15.1	7.6	20.0	0.17	20.2	10.0	0.0	0.0	0.0	60.5	6.3	0.07	6.3	12.5	C	bar	S
ASTERACEAE	<i>Gamochaeta americana purpurea</i> *	13.4	6.7	20.2	3.4 NS	40.0	0.36	40.4										T	ane	S
ASTERACEAE	<i>Gamochaeta calviceps</i> *	26.5	22.7	3.8	7.6 NS	35.0	0.44	35.4										T	ane	S
ASTERACEAE	<i>Gamochaeta purpurea</i> *	0.0	0.0	15.1	15.1	10.0	0.06	10.1										T	ane	S
ERICACEAE	<i>Gaultheria appressa</i>	0.0	0.0	0.0	30.2	5.0	0.03	5.0		15.1	0.0	30.2	0.0	12.5	0.10	12.6		P	mob	S
GERANIACEAE	<i>Geranium homeanum</i>	60.5	40.3	121.0	161.3 NS	10.0	1.05	11.1	5.0	15.1	30.2	24.2	6.0 NS	50.0	0.83	50.8		HPr	bar	SR
GERANIACEAE	<i>Geranium potentilloides</i>									30.2	0.0	0.0	0.0	6.3	0.03	6.3		HPr	bar	SR
GERANIACEAE	<i>Geranium potentilloides</i> var. <i>1</i>									90.7	0.0	30.2	0.0	6.3	0.13	6.4	18.8	HPr	bar	SR
GERANIACEAE	<i>Geranium</i> sp.	0.0	0.0	30.2	0.0	10.0	0.08	10.1	10.0	21.6	38.9	21.6	17.3 NS	37.5	0.76	38.3	31.3	HPr	bar	SR
GLEICHENIACEAE	<i>Gleichenia microphylla</i>	0.0	15.1	0.0	30.2	10.0	0.08	10.1		30.2	0.0	0.0	0.0	6.3	0.03	6.3		HPr	mob	R
FABACEAE	<i>Glycine clandestina</i>	60.5a	22.7a	249.5ab	468.7b	10.0	2.93	12.9	5.0								6.3	C	bar	Rs
HALORAGACEAE	<i>Gonocarpus montanus</i>									49.1	49.1	58.6	52.9 NS	62.5	3.67	66.2	62.5	HPr	bar	S
GOODENIACEAE	<i>Goodenia hederacea</i> subsp. <i>alpestris</i>																50.0	C	myr	R
GOODENIACEAE	<i>Goodenia ovata</i>	20.2b	13.4a	90.7b	90.7b	30.0	1.77	31.8	20.0									P	myr	Sr
PROTEACEAE	<i>Grevillea australis</i>																6.3	P	myr	Sr

		Shrubby Dry Forest								Sub-Alpine Woodland												
		Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Trait		
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)		Life form ^A	Dispersal mode ^B	Fire Response ^C
Family	Species	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C		
PROTEACEAE	<i>Grevillea chrysophaea</i>								10.0									P	myr	S		
PROTEACEAE	<i>Grevillea victoriae</i> subsp. <i>victoriae</i>																6.3	P	myr			
FABACEAE	<i>Hardenbergia violacea</i>	0.0	0.0	30.2	0.0	5.0	0.03	5.0	5.0									P	myr	Rs		
ASTERACEAE	<i>Helichrysum leucopsideum</i>	0.0	0.0	0.0	70.6	10.0	0.19	10.2	15.0									HPr	ane	SR		
DILLENiaceAE	<i>Hibbertia obtusifolia</i>	15.1	0.0	0.0	15.1	10.0	0.06	10.1	60.0									P	myr	SR		
POACEAE	<i>Holcus lanatus</i> *									30.2	0.0	0.0	0.0	6.3	0.03	6.3	6.3	HE	epi	R		
FABACEAE	<i>Hovea heterophylla</i>								10.0									C	myr	R		
FABACEAE	<i>Hovea montana</i>																18.8	C	myr	R		
APIACEAE	<i>Hydrocotyle laxiflora</i>	30.2	60.5	30.2	45.4	10.0	0.30	10.3	20.0	90.7	0.0	0.0	0.0	6.3	0.10	6.3	6.3	HE	bar	Rs		
APIACEAE	<i>Hydrocotyle sibthorpioides</i>									302.4	514.0	680.4	362.9	12.5	4.07	16.6	6.3	HE	bar	Sr		
CLUSIACEAE	<i>Hypericum gramineum</i>	33.6	26.9	26.9	60.5 NS	30.0	1.22	31.2	10.0	786.2	0.0	0.0	0.0	6.3	0.86	7.1		HPr	mob	Rs		
HYPERICACEAE	<i>Hypericum perfoliatum</i> subsp. <i>veronense</i> *									90.7	136.1	196.5	15.1	6.3	0.96	7.2	12.5	HPr	bar	R		
ASTERACEAE	<i>Hypochaeris radicata</i> *	15.1	15.1	0.0	0.0	10.0	0.06	10.1		39.7	39.7	54.8	43.5 NS	62.5	3.11	65.6	81.3	HF	ane	Rs		
DENNSTAEDTIACEAE	<i>Hypolepis glandulifera</i>									15.1	0.0	15.1	0.0	12.5	0.07	12.6		HPr	mob	R		
FABACEAE	<i>Indigofera australis</i>								5.0									P	bar	Rs		
JUNCACEAE	<i>Juncus planifolius</i>	30.2	0.0	0.0	0.0	5.0		5.0										HE	mob	R		
JUNCACEAE	<i>Juncus sp</i>	0.0	0.0	0.0	30.2	5.0	0.08	5.1		0.0	30.2	0.0	0.0	6.3	0.17	6.4		HE	mob	R		
JUNCACEAE	<i>Juncus pallidus</i>									0.0	30.2	0.0	0.0	6.3		6.3		HE	mob			
JUNCACEAE	<i>Juncus sarophorus</i>	30.2	0.0	0.0	0.0	5.0		5.0										HE	mob			
JUNCACEAE	<i>Juncus semisolidus</i>									30.2	0.0	0.0	0.0	6.3		6.3		HE	mob			
JUNCACEAE	<i>Juncus alexandri/effusus</i>									30.2	0.0	0.0	0.0	12.5		12.5		HE	mob			
MYRTACEAE	<i>Kunzea</i> spp. (<i>upright form</i>)	24.2	24.2	12.1	6.0	20.0	0.30	20.3	15.0									P	mob	R		
ASTERACEAE	<i>Lagenophora huegelli</i>								5.0									HF	bar	R		
ASTERACEAE	<i>Lagenophora stipitata</i>								35.0								25.0	HF	bar	Rs		
ASTERACEAE	<i>Laphangium luteoalbum</i>	49.9	256.6	93.2	192.1 NS	100.0	20.02	120.0		8.6	19.4	19.4	6.5 NS	56.3	0.83	57.1		T	ane	S		
ASTERACEAE	<i>Leontodon rhagadioloides</i> *									0.0	30.2	15.1	0.0	12.5	0.10	12.6		T	ane	S		
CYPERACEAE	<i>Lepidosperma gunnii</i>								25.0									HE		R		
CYPERACEAE	<i>Lepidosperma gunnii/laterale</i>	0.0	0.0	15.1	15.1	10.0	0.06	10.1		0.0	30.2	0.0	0.0	6.3	0.03	6.3		HE		R		
CYPERACEAE	<i>Lepidosperma laterale</i> var. <i>laterale</i>								15.0									HE	myr	R		
ASTERACEAE	<i>Leptinella filicula</i>									55.0	52.2	63.2	30.2 NS	43.8	2.41	46.2	31.3	HF	bar	R		
ERICACEAE	<i>Leucopogon affinis</i>																12.5	P	end	R		
LINACEAE	<i>Linum marginale</i>																6.3	HPr	bar	R		
CAMPANULACEAE	<i>Lobelia anceps</i>									0.0	0.0	0.0	30.2	6.3	0.07	6.3		HPr	mob	SR		
XANTHORRHOEACEAE	<i>Lomandra filiformis</i> subsp. <i>coriacea</i>								5.0									HE	myr	R		
XANTHORRHOEACEAE	<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.0	30.2	0.0	0.0	5.0	0.03	5.0	65.0									HE	myr	R		
XANTHORRHOEACEAE	<i>Lomandra longifolia</i> subsp. <i>exilis</i>								15.0									HE	myr	R		

		Shrubby Dry Forest								Sub-Alpine Woodland												
Family	Species	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank			Extant Vegetation	Trait				
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)		Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)		IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C
XANTHORRHOEACEAE	<i>Lomandra multiflora</i> subsp. <i>multiflora</i>								20.0									HE	myr	R		
PROTEACEAE	<i>Lomatia ilicifolia</i>								5.0									P	ane	R		
FABACEAE	<i>Lotus</i> sp.									0.0	0.0	0.0	30.2	6.3	0.03	6.3		HPr				
JUNCACEAE	<i>Luzula meridionalis</i> subsp. <i>densiflora</i>																12.5	HE	myr	R		
JUNCACEAE	<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	30.2	30.2	15.1	15.1 NS	10.0	0.33	10.3	5.0	90.7	68.0	124.7	103.9 NS	62.5	6.78	69.3	37.5	HE	myr	R		
JUNCACEAE	<i>Luzula meridionalis</i> subsp. <i>meridionalis</i>									0.0	30.2	0.0	0.0	6.3	0.03	6.3	6.3	HE	myr	R		
LYCOPODIACEAE	<i>Lycopodium fastigiatum</i>																6.3	C	mob	R		
PRIMULACEAE	<i>Lysimachia arvensis</i> *	30.2	121.0	211.7	121.0	5.0	0.44	5.4										T	bar	S		
ROSACEAE	<i>Malus pumila</i> *	121.0	0.0	0.0	0.0	5.0	0.11	5.1									6.3	P	end			
POACEAE	<i>Microleana stipoides</i> var. <i>stipoides</i>	26.9	23.5	0.0	6.7 NS	30.0	0.47	30.5	30.0	0.0	0.0	0.0	60.5	18.8	0.20	18.9	6.3	HF	epi	R		
ASTERACEAE	<i>Microseris</i> sp.																25.0	HE	ane	R		
ORCHIDACEAE	<i>Microtis unifolia</i>	30.2	0.0	0.0	0.0	10.0	0.06	10.1										G	mob	R		
BORAGINACEAE	<i>Myosotis australis</i>																6.3	HP		S		
ASTERACEAE	<i>Olearia alpicola</i>																6.3	P	ane			
ASTERACEAE	<i>Olearia megalophylla</i>																6.3	P	ane	R		
ASTERACEAE	<i>Olearia myrsinoides</i>								5.0									P	ane	R		
ASTERACEAE	<i>Olearia phlogopappa</i> subsp. <i>flavescens</i>									15.1	30.2	0.0	105.8	12.5	0.33	12.8	50.0	P	ane	SR		
ASTERACEAE	<i>Olearia speciosa</i>									0.0	0.0	30.2	0.0	6.3	0.03	6.3	25.0	P	ane			
RUBIACEAE	<i>Opercularia varia</i>	0.0	0.0	30.2	20.2	15.0	0.14	15.1	25.0									HPr	myr	Sr		
APIACEAE	<i>Oreomyrrhis eriopoda</i>	60.5	0.0	0.0	0.0	5.0	0.06	5.1		154.2	229.8	163.3	205.6 NS	50.0	8.23	58.2	62.5	HE	bar	S		
PROTEACEAE	<i>Orites lancifolius</i>																6.3	P	ane	R		
FABACEAE	<i>Oxylobium ellipticum</i>																6.3	P	myr	R		
ASTERACEAE	<i>Ozothamnus cuppressoides</i>																6.3	P	ane	S		
ASTERACEAE	<i>Ozothamnus rogersianus</i>	0.0	0.0	30.2	0.0	5.0	0.03	5.0										P	ane			
ASTERACEAE	<i>Ozothamnus secundiflorus</i>									0.0	30.2	0.0	0.0	6.3	0.03	6.3	12.5	P	ane	R		
BIGNONIACEAE	<i>Pandorea pandorana</i>	15.1	0.0	30.2	15.1	5.0	0.11	5.1	20.0									P	ane	SR		
GERANIACEAE	<i>Pelargonium helmsii</i>									0.0	0.0	121.0	151.2	6.3	0.60	6.8		HPr	ane	SR		
GERANIACEAE	<i>Pelargonium littorale</i>	3.8a	3.8a	249.5b	404.4b	25.0	4.84	29.8										HPr	ane			
PROTEACEAE	<i>Persoonia chamaepeuce</i>								5.0									C	end	R		
PROTEACEAE	<i>Persoonia confertiflora</i>								20.0									P	end	R		
PHYLLANTHACEAE	<i>Phyllanthus hirtellus</i>								20.0									P	bar	Rs		
ASTERACEAE	<i>Picris</i> sp.									30.2	0.0	0.0	0.0	6.3	0.03	6.3	25.0	HP	ane	S		
THYMELAEACEAE	<i>Pimelea alpina</i>																31.3	C		R		
THYMELAEACEAE	<i>Pimelea axiflora</i> subsp. <i>axiflora</i>																12.5	P	myr	S		
THYMELAEACEAE	<i>Pimelea humilis</i>								10.0									P		SR		
THYMELAEACEAE	<i>Pimelea ligustrina</i>																18.8	P		R		

		Shrubby Dry Forest								Sub-Alpine Woodland												
		Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Trait		
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)		Life form ^A	Dispersal mode ^B	Fire Response ^C
Family	Species	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C		
PLANTAGINACEAE	<i>Plantago coronopus</i> subsp. <i>coronopus</i> *									0.0	15.1	15.1	0.0	12.5	0.07	12.6		HF	bar	S		
PLANTAGINACEAE	<i>Plantago debilis</i>	393.1	151.2	317.5	151.2 NS	10.0	1.85	11.9	5.0									HF	bar	S		
PLANTAGINACEAE	<i>Plantago euryphylla</i>																6.3	HF	bar	R		
PLANTAGINACEAE	<i>Plantago</i> sp.								10.0									HF				
FABACEAE	<i>Platylobium</i> sp.								5.0									P	myr			
APIACEAE	<i>Platysace ericoides</i>	0.0	0.0	30.2	0.0	5.0	0.03	5.0	10.0									C	bar	Sr		
APIACEAE	<i>Platysace lanceolata</i>								15.0									P	bar	Rs		
POACEAE	<i>Poa annua</i> *	0.0	7.6	105.8	7.6	15.0	0.44	15.4										T	bar	S		
POACEAE	<i>Poa ensiformis</i>	0.0	15.1	15.1	75.6	10.0	0.19	10.2		70.6	151.2	20.2	0.0	12.5	0.79	13.3	12.5	HE	bar	R		
POACEAE	<i>Poa hothamensis</i> var. <i>hothamensis</i>									123.8a	132.3a	264.6b	247.6b	100.0	26.88	126.9	75.0	HE	bar	R		
POACEAE	<i>Poa petrophila</i>																12.5	HE	bar			
POACEAE	<i>Poa pratensis</i> *																6.3	HE	bar	SR		
POACEAE	<i>Poa sieberiana</i> var. <i>sieberiana</i>	26.5	28.3	45.4	77.5 NS	50.0	2.60	52.6	80.0	30.2	105.8	272.1	0.0	6.3	0.89	7.1	31.3	HE	mob	R		
POACEAE	<i>Poa tenera</i>	16.8	6.7	40.3	20.2 NS	30.0	0.69	30.7		7.6	0.0	0.0	158.8	18.8	0.73	19.5	6.3	HE	bar	R		
PODOCARPACEAE	<i>Podocarpus lawrenciana</i>																6.3	P	end	S		
ASTERACEAE	<i>Podolepis</i> sp.																12.5	HP	ane	R		
FABACEAE	<i>Podolobium alpestre</i>									0.0a	8.2ac	52.2b	46.7bc	43.8	1.29	45.0	62.5	P	myr	R		
ARALIACEAE	<i>Polyschias sambucifolia</i> subsp. 3																50.0	P	end	Rs		
DRYOPTERIDACEAE	<i>Polystichum proliferum</i>																56.3	C	mob	R		
RHAMNACEAE	<i>Pomaderris intermedia</i>	0.0	0.0	60.5	0.0	5.0	0.06	5.1	5.0									P	myr	S		
RUBIACEAE	<i>Pomax umbellata</i>								25.0									C	bar	S		
PHYLLANTHACEAE	<i>Poranthera microphylla</i>	48.1	37.1	37.1	59.1 NS	65.0	3.65	68.6	20.0	20.2	0.0	30.2	30.2	18.8	0.26	19.0	12.5	T	mob	S		
LAMIACEAE	<i>Prostanthera cuneata</i>																12.5	P	bar	R		
LAMIACEAE	<i>Prostanthera saxicola</i> var. <i>bracteolata</i>								5.0									P	bar	S		
LAMIACEAE	<i>Prunella vulgaris</i> *																6.3	C		S		
ORCHIDACEAE	<i>Pterostylis</i> sp.	12.1	18.1	0.0	0.0	20.0	0.14	20.1	20.0	15.1	15.1	15.1	0.0	12.5	0.10	12.6		G	mob	R		
FABACEAE	<i>Pultenaea foliosa</i>								5.0									P	myr			
FABACEAE	<i>Pultenaea humilis</i>	0.0	0.0	0.0	30.2	5.0	0.03	5.0										P	myr	S		
FABACEAE	<i>Pultenea daphnoides</i>	60.5	30.2	30.2	60.5	5.0	0.17	5.2	5.0									P	myr	S		
RANUNCULACEAE	<i>Ranunculus plebeius</i>																25.0	HP	epi			
RANUNCULACEAE	<i>Ranunculus scapiger</i>																12.5	HP	epi			
POACEAE	<i>Rytidosperma indutum</i>	136.1	0.0	0.0	0.0	5.0	0.25	5.2										HE	epi			
PITTOSPORACEAE	<i>Rhytidosporum procumbens</i>	0.0	0.0	18.1	12.1	20.0	0.14	20.1	20.0									C	bar	Sr		
ERICACEAE	<i>Richea continentis</i>									0.0	0.0	30.2	0.0	6.3	0.03	6.3		P	bar	S		
BRASSICACEAE	<i>Rorippa dictyosperma</i>	0.0	60.5	0.0	30.2	5.0	0.08	5.1										HP	bar	S		
ROSACEAE	<i>Rubus parviflorus</i>																12.5	P	end	R		

		Shrubby Dry Forest								Sub-Alpine Woodland												
		Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Trait		
		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)		C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)		Life form ^A	Dispersal mode ^B	Fire Response ^C
Family	Species	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C		
POACEAE	<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	30.2	0.0	0.0	0.0	5.0	0.03	5.0										HE	epi	R		
POACEAE	<i>Rytidosperma</i> sp.	0.0	0.0	0.0	30.2	5.0	0.03	5.0	15.0	30.2	0.0	0.0	0.0	6.3	0.03	6.3		HE	epi	R		
CARYOPHYLLACEAE	<i>Scleranthus</i> sp.																6.3	C		S		
ASTERACEAE	<i>Senecio extensus</i>									0.0	60.5	0.0	0.0	6.3	0.07	6.3	18.8	HPr	ane			
ASTERACEAE	<i>Senecio gunnii</i>									25.2	25.2	0.0	10.1 NS	37.5	0.40	37.9	62.5	HPr	ane	Rs		
ASTERACEAE	<i>Senecio hispidulus</i>	0.0	0.0	15.1	15.1	10.0	0.06	10.1										T	ane	Sr		
ASTERACEAE	<i>Senecio linearifolius</i> subsp. <i>latifolius</i>																18.8	C	ane	S		
ASTERACEAE	<i>Senecio linearifolius</i> var. <i>denticulatis</i>	30.2	0.0	30.2	30.2	5.0	0.08	5.1	5.0	30.2	0.0	0.0	0.0	6.3	0.03	6.3		C	ane	S		
ASTERACEAE	<i>Senecio pinnatifolius</i> var. <i>alpinus</i>									0.0	15.1	0.0	15.1	12.5	0.07	12.6		HPr	ane	R		
ASTERACEAE	<i>Senecio pinnatifolius</i> var. <i>lanceolatus</i>									30.2	0.0	0.0	0.0		0.03	0.0	6.3	HPr	ane	R		
ASTERACEAE	<i>Senecio prenanthoides</i>	7.6	0.0	7.6	15.1	15.0	0.11	15.1	15.0					6.3		6.3	25.0	HP	ane	S		
ASTERACEAE	<i>Senecio vellioides</i>									10.1	10.1	0.0	10.1	18.8	0.10	18.8		T	ane	S		
SOLANACEAE	<i>Solanum lacinatum/aviculare</i>	0.0	0.0	15.1	15.1	5.0	0.06	5.1										P	end	S		
SOLANACEAE	<i>Solanum prinophyllum</i>	12.1	6.0	24.2	12.1 NS	25.0	0.25	25.2	5.0									HPr	end	S		
ASTERACEAE	<i>Sonchus oleraceus</i> *								5.0	0.0	30.2	0.0	0.0	6.3	0.03	6.3	6.3	T	ane	Sr		
RHAMNACEAE	<i>Spyridium parvifolium</i>								10.0									P	myr	Sr		
STACKHOUSIACEAE	<i>Stackhousia monogyna</i>								5.0								18.8	HPr	bar	SR		
CARYOPHYLLACEAE	<i>Stellaria pungens</i>	0.0	0.0	0.0	30.2	5.0	0.03	5.0	10.0	3.4a	3.4ab	26.9ab	53.8b	43.8	0.86	44.6	81.3	HPr	bar	Sr		
STYLIDIACEAE	<i>Stylidium armeria</i> subsp. <i>armeria</i>									7.6	7.6	15.1	22.7	25.0	0.23	25.2	43.8	HE	bar	Rs		
ASPHODELACEAE	<i>Stypandra glauca</i>	20.2b	10.1a	95.8b	171.3b	35.0	3.26	38.3	60.0									HPr	bar	R		
ASTERACEAE	<i>Symphyotrichum subulatum</i> *	0.0	0.0	0.0	30.2	5.0	0.03	5.0										T	ane	S		
ASTERACEAE	<i>Taraxacum</i> sp.																18.8	HF	ane	S		
WINTERACEAE	<i>Tasmannia lanceolata</i>																6.3	P	end	Sr		
WINTERACEAE	<i>Tasmannia xerophila</i> subsp. <i>xerophila</i>																62.5	P	end	S		
POACEAE	<i>Tetrarrhena juncea</i>	30.2	30.2	75.6	7.6	15.0	0.53	15.5										HPr	bar	R		
TREMANDRACEAE	<i>Tetratheca ciliata</i>								5.0									C	myr	Sr		
ELAEOCARPACEAE	<i>Tetratheca labillardierei</i>								15.0									P	myr	R		
POACEAE	<i>Themeda triandra</i>	0.0	0.0	0.0	60.5	5.0	0.06	5.1										HE	epi	R		
ASPHODELACEAE	<i>Tricoryne elatior</i>								5.0									HE	bar	R		
FABACEAE	<i>Trifolium cernuum/ glomeratum</i> *									0.0	0.0	0.0	121.0	6.3	0.13	6.4		T	bar			
FABACEAE	<i>Trifolium dubium</i> *	0.0	0.0	0.0	30.2	5.0	0.03	5.0		10.1	10.1	0.0	60.5	12.5	0.26	12.8		T	bar	S		
FABACEAE	<i>Trifolium repens</i> *									7.6	0.0	22.7	90.7	18.8	0.53	19.3	31.3	HF	bar	SR		
FABACEAE	<i>Trifolium</i> sp.									0.0	10.1	10.1	10.1	18.8	0.10	18.8		T	bar			
SCROPHULARIACEAE	<i>Verbascum</i> spp. *																6.3	T		R		

		Shrubby Dry Forest								Sub-Alpine Woodland												
		Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Soil Seed Bank (density m ⁻²)				Soil Seed Bank				Extant Vegetation	Trait		
Family	Species	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	C	S	LHS	HHS	Freq (%)	Rel Density (%)	IV (%)	Freq (%)	Life form ^A	Dispersal mode ^B	Fire Response ^C		
PLANTAGINACEAE	<i>Veronica calycina</i>	25.2	15.1	10.1	65.5	NS	25.0	0.64	25.6	20.0							6.3	C	bar	SR		
PLANTAGINACEAE	<i>Veronica derwentana</i> subsp. <i>maideniana</i>																25.0	C	bar	R		
PLANTAGINACEAE	<i>Veronica perfoliata</i>	6.0	0.0	24.2	12.1		20.0	0.19	20.2	20.0								C	bar	SR		
PLANTAGINACEAE	<i>Veronica plebeia</i>	12.1	24.2	6.0	42.3	NS	35.0	0.77	35.8	5.0								C	bar	S		
PLANTAGINACEAE	<i>Veronica serpyllifolia</i>									90.7	0.0	0.0	0.0	6.3	0.10	6.3	6.3	HPr	bar			
VIOLACEAE	<i>Viola arvensis</i> *									15.1	10.1	0.0	10.1	37.5	0.23	37.7	31.3	T				
VIOLACEAE	<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>									7.6	52.9	0.0	45.4	25.0	0.46	25.5	75.0	HE	myr	R		
VIOLACEAE	<i>Viola hederacea</i> s.l.	18.1	36.3	24.2	42.3	NS	20.0	0.55	20.6	20.0	0.0	30.2	0.0	0.0	6.3	0.03	6.3	6.3	HF	myr	Sr	
CAMPANULACEAE	<i>Wahlenbergia capillaris communis</i>	20.2	10.1	0.0	0.0		10.0	0.08	10.1									HPr	mob	Sr		
CAMPANULACEAE	<i>Wahlenbergia communis graniticola</i>	17.3	4.3	38.9	25.9	NS	30.0	0.55	30.6									HPr	mob	R		
CAMPANULACEAE	<i>Wahlenbergia gloriosa</i>									0.0	0.0	30.2	0.0	6.3	0.03	6.3		HPr	mob	R		
CAMPANULACEAE	<i>Wahlenbergia gracilis</i>	90.7	68.0	33.3	90.7	NS	60.0	5.17	65.2	0.0	70.6	20.2	0.0	18.8	0.30	19.0		HPr	mob	Rs		
CAMPANULACEAE	<i>Wahlenbergia graniticola</i>	40.3	10.1	0.0	30.2		15.0	0.22	15.2									HPr	mob	R		
CAMPANULACEAE	<i>Wahlenbergia luteola</i>	0.0	30.2	0.0	15.1		10.0	0.08	10.1									HPr	mob	R		
CAMPANULACEAE	<i>Wahlenbergia multicaulis</i>	17.3	362.9	21.6	8.6	NS	30.0	2.63	32.6	181.4	196.5	574.5	423.3	NS	6.3	3.01	9.3	6.3	G	mob	R	
CAMPANULACEAE	<i>Wahlenbergia</i> sp.	75.6	51.4	117.9	30.2	NS	35.0	2.52	37.5	30.0	0.0	20.2	0.0	20.2	18.8	0.13	18.9		HPr	mob		
CAMPANULACEAE	<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	163.3	237.4	161.8	193.5	NS	55.0	13.82	68.8	0.0	0.0	0.0	90.7	6.3	0.10	6.3		HPr	mob	Sr		

^A C: chamaephyte (plants whose branch system remains below 0.5 m, or plants that die back to below that height, i.e. dwarf shrubs); EPI: epiphyte (a plant that has no roots in the soil and grows upon another plant or object merely for physical support); G: geophyte (plants with seasonal reduction to below ground storage organ); HE: erect rosette (all leaves radical, leaves always erect); HF: flat or versatile rosette (all leaves radical, leaves flat or erect depending on conditions); HP: partial-rosette (radical and cauline leaves present, largest leaves on lower stem); HPr: proto-hemicryptophyte (all leaves cauline, largest leaves towards the middle of stem); and P: phanerophyte (trees and shrubs taller than 0.5 m).

^B ane: anemochory (pappus, coma, samara or similar attachment); bar: barochory (no apparent seed dispersal mechanism); end: endozoochory (fleshy fruit); epi: epizoochory (barbs, hooks, burrs or awns enabling adhesion to animal fur); mob: mobile (barochores with seed dimensions <0.5 mm, and mass generally < 0.1 mg); and myr: myrmecochory (eliosome attached to seed to attract ants).

^C R; obligate resprouter (plants that rely on resprouting to regenerate after fire); S: obligate seeder (plants that do not resprout and rely on seeding to regenerate after fire); RS, facultative seeders (plants that are able to resprout and to germinate seeds after fire); Sr: usually killed but sometimes resprouts; and Rs: usually resprouts but sometimes killed.

* introduced species

Table S4 Results of the PERMANOVA, testing for the effect of germination treatment (T: C, control; S, smoke; LHS, low heat plus smoke; and HHS, high heat plus smoke) and fire frequency (F, number of fires since 2003) on the richness and density of the germinable soil seed bank in Shrubby Dry Forest and Sub-Alpine Woodland communities. Significant values are indicated in bold. Fire Frequency: Shrubby Dry Forest: UB, Unburnt; S07, Single 2007; S13, Single 2013; D, Double. Sub-Alpine Woodland: UB, Unburnt; S, Single; D, Double; and T, Triple.

	Richness								Density							
	Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise	Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise
<i>Shrubby Dry Forest</i>																
All Species	T	3	4.098	1.366	5.3707	0.0012	9958		T	3	7.711	2.570	5.9000	0.0015	9948	C ^a , S ^{ab} , LHS ^b , HHS ^c
	F	3	1.278	0.426	1.6749	0.1666	9954		F	3	0.838	0.279	0.6416	0.6037	9949	
	T x F	9	4.611	0.512	2.0144	0.0324	9926	S07: C ^{ab} , S ^a , LHS ^{ab} , HHS ^b	T x F	9	6.070	0.674	1.5482	0.1492	9932	
	Res	64	16.279	0.254				S13: C ^a , S ^a , LHS ^a , HHS ^b	Res	64	27.881	0.436				
	Total	79	26.266					D: C ^a , S ^a , LHS ^b , HHS ^{ab}	Total	79	42.500					
Native Species	T	3	3.558	1.186	2.6311	0.0494	9949	C ^a , S ^a , LHS ^{ab} , HHS ^b	T	3	8.443	2.814	4.2897	0.0084	9946	C ^a , S ^{ab} , LHS ^b , HHS ^c
	F	3	1.024	0.341	0.7572	0.5449	9957		F	3	1.087	0.362	0.5525	0.6492	9958	
	T x F	9	7.129	0.792	1.7573	0.0724	9924		T x F	9	6.624	0.736	1.1220	0.3657	9934	
	Res	64	28.850	0.451					Res	64	41.986	0.656				
	Total	79	40.561						Total	79	58.140					
Introduced Species	T	3	15.516	5.172	1.6050	0.1977	9952		T	3	3252.100	1084.000	1.3378	0.2611	9945	
	F	3	82.627	27.542	8.5467	0.0004	9958	UB ^a , S07 ^a , S13 ^a , D ^b	F	3	17722.000	5907.300	7.2901	0.0004	9963	UB ^a ,S07 ^a ,S13 ^a ,D ^b
	T x F	9	14.432	1.604	0.4976	0.8690	9954		T x F	9	3984.000	442.670	0.5463	0.8450	9949	
	Res	64	206.250	3.223					Res	64	51861.000	810.320				
	Total	79	318.820						Total	79	76819.000					
<i>Sub-Alpine Woodland</i>																
All Species	T	3	0.034	0.011	0.1803	0.9100	9954		T	3	2.850	0.950	15.7960	0.0001	9947	
	F	3	0.469	0.156	2.5005	0.0660	9942		F	3	0.015	0.005	0.0821	0.9705	9946	
	T x F	9	0.387	0.043	0.6874	0.7205	9930		T x F	9	1.410	0.157	2.6058	0.0140	9942	S: C ^a , S ^a , LHS ^b , HHS ^{ab}
	Res	48	3.004	0.063					Res	48	2.886	0.060				D: C ^a , S ^b , LHS ^b , HHS ^b
	Total	63	3.894						Total	63	7.161					T: C ^a , S ^a , LHS ^b , HHS ^{ab}
Native Species	T	3	0.065	0.022	0.2481	0.8638	9962		T	3	2.183	0.728	11.7590	0.0001	9953	
	F	3	1.108	0.369	4.1969	0.0100	9957	UB ^{ab} , S ^a , D ^b , T ^c	F	3	0.019	0.006	0.1038	0.9571	9961	
	T x F	9	0.959	0.107	1.2116	0.3123	9931		T x F	9	1.598	0.178	2.8697	0.0079	9916	S: C ^a , S ^a , LHS ^b , HHS ^{ab}
	Res	48	4.223	0.088					Res	48	2.970	0.062				D: C ^a , S ^b , LHS ^b , HHS ^b
	Total	63	6.356						Total	63	6.771					
Introduced Species	T	3	0.575	0.192	0.0675	0.9774	9966		T	3	3.631	1.210	0.6975	0.5607	9955	
	F	3	38.706	12.902	4.5421	0.0079	9953	UB ^a , S ^a , D ^b , T ^{ab}	F	3	30.409	10.136	5.8410	0.0018	9952	UB ^a , S ^a , D13 ^b , T ^{ab}
	T x F	9	4.517	0.502	0.1767	0.9954	9925		T x F	9	6.319	0.702	0.4046	0.9264	9951	
	Res	48	136.350	2.841					Res	48	83.300	1.735				
	Total	63	180.140						Total	63	123.660					

Table S5 Results of the PERMANOVA, testing for the effect of germination treatment (T, control, smoke, low heat plus smoke, and high heat plus smoke) and fire frequency (F, number of fires since 2003) on Shannon's diversity (H') of the germinable soil seed bank in Shrubby Dry Forest and Sub-Alpine Woodland communities. Data were standardised by the total and log(x+1) transformed prior to analysis. Significant values are indicated in bold. Fire Frequency: Shrubby Dry Forest: UB, Unburnt; S07, Single 2007; S13, Single 2013; D, Double. Sub-Alpine Woodland: UB, Unburnt; S, Single; D, Double; T, Triple.

Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise
<i>Shrubby Dry Forest</i>							
Total species							
T	3	2.998	0.999	2.0334	0.1131	9947	
F	3	22.982	7.661	15.5860	0.0001	9951	UB ^a , S07 ^{ab} , S13 ^b , D ^c
T x F	9	2.198	0.244	0.4970	0.8677	9933	
Res	64	31.456	0.492				
Total	79	59.635					
Native species							
T	3	2.853	0.951	1.5460	0.2168	9946	
F	3	20.523	6.841	11.1210	0.0001	9956	UB ^a , S07 ^b , S13 ^b , D ^c
T x F	9	2.463	0.274	0.4448	0.9028	9933	
Res	64	39.370	0.615				
Total	79	65.209					
Introduced species							
T	3	37.179	12.393	0.9068	0.5961	9919	
F	3	85.926	28.642	2.0958	0.0033	9895	UB ^a , S07 ^b , S13 ^{ab} , D ^a
T x F	9	89.050	9.894	0.7240	0.9583	9840	
Res	64	874.650	13.666				
Total	79	1086.800					
<i>Sub-Alpine Woodland</i>							
Total species							
T	3	0.046	0.015	0.0511	0.9874	9944	
F	3	12.431	4.144	13.8550	0.0001	9941	UB ^a , S ^b , D ^c , T ^c
T x F	9	0.359	0.040	0.1336	0.9988	9934	
Res	48	14.356	0.299				
Total	63	27.192					
Native species							
T	3	0.092	0.031	0.1110	0.9559	9950	
F	3	10.030	3.343	12.0640	0.0001	9945	UB ^a , S ^a , D ^b , T ^b
T x F	9	0.947	0.105	0.3795	0.9428	9938	
Res	48	13.302	0.277				
Total	63	24.371					
Introduced species							
T	3	29.960	9.987	0.6335	0.9131	9900	
F	3	145.770	48.591	3.0823	0.0001	9893	UB ^a , S ^a , D ^b , T ^c
T x F	9	85.549	9.505	0.6030	0.9967	9835	
Res	48	756.710	15.765				
Total	63	1018.000					

Table S6 Results of the PERMANOVA and SIMPER analysis, testing for the effect of germination treatment (T, control, smoke, low heat plus smoke, and high heat plus smoke) and fire frequency (F, number of fires since 2003) on species composition of the germinable soil seed bank in Shrubby Dry Forest and Sub-Alpine Woodland communities. Significant values are indicated in bold. Fire Frequency: Shrubby Dry Forest: UB, Unburnt; S07, Single 2007; S13, Single 2013; D, Double. Sub-Alpine Woodland: UB, Unburnt; S, Single; D, Double; and T, Triple.

Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise
<i>Shrubby Dry Forest</i>							
T	3	10255.0	3418.3	1.3213	0.1127	9887	
F	3	29673.0	9891.0	3.8231	0.0001	9890	UB ^a , S07 ^b , S13 ^{ab} , D ^c
T x F	9	16596.0	1844.0	0.7127	0.9854	9824	
Res	64	165580.0	2587.2				
Total	79	222100.0					
<i>Sub-Alpine Woodland</i>							
T	3	4613.0	1537.7	0.6442	0.9445	9877	
F	3	32812.0	10937.0	4.5823	0.0001	9878	UB ^a , S ^b , D ^c , T ^d
T x F	9	8474.1	941.6	0.3945	1.0000	9804	
Res	48	114570.0	2386.8				
Total	63	160470.0					

Average similarity between/within groups				
<i>Shrubby Dry Forest</i>				
	Unburned	S07	S13	Double
Unburned	28.9			
S07	23.3	25.5		
S13	26.3	25.9	27.7	
Double	20.4	28.1	27.4	42.2
<i>Sub-Alpine Woodland</i>				
	Unburned	Single	Double	Triple
Unburned	39.2			
Single	30.4	35.4		
Double	24.8	33.8	42.7	
Triple	21.7	28.0	30.1	31.3

Table S6 (cont.)

SIMPER—Shrubby Dry Forest

Groups S13 and Double

Average dissimilarity = 85.32

Species	S13 Av.Abund	Double Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Laphangium luteoalbum</i>	1.2	1.5	12.8	1.0	15.0	15.0
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1.2	0.0	5.9	0.8	6.9	21.9
<i>Wahlenbergia gracilis</i>	0.7	0.2	5.2	0.8	6.1	28.0
<i>Daviesia buxifolia</i>	0.3	0.5	4.4	0.8	5.1	33.1
<i>Poranthera microphylla</i>	0.5	0.2	4.1	0.9	4.8	37.9
<i>Poa sieberiana</i> var. <i>sieberiana</i>	0.7	0.0	3.3	0.7	3.8	41.7
<i>Cassinia longifolia</i>	0.6	0.0	3.3	0.9	3.8	45.6
<i>Erigeron</i> spp.	0.3	0.1	2.9	0.6	3.4	49.0
<i>Galium binifolium</i> subsp. <i>conforme</i>	0.5	0.0	2.7	0.7	3.2	52.1

Groups Double and S07

Average dissimilarity = 83.27

Species	S07 Av.Abund	Double Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Laphangium luteoalbum</i>	1.2	1.5	12.4	1.0	14.9	14.9
<i>Daviesia buxifolia</i>	0.5	0.5	6.1	0.7	7.3	22.2
<i>Cassinia longifolia</i>	0.9	0.0	4.1	0.7	4.9	27.1
<i>Poranthera microphylla</i>	0.7	0.2	3.7	0.8	4.4	31.5
<i>Wahlenbergia gracilis</i>	0.8	0.2	3.3	0.8	4.0	35.6
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	0.7	0.0	3.2	0.6	3.8	39.3
<i>Erigeron sumatrensis</i>	0.2	0.1	2.7	0.5	3.2	42.6
<i>Pelargonium littorale</i>	0.8	0.0	2.6	0.5	3.1	45.7
<i>Goodenia ovata</i>	0.4	0.2	2.6	0.7	3.1	48.8
<i>Billardiera mutabilis</i>	0.3	0.0	2.5	0.6	3.0	51.7

Groups Double and Unburned

Average dissimilarity = 88.79

Species	UB Av.Aund	Double Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1.5	0.0	7.8	0.8	8.8	8.8
<i>Laphangium luteoalbum</i>	1.0	1.5	7.6	1.1	8.6	17.4
<i>Poranthera microphylla</i>	1.2	0.2	5.9	1.3	6.7	24.1
<i>Stypandra glauca</i>	1.1	0.0	5.4	0.8	6.1	30.2
<i>Cassinia longifolia</i>	0.9	0.0	4.2	0.7	4.7	34.9
<i>Galium binifolium</i> subsp. <i>conforme</i>	1.0	0.0	3.6	0.8	4.0	38.9
<i>Wahlenbergia gracilis</i>	0.8	0.2	3.4	0.8	3.8	42.7
<i>Goodenia ovata</i>	0.4	0.2	3.3	0.6	3.8	46.5
<i>Daviesia buxifolia</i>	0.2	0.5	2.9	0.8	3.3	49.8
<i>Cerastium vulgare</i>	0.4	0.0	2.7	0.6	3.1	52.8

Groups S07 and Unburned

Average dissimilarity = 83.15

Species	UB Av.Abund	S07 Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
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SIMPER—Shrubby Dry Forest						
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1.5	0.7	5.7	0.9	6.9	6.9
<i>Laphangium luteoalbum</i>	1.0	1.2	5.4	1.0	6.5	13.4
<i>Poranthera microphylla</i>	1.2	0.7	4.0	1.1	4.9	18.3
<i>Cassinia longifolia</i>	0.9	0.9	4.0	0.9	4.8	23.1
<i>Stypandra glauca</i>	1.1	0.0	4.0	0.7	4.8	27.9
<i>Wahlenbergia gracilis</i>	0.8	0.8	3.2	1.0	3.8	31.7
<i>Galium binifolium</i> subsp. <i>conforme</i>	1.0	0.1	2.9	0.8	3.5	35.2
<i>Goodenia ovata</i>	0.4	0.4	2.6	0.6	3.1	38.3
<i>Daviesia buxifolia</i>	0.2	0.5	2.6	0.6	3.1	41.4
<i>Cerastium vulgare</i>	0.4	0.0	1.9	0.6	2.3	43.7
<i>Pelargonium littorale</i>	0.1	0.8	1.9	0.5	2.3	45.9
<i>Centaureum erythraea</i>	0.6	0.5	1.8	0.7	2.2	48.1
<i>Wahlenbergia</i> spp.	0.3	0.6	1.8	0.7	2.2	50.3

SIMPER—Sub-Alpine Woodland						
Groups Unburned and Double						
Average dissimilarity = 75.19	UB	Double				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Carex breviculmis</i>	2.4	0.7	7.0	1.5	9.3	9.3
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	1.9	0.7	6.2	1.6	8.2	17.5
<i>Poa hothamensis</i> var. <i>hothamensis</i>	1.9	2.7	5.7	1.5	7.5	25.0
<i>Acetocella vulgaris</i>	1.3	0.3	4.8	1.2	6.4	31.4
<i>Oreomyrrhis eriopoda</i>	0.7	1.0	4.5	1.3	6.0	37.4
<i>Hydrocotyle sibthorpioides</i>	0.9	0.0	3.4	0.6	4.6	41.9
<i>Leptinella filicula</i>	1.0	0.4	3.4	1.2	4.5	46.4
<i>Hypochaeris radicata</i>	0.9	0.0	3.4	1.2	4.5	50.9
Groups Unburned and Single						
Average dissimilarity = 69.62	UB	Single				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Carex breviculmis</i>	2.4	1.1	5.3	1.5	7.6	7.6
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	1.9	0.5	4.7	1.6	6.8	14.4
<i>Poa hothamensis</i> var. <i>hothamensis</i>	1.9	2.0	4.3	1.5	6.1	20.5
<i>Acetocella vulgaris</i>	1.3	1.0	4.1	1.3	5.9	26.4
<i>Gonocarpus montanus</i>	0.7	0.9	3.2	1.1	4.6	30.9
<i>Oreomyrrhis eriopoda</i>	0.7	0.7	3.0	1.3	4.4	35.3
<i>Hydrocotyle sibthorpioides</i>	0.9	0.0	3.0	0.6	4.3	39.6
<i>Hypochaeris radicata</i>	0.9	1.0	2.9	1.3	4.2	43.7
<i>Leptinella filicula</i>	1.0	0.3	2.9	1.2	4.1	47.8
<i>Geranium</i> spp.	0.7	0.0	2.3	1.2	3.3	51.1
Groups Double and Single						
Average dissimilarity = 66.22	Single	Double				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%

SIMPER—Sub-Alpine Woodland						
<i>Poa hothamensis</i> var. <i>hothamensis</i>	2.0	2.7	5.4	1.3	8.1	8.1
<i>Oreomyrrhis eriopoda</i>	0.7	1.0	5.3	0.8	8.0	16.1
<i>Gonocarpus montanus</i>	0.9	0.6	5.2	1.0	7.9	24.0
<i>Carex breviculmis</i>	1.1	0.7	4.7	1.3	7.1	31.0
<i>Acetocella vulgaris</i>	1.0	0.3	4.6	1.0	6.9	37.9
<i>Hypochaeris radicata</i>	1.0	0.0	4.4	1.1	6.7	44.6
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.5	0.7	4.0	1.1	6.0	50.6
Groups Unburned and Triple						
Average dissimilarity = 78.29	UB	Triple				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Carex breviculmis</i>	2.4	0.4	7.4	1.6	9.5	9.5
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	1.9	0.1	6.9	2.0	8.8	18.2
<i>Poa hothamensis</i> var. <i>hothamensis</i>	1.9	1.8	5.0	1.4	6.4	24.7
<i>Acetocella vulgaris</i>	1.3	1.1	4.2	1.3	5.4	30.1
<i>Hydrocotyle sibthorpioides</i>	0.9	0.0	3.4	0.6	4.4	34.4
<i>Leptinella filicula</i>	1.0	0.1	3.3	1.2	4.2	38.6
<i>Hypochaeris radicata</i>	0.9	0.4	3.2	1.2	4.1	42.8
<i>Wahlenbergia multicaulis</i>	0.0	0.8	3.0	0.6	3.9	46.6
<i>Oreomyrrhis eriopoda</i>	0.7	0.0	2.7	1.2	3.5	50.1
Groups Double and Triple						
Average dissimilarity = 69.86	Double	Triple				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Poa hothamensis</i> var. <i>hothamensis</i>	2.7	1.8	8.3	1.2	11.9	11.9
<i>Acetocella vulgaris</i>	0.3	1.1	6.6	1.1	9.5	21.4
<i>Wahlenbergia multicaulis</i>	0.0	0.8	5.7	0.5	8.2	29.6
<i>Gonocarpus montanus</i>	0.6	0.3	4.6	0.9	6.6	36.2
<i>Oreomyrrhis eriopoda</i>	1.0	0.0	4.5	0.6	6.4	42.6
<i>Carex breviculmis</i>	0.7	0.4	3.8	1.2	5.4	47.9
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.7	0.1	3.3	0.7	4.7	52.7
Groups Single and Triple						
Average dissimilarity = 72.01	Single	Triple				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Acetocella vulgaris</i>	1.0	1.1	5.8	1.3	8.1	8.1
<i>Gonocarpus montanus</i>	0.9	0.3	5.1	1.0	7.1	15.2
<i>Poa hothamensis</i> var. <i>hothamensis</i>	2.0	1.8	4.9	1.2	6.9	22.1
<i>Carex breviculmis</i>	1.1	0.4	4.8	1.4	6.7	28.7
<i>Hypochaeris radicata</i>	1.0	0.4	4.4	1.2	6.1	34.9
<i>Wahlenbergia multicaulis</i>	0.0	0.8	4.3	0.6	5.9	40.8
<i>Oreomyrrhis eriopoda</i>	0.7	0.0	2.9	0.6	4.0	44.8
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.5	0.1	2.6	0.9	3.6	48.3
<i>Podolobium alpestre</i>	0.5	0.1	2.5	0.8	3.4	51.7

Table S7 Results of the PERMANOVA, testing for the effect of vegetation type (V: Veg, extant vegetation; SSB, soil seed bank) and fire frequency (F, number of fires since 2003) on species richness in Shrubby Dry Forest and Sub-Alpine Woodland communities. Significant values are indicated in bold. Fire Frequency: Shrubby Dry Forest: UB, Unburnt; S07, Single 2007; S13, Single 2013; D, Double. Sub-Alpine Woodland: UB, Unburnt; S, Single; D, Double; and T, Triple.

	Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise
<i>Shrubby Dry Forest</i>								
All Species	V	1	102.400	102.400	1.4400	0.2388	9796	
	F	3	1263.800	421.270	5.9239	0.0030	9940	UB ^a , S07 ^a , S13 ^a , D ^b
	V x F	3	40.200	13.400	0.1884	0.9071	9953	
	Res	32	2275.600	71.113				
	Total	39	3682.000					
Native Species	V	1	378.230	378.230	6.0107	0.0208	9834	Veg ^a , SSB ^b
	F	3	1038.900	346.290	5.5032	0.0044	9949	UB ^a , S07 ^a , S13 ^a , D ^b
	V x F	3	31.275	10.425	0.1657	0.9222	9950	
	Res	32	2013.600	62.925				
	Total	39	3462.000					
Introduced Species	V	1	55.225	55.225	33.7250	0.0001	9757	Veg ^a , SSB ^b
	F	3	7.075	2.358	1.4402	0.2501	9950	
	V x F	3	6.275	2.092	1.2774	0.2943	9958	
	Res	32	52.400	1.638				
	Total	39	120.980					
<i>Sub-Alpine Woodland</i>								
All Species	Source	df	SS	MS	Pseudo-F	P(perm)	perms	
	V	1	1200.500	1200.500	20.7650	0.0002	9766	Veg ^a , SSB ^b
	F	3	1001.800	333.920	5.7759	0.0042	9950	UB ^b , S ^{ab} , D13 ^a , T ^a
	V x F	3	121.750	40.583	0.7020	0.5574	9954	
	Res	24	1387.500					
Native Species	Total	31	3711.500					
	V	1	1313.300	1313.300	33.4510	0.0001	9815	Veg ^a , SSB ^b
	F	3	480.340	160.110	4.0783	0.0192	9946	UB ^b , S ^{ab} , D13 ^a , T ^a
	V x F	3	49.594	16.531	0.4211	0.7411	9954	
	Res	24	942.250	39.260				
Introduced Species	Total	31	2785.500					
	V	1	0.031	0.031	0.0069	0.9316	9744	
	F	3	105.340	35.115	7.7494	0.0005	9945	UB ^c , S ^b , D13 ^a , T ^{bc}
	V x F	3	13.094	4.365	0.9632	0.4299	9951	
	Res	24	108.750	4.531				
	Total	31	227.22					

Table S8 Results of the PERMANOVA, testing for the effect of fire frequency (F, number of fires since 2003) on H' in Shrubby Dry Forest and Sub-Alpine Woodland communities. Significant values are indicated in bold. Fire Frequency: Shrubby Dry Forest: UB, Unburnt; S07, Single 2007; S13, Single 2013; D, Double. Sub-Alpine Woodland: UB, Unburnt; S, Single; D, Double; and T, Triple.

Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise	Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise
Extant Vegetation								Soil Seed Bank							
<i>Shrubby Dry Forest</i>								<i>Shrubby Dry Forest</i>							
All species								All species							
F	3	0.198	0.066	2.3095	0.1196	9967		F	3	3.6009	1.2003	5.1358	0.0096	9955	UB ^a , S07 ^{ab} , S13 ^a , D ^b
Res	16	0.458	0.029					Res	16	3.7394	0.23371				
Total	19	0.656						Total	19	7.3402					
Native species								Native species							
F	3	0.197	0.066	2.3069	0.1170	9968		F	3	3.1953	1.0651	3.2458	0.055	9962	
Res	16	0.456	0.028					Res	16	5.2503	0.32815				
Total	19	0.653						Total	19	8.4457					
Introduced species								Introduced species							
F	3							F	3	1.1747	0.39158	1.0614	0.3843	9817	
Res								Res	16	5.9027	0.36892				
Total								Total	19	7.0775					
<i>Sub-Alpine Woodland</i>								<i>Sub-Alpine Woodland</i>							
All species								All species							
F	3	0.482	0.161	4.6125	0.0245	9941	UB ^a , Sa ^b , D ^b , T ^b	F	3	3.1456	1.0485	3.7715	0.0272	9932	UB ^a , S ^a , D ^b , T ^{ab}
Res	12	0.418	0.035					Res	12	3.3362	0.27802				
Total	15	0.899						Total	15	6.4818					
Native species								Native species							
F	3	0.521	0.174	4.5396	0.0232	9924	UB ^a , S ^a , D ^b , T ^b	F	3	3.0297	1.0099	3.7582	0.0291	9944	UB ^a , S ^a , D ^b , T ^{ab}
Res	12	0.459	0.038					Res	12	3.2247	0.26872				
Total	15	0.981						Total	15	6.2544					
Introduced species								Introduced species							
F	3	0.543	0.181	1.9105	0.1828	9056		F	3	2.9749	0.99162	3.261	0.0682	9736	
Res	12	1.136	0.095					Res	12	3.649	0.30408				
Total	15	1.679						Total	15	6.6239					

Table S9 Results of the PERMANOVA and SIMPER analysis, testing for the effect of vegetation type (V; Veg, Extant Vegetation; SSB, Soil Seed Bank) and fire frequency (F, number of fires since 2003) on species composition Shrubby Dry Forest and Sub-Alpine Woodland communities. Significant values are indicated in bold. Fire Frequency: Shrubby Dry Forest: UB, Unburnt; S07, Single 2007; S13, Single 2013; D, Double. Sub-Alpine Woodland: UB, Unburnt; S, Single; D, Double; and T, Triple.

Source	df	SS	MS	Pseudo-F	P(perm)	Unique Perms	Pairwise
<i>Shrubby Dry Forest</i>							
V	1	26802	26802	12.589	0.0001	9922	Veg ^a , SSB ^b
F	3	17159	5719.6	2.6864	0.0001	9903	UB ^a , S07 ^{ab} , S13 ^a , D ^b
V x F	3	6177	2059	0.96709	0.5164	9878	
Res	32	68131	2129.1				
Total	39	1.18E+05					
<i>Sub-Alpine Woodland</i>							
V	1	14923	14923	8.0416	0.0001	9922	Veg ^a , SSB ^b
F	3	11341	3780.3	2.037	0.0005	9879	UB ^a , S ^{ab} , D13 ^b , T ^c
V x F	3	6243.1	2081	1.1214	0.2768	9857	
Res	24	44538	1855.8				
Total	31	77045					

Average similarity between/within groups					
<i>Shrubby Dry Forest</i>					
Vegetation Type					
	Veg	SSB			
Veg	34.0				
SSB	15.5	30.1			
Fire Frequency					
	Unburned	S07	S13	Double	
Unburned	28.7				
S07	24.2	23.2			
S13	27.7	24.1	27.4		
Double	17.1	22.4	20.1	27.5	
<i>Sub-Alpine Woodland</i>					
Vegetation Type					
	Veg	SSB			
Veg	37.3				
SSB	25.0	36.4			
Fire Frequency					
	Unburned	Single	Double	Triple	
Unburned	39.5				
Single	33.1	29.3			
Double	27.5	30.6	30.2		
Triple	32.4	28.7	28.6	31.7	

SIMPER—Shrubby Dry Forest

Groups Veg and SSB

Average dissimilarity = 84.50

Species	Veg Av.Abund	SSB Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Laphangium luteoalbum</i>	0.0	1.0	3.0	2.5	3.6	3.6
<i>Acacia pycnantha</i>	0.8	0.1	2.3	1.3	2.8	6.3
<i>Eucalyptus sieberi</i>	0.7	0.1	2.1	1.2	2.5	8.8
<i>Eucalyptus muelleriana</i>	0.8	0.1	2.0	1.3	2.4	11.2
<i>Wahlenbergia</i> spp.	0.3	0.8	1.8	1.2	2.2	13.4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.7	0.1	1.8	1.2	2.1	15.5
<i>Hibbertia obtusifolia</i>	0.6	0.1	1.7	1.0	2.0	17.6
<i>Erigeron</i> sp	0.1	0.7	1.7	1.1	2.0	19.5
<i>Eucalyptus polyanthemus</i> subsp. <i>vestita</i>	0.6	0.0	1.6	1.1	1.9	21.5
<i>Poa sieberiana</i> var. <i>sieberiana</i>	0.8	0.5	1.6	0.9	1.9	23.4
<i>Billardiera mutabilis</i>	0.7	0.4	1.6	1.0	1.9	25.3
<i>Poranthera microphylla</i>	0.2	0.7	1.6	1.1	1.9	27.2
<i>Stypandra glauca</i>	0.6	0.4	1.5	1.0	1.8	29.0
<i>Cassinia longifolia</i>	0.7	0.6	1.5	0.9	1.8	30.8
<i>Dianella revoluta</i> var. <i>revoluta</i>	0.5	0.0	1.5	0.8	1.8	32.6
<i>Daviesia buxifolia</i>	0.6	0.6	1.4	0.9	1.6	34.2
<i>Eucalyptus macroryncha</i>	0.4	0.1	1.3	0.7	1.6	35.7
<i>Gahnia microstachya</i>	0.4	0.1	1.3	0.7	1.5	37.3
<i>Galium</i> spp.	0.2	0.5	1.2	0.9	1.4	38.7
<i>Lepidosperma</i> spp.	0.4	0.1	1.2	0.8	1.4	40.1
<i>Gamochaeta calviceps</i>	0.0	0.4	1.1	0.7	1.3	41.3
<i>Deyeuxia quadriseta</i>	0.3	0.4	1.1	0.9	1.3	42.6
<i>Goodenia ovata</i>	0.2	0.3	1.1	0.7	1.3	43.9
<i>Gamochaeta americana purpurea</i>	0.0	0.4	1.0	0.7	1.2	45.1
<i>Microleana stipoides</i> var. <i>stipoides</i>	0.3	0.3	1.0	0.8	1.2	46.3
<i>Erigeron sumatrensis</i>	0.0	0.4	1.0	0.7	1.2	47.5
<i>Veronica perfoliata</i>	0.2	0.2	1.0	0.6	1.2	48.7
<i>Eucalyptus tricarpa</i>	0.3	0.0	1.0	0.6	1.2	49.9
<i>Rhytidosporum procumbens</i>	0.2	0.2	1.0	0.6	1.2	51.0

Groups S13 and Double

Average dissimilarity = 79.91

Species	S13 Av.Abund	Double Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Stypandra glauca</i>	0.8	0.1	2.7	1.4	3.4	3.4
<i>Wahlenbergia</i> spp.	0.8	0.2	2.4	1.3	3.0	6.4
<i>Daviesia buxifolia</i>	0.5	1.0	2.0	0.9	2.5	8.9
<i>Poa sieberiana</i> var. <i>sieberiana</i>	0.7	0.3	1.9	1.1	2.4	11.4
<i>Erigeron</i> sp	0.5	0.2	1.8	0.9	2.3	13.6
<i>Cassinia longifolia</i>	0.6	0.5	1.8	0.9	2.2	15.8
<i>Acacia pycnantha</i>	0.5	0.5	1.7	1.0	2.2	18.0
<i>Laphangium luteoalbum</i>	0.5	0.5	1.7	1.0	2.2	20.2
<i>Eucalyptus sieberi</i>	0.5	0.3	1.7	0.9	2.1	22.3

SIMPER—Shrubby Dry Forest

<i>Eucalyptus muelleriana</i>	0.5	0.3	1.7	1.0	2.1	24.4
<i>Hibbertia obtusifolia</i>	0.4	0.4	1.7	0.9	2.1	26.4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.5	0.1	1.6	1.0	2.0	28.5
<i>Veronica perfoliata</i>	0.3	0.4	1.6	0.9	2.0	30.5
<i>Galium</i> spp.	0.5	0.1	1.6	0.9	2.0	32.5
<i>Poranthera microphylla</i>	0.4	0.2	1.5	0.8	1.9	34.4
<i>Billardiera mutabilis</i>	0.4	0.3	1.5	0.9	1.9	36.3
<i>Lepidosperma</i> spp.	0.4	0.2	1.5	0.9	1.9	38.2
<i>Erigeron bonariense</i>	0.3	0.0	1.3	0.6	1.7	39.8
<i>Microleana stipoides</i> var. <i>stipoides</i>	0.4	0.1	1.3	0.8	1.7	41.5
<i>Rhytidosporum procumbens</i>	0.3	0.1	1.3	0.7	1.6	43.1
<i>Dianella revoluta</i> var. <i>revoluta</i>	0.0	0.4	1.2	0.8	1.5	44.7
<i>Cassinia aculeata</i>	0.4	0.0	1.2	0.8	1.5	46.2
<i>Deyeuxia quadriseta</i>	0.4	0.0	1.2	0.8	1.5	47.7
<i>Bursaria spinosa</i> subsp. <i>spinosa</i>	0.2	0.3	1.2	0.8	1.5	49.1
<i>Gamochaeta calviceps</i>	0.2	0.2	1.2	0.7	1.5	50.6

Groups Double and Unburned

Average dissimilarity = 82.95

Species	Double Av.Abund	Unburnt Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Daviesia buxifolia</i>	1.0	0.2	2.3	1.7	2.8	2.8
<i>Stypantra glauca</i>	0.1	0.8	2.2	1.5	2.6	5.4
<i>Poa sieberiana</i> var. <i>sieberiana</i>	0.3	0.9	2.0	1.3	2.4	7.8
<i>Wahlenbergia</i> spp.	0.2	0.7	1.9	1.2	2.3	10.1
<i>Billardiera mutabilis</i>	0.3	0.6	1.7	1.0	2.1	12.2
<i>Eucalyptus macroryncha</i>	0.2	0.6	1.7	1.0	2.0	14.2
<i>Kunzea</i> sp (upright form)	0.0	0.6	1.7	1.1	2.0	16.2
<i>Eucalyptus muelleriana</i>	0.3	0.6	1.6	1.0	1.9	18.2
<i>Poranthera microphylla</i>	0.2	0.6	1.6	1.1	1.9	20.1
<i>Cassinia longifolia</i>	0.5	0.8	1.5	0.9	1.8	21.9
<i>Laphangium luteoalbum</i>	0.5	0.5	1.5	0.9	1.8	23.7
<i>Eucalyptus sieberi</i>	0.3	0.4	1.5	0.9	1.7	25.5
<i>Hibbertia obtusifolia</i>	0.4	0.4	1.4	0.9	1.7	27.2
<i>Acacia pycnantha</i>	0.5	0.3	1.4	1.0	1.7	28.9
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	0.1	0.5	1.4	0.9	1.7	30.7
<i>Microleana stipoides</i> var. <i>stipoides</i>	0.1	0.5	1.3	1.0	1.6	32.2
<i>Deyeuxia quadriseta</i>	0.0	0.5	1.3	1.0	1.5	33.8
<i>Galium</i> spp.	0.1	0.4	1.2	0.8	1.5	35.3
<i>Opercularia varia</i>	0.0	0.4	1.2	0.8	1.5	36.7
<i>Dianella revoluta</i> var. <i>revoluta</i>	0.4	0.2	1.2	0.9	1.5	38.2
<i>Solanum prinophyllum</i>	0.1	0.4	1.2	0.8	1.5	39.7
<i>Eucalyptus polyanthemus</i> subsp. <i>vestita</i>	0.1	0.4	1.2	0.8	1.4	41.1
<i>Goodenia ovata</i>	0.3	0.2	1.1	0.7	1.4	42.5
<i>Rhytidosporum procumbens</i>	0.1	0.3	1.1	0.7	1.4	43.8
<i>Veronica perfoliata</i>	0.4	0.0	1.1	0.8	1.3	45.1

SIMPER—Shrubby Dry Forest						
<i>Erigeron</i> spp.	0.2	0.3	1.0	0.8	1.3	46.4
<i>Hypericum gramineum</i>	0.0	0.4	1.0	0.8	1.2	47.6
<i>Rytidosperma</i> spp.p	0.0	0.4	0.9	0.8	1.1	48.7
<i>Gamochaeta americana purpurea</i>	0.1	0.3	0.9	0.7	1.1	49.8
<i>Pomax umbellata</i>	0.0	0.3	0.9	0.6	1.1	50.9

SIMPER—Sub-Alpine Woodland						
Groups Veg and SSB						
Average dissimilarity = 75.04	Veg	SSB				
Species	Av.Abund	Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Eucalyptus pauciflora</i>	1.0	0.0	2.4	3.0	3.1	3.1
<i>Tasmania xerophila</i> subsp. <i>xerophila</i>	0.6	0.0	1.5	1.1	2.0	5.1
<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>	0.8	0.3	1.4	1.2	1.9	7.0
<i>Polyschias sambucifolis</i> subsp. 3	0.5	0.0	1.4	0.9	1.8	8.8
<i>Laphangium luteoalbum</i>	0.0	0.6	1.4	1.0	1.8	10.6
<i>Acaena novae-zelandiae</i>	0.6	0.0	1.3	1.2	1.7	12.3
<i>Goodenia hederacea</i> subsp. <i>alpestris</i>	0.5	0.0	1.3	0.9	1.7	14.0
<i>Stellaria pungens</i>	0.8	0.4	1.3	1.0	1.7	15.8
<i>Podolobium alpestre</i>	0.6	0.4	1.2	0.9	1.7	17.4
<i>Senecio gunnii</i>	0.6	0.4	1.2	1.0	1.6	19.0
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.4	0.6	1.2	1.0	1.6	20.7
<i>Geranium</i> spp.	0.5	0.7	1.2	0.9	1.6	22.3
<i>Polystichum proliferum</i>	0.6	0.0	1.2	1.0	1.6	23.9
<i>Acrothamnus montanus</i>	0.5	0.0	1.2	0.9	1.6	25.5
<i>Oreomyrrhis eriopoda</i>	0.6	0.5	1.2	1.0	1.6	27.0
<i>Gonocarpus montanus</i>	0.6	0.6	1.1	0.8	1.5	28.5
<i>Stylidium armeria</i> subsp. <i>armeria</i>	0.4	0.3	1.1	0.9	1.5	30.0
<i>Hypochaeris radicata</i>	0.8	0.6	1.1	0.8	1.5	31.5
<i>Epilobium</i> spp.	0.4	0.4	1.1	0.9	1.4	32.9
<i>Leptinella filicula</i>	0.3	0.4	1.1	0.9	1.4	34.3
<i>Cerastium vulgare</i>	0.4	0.4	1.1	0.9	1.4	35.8
<i>Cassinia aculeata</i>	0.4	0.1	1.1	0.7	1.4	37.2
<i>Olearia phlogopappa</i> subsp. <i>flavescens</i>	0.5	0.1	1.0	1.0	1.4	38.6
<i>Acetocella vulgaris</i>	0.8	0.7	1.0	0.7	1.3	39.9
<i>Coprosma hirtella</i>	0.4	0.0	1.0	0.7	1.3	41.2
<i>Coronidium monticola</i>	0.5	0.1	1.0	1.0	1.3	42.5
<i>Viola arvensis</i>	0.3	0.4	1.0	0.9	1.3	43.8
<i>Wahlenbergia</i> spp.	0.1	0.4	0.9	0.8	1.2	45.0
<i>Arthropodium milleflorum</i> s.l.	0.4	0.0	0.9	0.8	1.2	46.2
<i>Asperula conferta</i>	0.4	0.1	0.9	0.8	1.2	47.4
<i>Carex breviculmis</i>	0.8	0.9	0.9	0.6	1.1	48.5
<i>Trifolium</i> spp.	0.3	0.3	0.8	0.8	1.1	49.6
<i>Celmisia tomentella</i>	0.3	0.0	0.7	0.6	1.0	50.6

SIMPER—Sub-Alpine Woodland

Groups Unburned and Double

Average dissimilarity = 72.50

Species	Unburnt	Double	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
<i>Cerastium vulgare</i>	0.8	0.0	1.7	1.5	2.4	2.4
<i>Oreomyrrhis eriopoda</i>	1.0	0.4	1.6	1.2	2.2	4.6
<i>Trifolium</i> spp.	0.6	0.0	1.4	1.2	1.9	6.5
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.9	0.4	1.4	1.1	1.9	8.4
<i>Geranium</i> spp.	0.9	0.4	1.4	1.1	1.9	10.3
<i>Hypochaeris radicata</i>	1.0	0.5	1.3	0.9	1.8	12.1
<i>Acetocella vulgaris</i>	1.0	0.5	1.3	0.9	1.8	13.9
<i>Leptinella filicula</i>	0.6	0.3	1.3	1.0	1.8	15.7
<i>Senecio gunnii</i>	0.4	0.6	1.3	1.0	1.8	17.5
<i>Podolobium alpestre</i>	0.3	0.6	1.3	1.0	1.8	19.3
<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>	0.6	0.4	1.2	1.0	1.7	21.0
<i>Epilobium</i> spp.	0.5	0.3	1.2	0.9	1.6	22.6
<i>Olearia phlogopappa</i> subsp. <i>flavescens</i>	0.5	0.1	1.2	0.9	1.6	24.1
<i>Stellaria pungens</i>	0.6	0.6	1.1	0.9	1.6	25.7
<i>Eucalyptus pauciflora</i>	0.5	0.5	1.1	1.0	1.5	27.2
<i>Dichondra repens</i>	0.5	0.0	1.0	0.9	1.4	28.7
<i>Asperula conferta</i>	0.4	0.3	1.0	0.8	1.4	30.1
<i>Acaena novaezelandiae</i>	0.5	0.1	1.0	0.9	1.4	31.5
<i>Goodenia hederacea</i> subsp. <i>alpestris</i>	0.0	0.5	1.0	1.0	1.4	32.9
<i>Carex breviculmis</i>	1.0	0.6	1.0	0.7	1.3	34.2
<i>Brachyscome decipiens</i>	0.5	0.0	1.0	1.0	1.3	35.5
<i>Galium</i> spp.	0.4	0.1	0.9	0.8	1.3	36.8
<i>Poranthera microphylla</i>	0.4	0.0	0.9	0.7	1.3	38.1
<i>Gonocarpus montanus</i>	0.6	0.9	0.9	0.8	1.3	39.4
<i>Tasmania xerophila</i> subsp. <i>xerophila</i>	0.4	0.3	0.9	0.8	1.3	40.7
<i>Cassinia aculeata</i>	0.1	0.4	0.9	0.8	1.3	41.9
<i>Asperula gunnii</i>	0.3	0.3	0.9	0.7	1.2	43.2
<i>Polystichum proliferum</i>	0.4	0.1	0.9	0.8	1.2	44.4
<i>Anthoxanthum odoratum</i>	0.4	0.0	0.8	0.7	1.1	45.5
<i>Viola arvensis</i>	0.4	0.1	0.8	0.8	1.1	46.6
<i>Wahlenbergia</i> spp.	0.3	0.1	0.8	0.6	1.1	47.7
<i>Polyschias sambucifolis</i> subsp. 3	0.0	0.4	0.8	0.8	1.1	48.8
<i>Laphangium luteoalbum</i>	0.1	0.3	0.8	0.6	1.1	49.9
<i>Acacia alpina</i>	0.3	0.1	0.8	0.6	1.1	51.0

Groups Unburned and Triple

Average dissimilarity = 67.63

Species	Unburnt	Triple	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.9	0.3	1.4	1.3	2.1	2.1
<i>Oreomyrrhis eriopoda</i>	1.0	0.4	1.4	1.2	2.0	4.1
<i>Gonocarpus montanus</i>	0.6	0.4	1.1	1.0	1.7	5.8
<i>Leptinella filicula</i>	0.6	0.3	1.1	1.0	1.6	7.4

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<i>Trifolium</i> spp.	0.6	0.4	1.1	1.0	1.6	9.0
<i>Wahlenbergia</i> spp.	0.3	0.5	1.0	0.9	1.5	10.5
<i>Stellaria pungens</i>	0.6	0.5	1.0	0.9	1.5	12.1
<i>Cerastium vulgare</i>	0.8	0.5	1.0	0.9	1.5	13.6
<i>Epilobium</i> spp.	0.5	0.4	1.0	0.9	1.5	15.1
<i>Olearia phlogopappa</i> subsp. <i>flavescens</i>	0.5	0.3	1.0	0.9	1.5	16.5
<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>	0.6	0.6	1.0	0.9	1.4	18.0
<i>Eucalyptus pauciflora</i>	0.5	0.5	1.0	1.0	1.4	19.4
<i>Laphangium luteoalbum</i>	0.1	0.4	1.0	0.8	1.4	20.8
<i>Coronidium monticola</i>	0.4	0.5	0.9	1.0	1.4	22.2
<i>Senecio gunnii</i>	0.4	0.5	0.9	1.0	1.4	23.6
<i>Acaena novaezelandiae</i>	0.5	0.3	0.9	0.9	1.4	25.0
<i>Dichondra repens</i>	0.5	0.0	0.9	0.9	1.4	26.3
<i>Stylidium armeria</i> subsp. <i>armeria</i>	0.1	0.5	0.9	1.0	1.4	27.7
<i>Asperula conferta</i>	0.4	0.3	0.9	0.8	1.3	29.0
<i>Viola arvensis</i>	0.4	0.4	0.9	0.9	1.3	30.3
<i>Brachyscome decipiens</i>	0.5	0.0	0.9	1.0	1.3	31.5
<i>Geranium</i> spp.	0.9	0.6	0.8	0.8	1.2	32.8
<i>Arthropodium milleflorum</i> s.l.	0.4	0.4	0.8	0.9	1.2	34.0
<i>Podolobium alpestre</i>	0.3	0.4	0.8	0.8	1.2	35.2
<i>Olearia speciosa</i>	0.3	0.4	0.8	0.8	1.2	36.4
<i>Polystichum proliferum</i>	0.4	0.3	0.8	0.8	1.2	37.6
<i>Poranthera microphylla</i>	0.4	0.0	0.8	0.7	1.2	38.8
<i>Poa sieberiana</i> var. <i>sieberiana</i>	0.3	0.4	0.8	0.9	1.1	40.0
<i>Galium</i> sp_combined	0.4	0.0	0.8	0.7	1.1	41.1
<i>Tasmania xerophila</i> subsp. <i>xerophila</i>	0.4	0.1	0.7	0.8	1.1	42.2
<i>Anthoxanthum odoratum</i>	0.4	0.0	0.7	0.7	1.1	43.3
<i>Euchiton involucratus</i>	0.1	0.3	0.7	0.6	1.1	44.3
<i>Senecio prenanthoides</i>	0.4	0.1	0.7	0.8	1.1	45.4
<i>Hypochaeris radicata</i>	1.0	0.8	0.7	0.6	1.0	46.4
<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>	0.3	0.3	0.7	0.8	1.0	47.3
<i>Erigeron sumatrensis</i>	0.3	0.1	0.7	0.6	1.0	48.3
<i>Euchiton japonicus</i>	0.3	0.1	0.7	0.6	1.0	49.3
<i>Hypericum perfoliatum</i> subsp. <i>veronense</i>	0.0	0.4	0.7	0.7	1.0	50.2

Groups Double and Triple

Average dissimilarity = 71.41

Species	Double	Triple	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
<i>Gonocarpus montanus</i>	0.9	0.4	1.9	1.0	2.7	2.7
<i>Senecio gunnii</i>	0.6	0.5	1.7	0.8	2.4	5.1
<i>Wahlenbergia</i> spp.	0.1	0.5	1.7	0.8	2.4	7.6
<i>Acetocella vulgaris</i>	0.5	0.9	1.7	0.8	2.4	9.9
<i>Geranium</i> spp.	0.4	0.6	1.7	0.8	2.4	12.3
<i>Podolobium alpestre</i>	0.6	0.4	1.7	0.9	2.3	14.6
<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>	0.4	0.6	1.7	0.8	2.3	16.9
<i>Laphangium luteoalbum</i>	0.3	0.4	1.6	0.7	2.3	19.2

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<i>Cerastium vulgare</i>	0.0	0.5	1.6	0.8	2.2	21.4
<i>Hypochaeris radicata</i>	0.5	0.8	1.6	0.9	2.2	23.6
<i>Stellaria pungens</i>	0.6	0.5	1.5	0.9	2.1	25.7
<i>Eucalyptus pauciflora</i>	0.5	0.5	1.4	0.9	2.0	27.7
<i>Carex breviculmis</i>	0.6	1.0	1.4	0.6	2.0	29.7
<i>Goodenia hederacea</i> subsp. <i>alpestris</i>	0.5	0.4	1.4	0.9	1.9	31.6
<i>Stylidium armeria</i> subsp. <i>armeria</i>	0.3	0.5	1.3	0.9	1.9	33.4
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.4	0.3	1.3	0.8	1.8	35.3
<i>Polyschias sambucifolis</i> subsp. <i>3</i>	0.4	0.4	1.3	0.9	1.8	37.1
<i>Oreomyrrhis eriopoda</i>	0.4	0.4	1.3	0.9	1.8	38.8
<i>Leptinella filicula</i>	0.3	0.3	1.3	0.6	1.8	40.6
<i>Cassinia aculeata</i>	0.4	0.3	1.2	0.8	1.7	42.3
<i>Coronidium monticola</i>	0.0	0.5	1.2	0.9	1.7	44.0
<i>Coprosma hirtella</i>	0.3	0.4	1.2	0.8	1.6	45.6
<i>Epilobium</i> spp.	0.3	0.4	1.1	0.8	1.6	47.2
<i>Viola arvensis</i>	0.1	0.4	1.1	0.8	1.5	48.7
<i>Senecio vellioides</i>	0.0	0.3	1.1	0.5	1.5	50.2

Groups Single and Triple

Average dissimilarity = 71.30

Species	Single Av.Abund	Triple Av.Abund	Av.Diss	Diss/SD	Contrib%	Cum.%
<i>Podolobium alpestre</i>	0.9	0.4	1.5	1.1	2.2	2.2
<i>Gonocarpus montanus</i>	0.6	0.4	1.3	1.0	1.8	4.0
<i>Wahlenbergia</i> spp.	0.0	0.5	1.3	0.9	1.8	5.8
<i>Stellaria pungens</i>	0.8	0.5	1.3	0.9	1.8	7.6
<i>Viola betonicifolia</i> subsp. <i>betonicifolia</i>	0.4	0.6	1.3	1.0	1.8	9.4
<i>Stylidium armeria</i> subsp. <i>armeria</i>	0.5	0.5	1.2	0.9	1.7	11.1
<i>Geranium</i> spp.	0.5	0.6	1.2	0.9	1.7	12.8
<i>Cerastium vulgare</i>	0.4	0.5	1.2	0.9	1.7	14.5
<i>Laphangium luteoalbum</i>	0.4	0.4	1.2	0.9	1.7	16.1
<i>Eucalyptus pauciflora</i>	0.5	0.5	1.2	0.9	1.7	17.8
<i>Viola arvensis</i>	0.5	0.4	1.2	0.9	1.6	19.4
<i>Luzula meridionalis</i> subsp. <i>flaccida</i>	0.5	0.3	1.2	0.9	1.6	21.1
<i>Epilobium</i> spp.	0.5	0.4	1.2	0.9	1.6	22.7
<i>Senecio gunnii</i>	0.5	0.5	1.2	0.9	1.6	24.3
<i>Tasmania xerophila</i> subsp. <i>xerophila</i>	0.5	0.1	1.1	0.9	1.6	25.9
<i>Oreomyrrhis eriopoda</i>	0.5	0.4	1.1	0.9	1.6	27.5
<i>Hypochaeris radicata</i>	0.6	0.8	1.1	0.8	1.6	29.0
<i>Leptinella filicula</i>	0.4	0.3	1.1	0.8	1.5	30.5
<i>Acetocella vulgaris</i>	0.6	0.9	1.1	0.8	1.5	32.0
<i>Coronidium monticola</i>	0.3	0.5	1.0	1.0	1.5	33.5
<i>Polyschias sambucifolis</i> subsp. <i>3</i>	0.3	0.4	1.0	0.8	1.4	34.9
<i>Erigeron</i> sp	0.4	0.0	1.0	0.7	1.3	36.2
<i>Acrothamnus montanus</i>	0.4	0.3	0.9	0.8	1.3	37.5
<i>Acaena novaezelandiae</i>	0.4	0.3	0.9	0.8	1.3	38.8
<i>Polystichum proliferum</i>	0.4	0.3	0.9	0.8	1.3	40.1

SIMPER—Sub-Alpine Woodland						
<i>Olearia phlogopappa</i> subsp. <i>flavescens</i>	0.4	0.3	0.9	0.8	1.3	41.3
<i>Coprosma hirtella</i>	0.1	0.4	0.9	0.8	1.2	42.6
<i>Senecio vellioides</i>	0.1	0.3	0.9	0.6	1.2	43.8
<i>Goodenia hederacea</i> subsp. <i>alpestris</i>	0.1	0.4	0.8	0.8	1.2	44.9
<i>Asperula pusilla</i>	0.1	0.3	0.8	0.6	1.1	46.1
<i>Trifolium</i> spp.	0.1	0.4	0.8	0.8	1.1	47.2
<i>Pimelea alpina</i>	0.4	0.0	0.8	0.7	1.1	48.3
<i>Poa sieberiana</i> var. <i>sieberiana</i>	0.1	0.4	0.8	0.8	1.1	49.4
<i>Dianella tasmanica</i>	0.3	0.3	0.8	0.7	1.1	50.5

Table S10 Significance of Vegetation Type and Fire Frequency effects on trait associations for Shrubby Dry Forest. For each trait there was no significant ($P > 0.05$) Vegetation Type \times Fire Frequency interaction. Values represent the mean proportion of species with each attribute according to Vegetation Type and Fire Frequency. SIMPER tests provide the mean contribution to dissimilarity for significant pairwise comparisons. Bold values indicate the two attributes that contributed most strongly to dissimilarity for each pairwise comparison.

Trait and attribute	Vegetation Type		Dissimilarity %	Fire Frequency ^A				Dissimilarity %	
	veg	ssb	veg v ssb	UB	S07	S13	D	S13 v D	UB v D
Life Form	$F(1, 32) = 37.55, P = 0.0001$			$F(1, 32) = 2.35, P = 0.0186$					
			50.7****	a	ab	a	b	44.8**	41.6*
Erect Rosette	19.7	10.2	6.4	4.8	16.7	14.8	11.6	7.9	8.0
Therophyte	1.9	29.6	34.0	10.2	18.7	16.5	17.7	25.2	24.0
Chamaephyte	7.8	9.3	3.7	7.7	5.8	10.7	9.8	5.4	6.2
Proto-hemicryptophyte	7.2	15.3	5.6	14.7	9.9	14.1	6.4	7.0	9.0
Flat Rosette	4.4	3.3	1.7	4.8	5.3	4.5	0.8	1.7	2.0
Geophyte	0.9	3.2	0.8	2.9	1.8	2.6	0.8	1.0	1.1
Phanerophyte	56.3	26.5	46.8	40.1	39.2	33.5	52.9	50.8	48.9
Epiphyte	1.0	0.0	0.2	0.0	1.5	0.4	0.0	0.1	0.0
Partial Rosette	0.8	2.6	0.6	2.7	1.2	2.7	0.0	0.9	0.7
Dispersal Mode	$F(1, 32) = 30.74, P = 0.0001$			$F(1, 32) = 1.93, P = 0.0318$					
			42.3****	a	ab	a	b	36.8*	36.2*
Barochore	38.0	23.0	20.2	30.8	31.9	32.1	27.2	20.2	19.7
Anemochore	9.4	34.8	43.2	16.6	22.8	20.8	28.2	38.7	39.9
Myrmecochore	28.0	16.2	14.8	22.6	19.3	20.6	25.8	14.4	12.0
Endozoochore	12.4	4.2	7.7	7.0	11.4	4.8	9.9	7.9	7.0
Mobile	8.2	18.3	11.9	17.7	11.9	16.9	6.5	15.4	17.9
Epizoochore	3.9	3.6	2.2	5.3	2.6	4.8	2.4	3.5	3.5
Fire Response	$F(1, 32) = 55.82, P = 0.0001$			$F(1, 32) = 1.53, P = 0.1484$					
			45.5****						
R	53.9	29.1	36.1	44.4	40.9	38.7	42.0		
S	17.4	49.1	51.4	28.5	32.2	33.3	39.1		
Rs	8.0	4.7	3.6	7.1	8.9	7.9	1.5		
SR	13.2	7.7	5.0	8.5	9.5	11.4	12.3		
Sr	7.5	9.4	3.8	11.5	8.6	8.7	5.0		

PERMANOVA tested for differences in Euclidean distance between Vegetation Type, Fire Frequency, and their interaction. Significant pairwise comparisons are indicated (* $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$, and **** $P \leq 0.0001$).

^A Fire Frequency (UB, Unburnt; S07, Single2007; S13, Single 2013; and D, Double)

Table S11 Significance of Vegetation Type and Fire Frequency effects on trait associations for Sub-Alpine Woodland. For each trait there was no significant ($P > 0.05$) Vegetation Type \times Fire Frequency interaction. Values represent the mean proportion of species with each attribute according to Vegetation Type and Fire Frequency. SIMPER tests provide the mean contribution to dissimilarity for significant pairwise comparisons. Bold values indicate the two attributes that contributed most strongly to dissimilarity for each pairwise comparison.

Trait and attribute	Vegetation Type		Dissimilarity %	Fire Frequency ^A			
	veg	ssb	veg v ssb	UB	S	D	T
Life Form	$F(1, 24) = 27.01, P = 0.0001$			$F(1, 24) = 1.67, P = 0.0638$			
			40.6****				
Erect Rosette	18.7	31.4	13.2	24.9	22.2	26.4	26.7
Therophyte	3.0	14.9	12.5	8.3	8.3	6.5	12.8
Chamaephyte	13.9	3.6	8.3	9.9	9.4	7.7	8.0
Proto-hemicryptophyte	12.6	26.0	15.6	16.3	18.2	24.6	18.0
Flat Rosette	9.1	8.5	2.8	13.2	9.2	6.8	6.0
Geophyte	2.1	1.7	0.8	1.6	1.2	3.2	1.7
Phanerophyte	29.5	5.7	41.3	15.0	23.5	19.0	12.8
Epiphyte	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Partial Rosette	11.1	8.2	5.4	10.9	8.0	5.8	14.0
Dispersal Mode	$F(1, 24) = 5.89, P = 0.0008$			$F(1, 24) = 0.59, P = 0.8168$			
			30.3***				
Barochore	39.1	49.3	34.3	46.0	40.5	46.6	43.9
Anemochore	23.8	28.4	24.0	23.2	25.0	26.5	29.8
Myrmecochore	14.8	9.4	11.3	9.8	13.2	15.0	10.6
Endozoochore	12.5	0.8	16.5	6.4	8.1	6.1	6.0
Mobile	4.9	8.7	10.3	7.6	8.4	4.1	7.1
Epizoochore	4.8	3.3	3.5	7.0	4.8	1.8	2.6
Fire Response	$F(1, 24) = 1.77, P = 0.1518$			$F(1, 24) = 1.15, P = 0.3399$			
R	45.4	43.0		38.8	42.0	47.6	48.4
S	21.7	29.1		28.4	27.2	21.0	24.9
Rs	14.3	11.3		11.5	11.5	17.4	10.7
SR	12.8	10.7		14.1	12.1	9.2	11.6
Sr	5.8	6.0		7.3	7.3	7.7	4.3

PERMANOVA tested for differences in Euclidean distance between Vegetation Type, Fire Frequency, and their interaction. Significant pairwise comparisons are indicated (* $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$, and **** $P \leq 0.0001$).

^A Fire Frequency (UB, Unburnt; S, Single; D, Double; and T, Triple)

Figure S1 Map of the study area showing the distribution of the two forest types and location of study sites. The reference coordinate system used is VicGrid GDA2020.

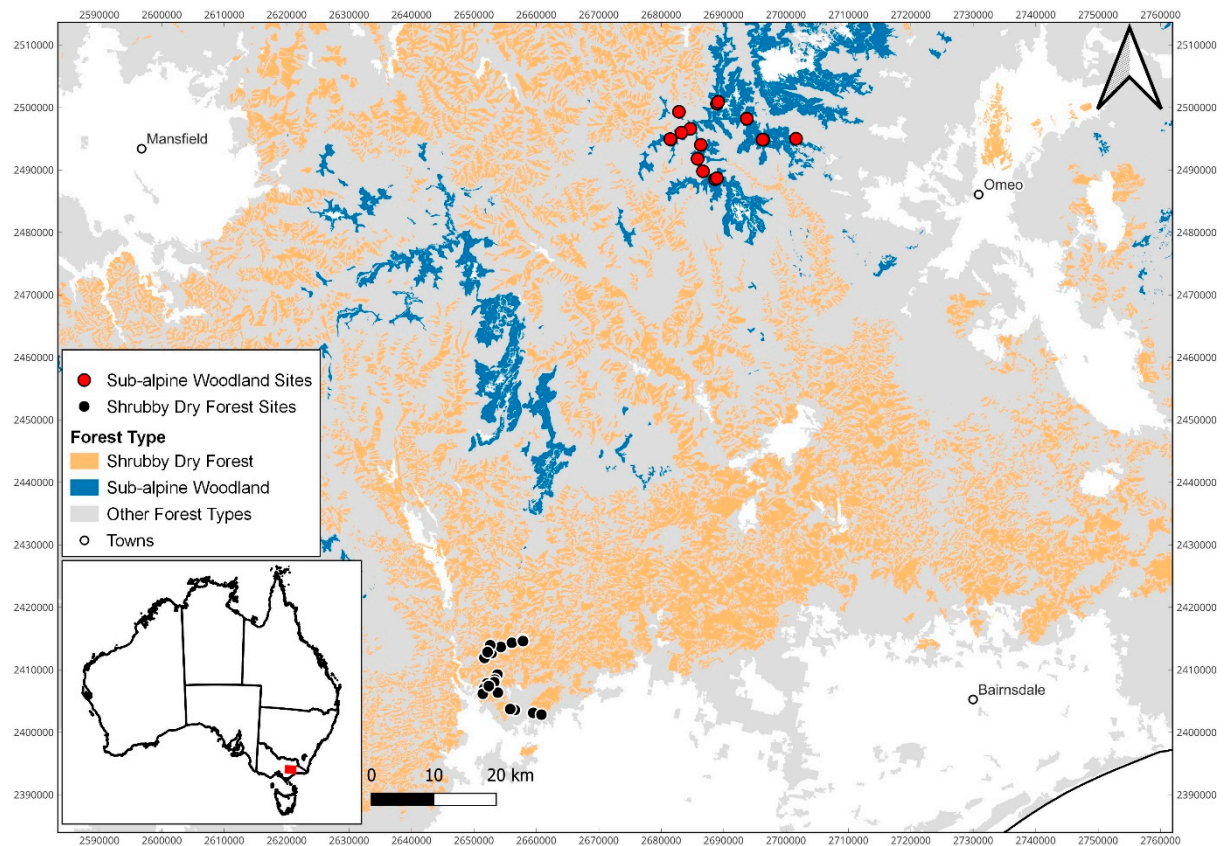


Figure S2 Examples of study plots of the two forest types burnt at different frequencies: (a) unburnt Sub-Alpine Woodland (last burnt 1939, photo November 2017), (b) triple-burnt Sub-Alpine Woodland (last burnt January 2013, photo November 2017), (c) unburnt Shrubby Dry Forests (last burnt 1990, photo October 2017), and (d) double-burnt Shrubby Dry Forest (last burnt January 2013, photo October 2017).

(a) Unburnt Sub-Alpine Woodland



(b) Triple-burnt Sub-Alpine Woodland



(c) Unburnt Shrubby Dry Forest

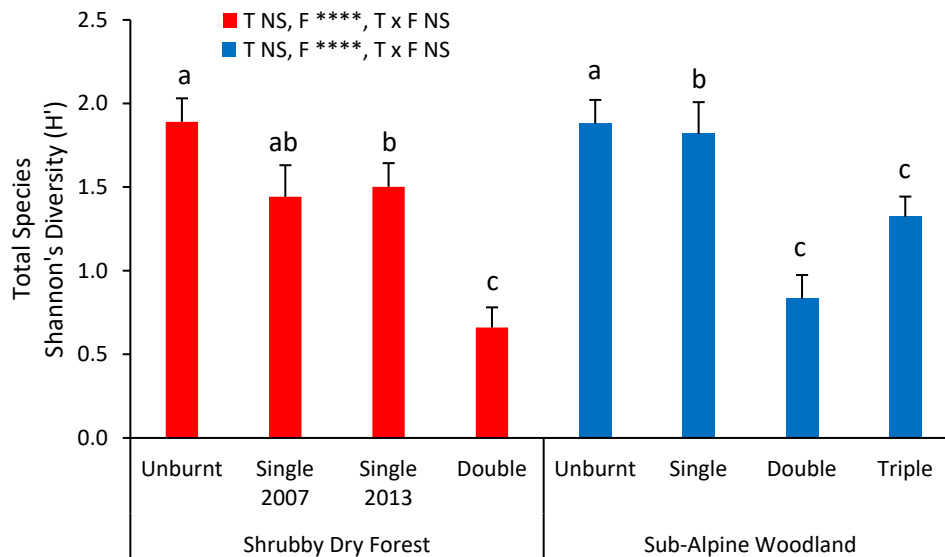


(d) Double-burnt Shrubby Dry Forest



Figure S3 Shannon's Diversity (H') of all species (a), native species (b), and introduced species (c) in the soil seed bank according to Fire Frequency for Shrubby Dry Forest and Sub-Alpine Woodland. Bars represent means with one standard error. Significance of effects were determined via two-way PERMANOVA (on Euclidean distance) of Treatment (T), Fire Frequency (F), and their interaction (T \times F). For each species pool (total, native, and introduced) significant effects are indicated by superscript letters ($P \leq 0.05$). Statistical analyses in Table S5. (* $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$, **** $P \leq 0.0001$, and NS not significant)

(a) All species



(b) Native Species

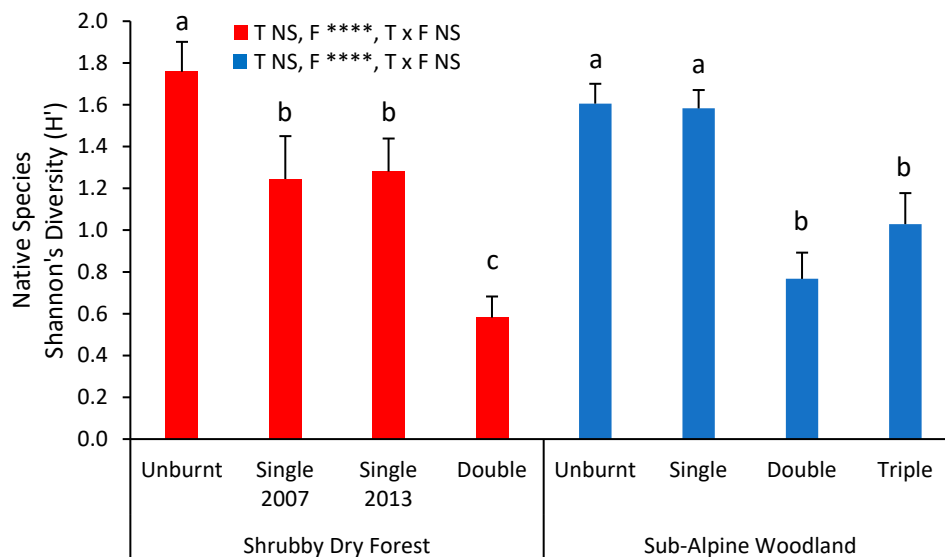


Figure S3 (cont.)

(c) Introduced Species

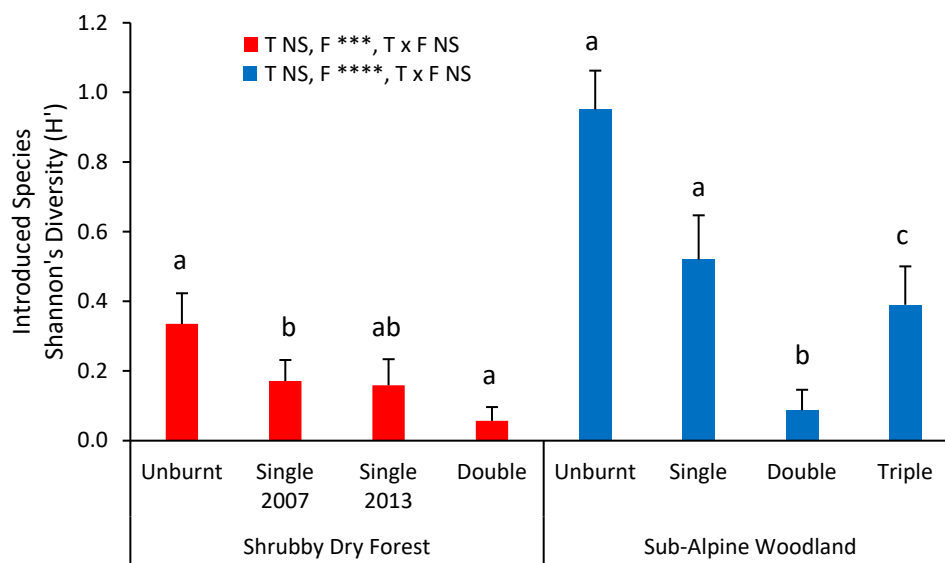
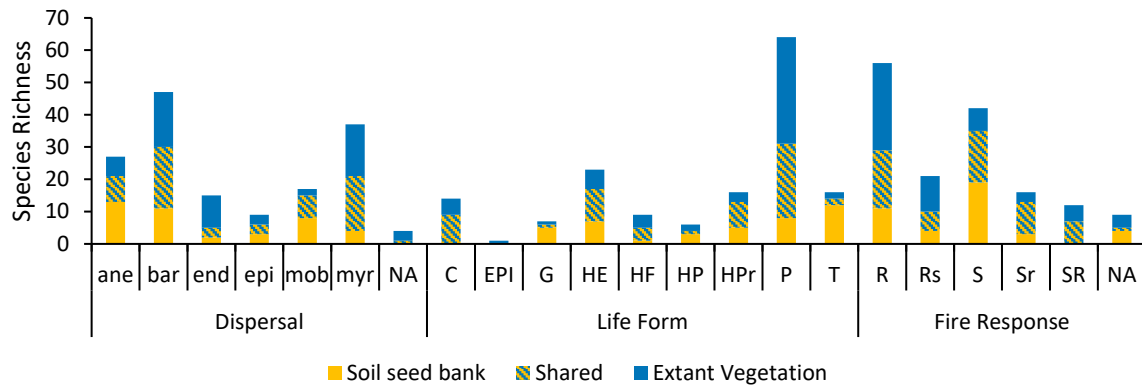


Figure S4 Total aggregated species richness (across all sites) for traits within each plant functional type (dispersal mode, life form, and fire response strategy). Totals are defined according to those species restricted to the soil seed bank or extant vegetation, and those shared between vegetation types within Shrubby Dry Forest (top) and Sub-Alpine Woodland (bottom). Trait abbreviations follow Table S2. N/A, not available.

Shrubby Dry Forest



Sub-Alpine Woodland

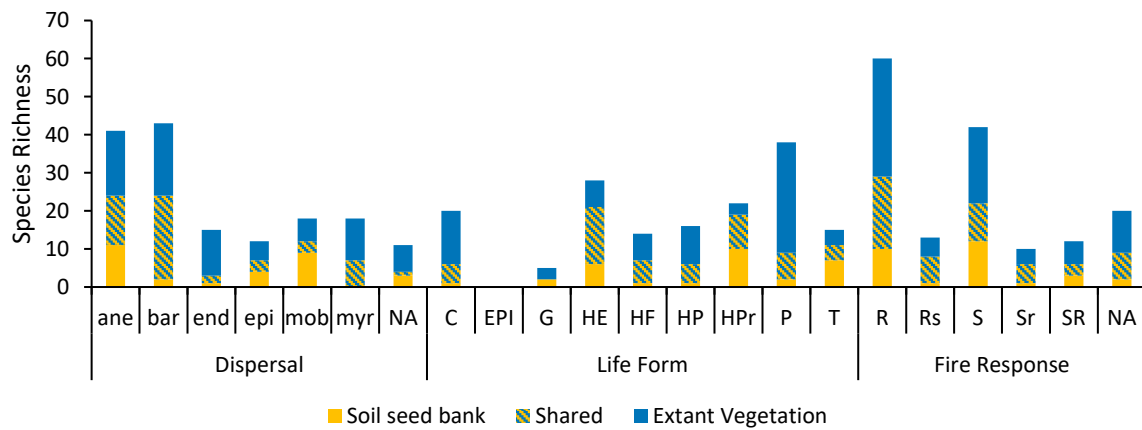
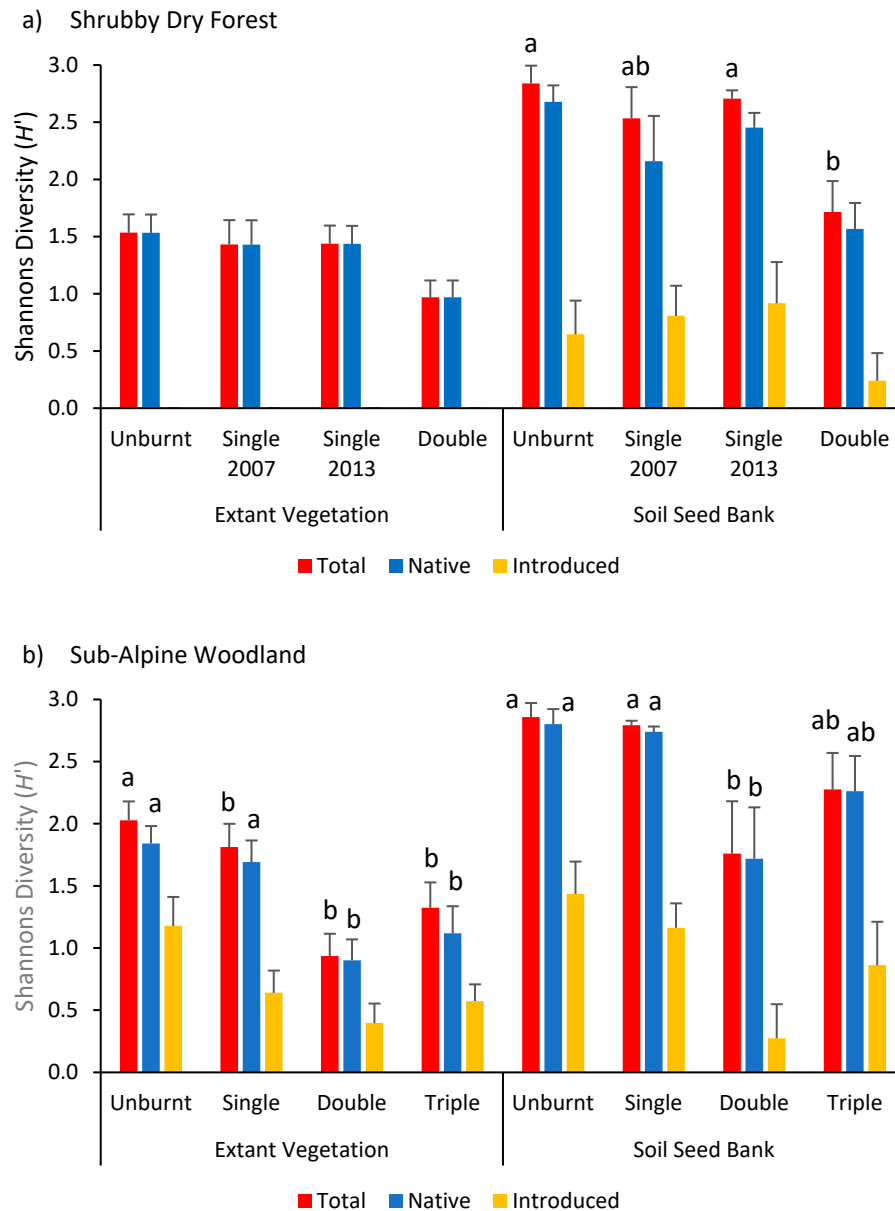


Figure S5 Shannon's Diversity (H') of all species (a), native species (b), and introduced species (c) in the extant vegetation and soil seed bank (combined pool across all treatments) according to Fire Frequency for (a) Shrubby Dry Forest and (b) Sub-Alpine Woodland. Bars represent means with one standard error. Significance of effects were determined via one-way PERMANOVA (on Euclidean distance) of Fire Frequency (F). There was no test for vegetation type effects on H' due to differences in abundance measures for extant vegetation and soil seed bank. For each species pool (total, native, introduced) significant effects are indicated by superscript letters ($P \leq 0.05$). Statistical analyses in Table S8. (* $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$, **** $P \leq 0.0001$, and NS not significant). There are no data for introduced species in Shrubby Dry Forest due to lack of species.



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