Supplementary table 1. Ecological characterization and functional traits of the shrub species at Fogueruix (South face) and Bargadèra (North face)

	Ecological characterization							
Name of site	**Site**	**Specie**	**Altitudinal distribution in the Pyrenees (m)**	**Abundance at regional scale**	**Substrate preference**	**Ecological ubiquity**	**Dominance**	**Colonization capacity**
Fogueruix	South face	*Arctostaphylos uva-ursi*	400-2800	very high	no preference	medium	high	medium
Fogueruix	South face	*Juniperus communis*	1200-2800	high	no preference	high	medium	high
Fogueruix	South face	*Juniperus sabina*	800-2400	rare	no preference	low	low	low
Bargadèra	North face	*Rhododendron ferrugineum*	1000-2800	very high	acidic	medium	high	medium
Bargadèra	North face	*Vaccinium myrtillus*	400-2800	very high	acidic	high	high	high
Bargadèra	North face	*Calluna vulgaris*	0-2800	very high	acidic	medium	medium	high

	Functional traits									
Name of site	**Site**	**Specie**	**Shrub type**	**Canopy height (cm)**	**Wood density (mg cm-3)**	**Leaf area (mm2)**	**Specific leaf area (mm2 mg-1)**	**Foliar dry mass (mg g-1)**	**Foliar [N] (%)**	**Seed weight (mg)**
Fogueruix	South face	*Arctostaphylos uva-ursi*	evergreen	14.45 ± 3.03	539.38 ± 39.45	126.55 ± 41.05	5.35 ± 1.66	417.44 ± 55.55	1.04 ± 0.15	9.55 ± 2.05
Fogueruix	South face	*Juniperus communis*	evergreen	47.5 ± 8.35	629.01 ± 54.27	10.95 ± 1.76	6.14 ± 0.96	464.14 ± 62.59	1.36 ± 0.20	9.75 ± 1.47
Fogueruix	South face	*Juniperus sabina*	evergreen	40.73 ± 16.33	667.28 ± 44.91	43.06 ± 12.91	9.39 ± 0.98	480.38± 29.11	1.46 ± 0.12	16.88 ± 4.88
Bargadèra	North face	*Rhododendron ferrugineum*	evergreen	44.8 ± 4.10	457.18 ± 19	162.45 ± 19.38	6.10 ± 0.44	493.21± 16.29	1.62± 0.09	0.026 ± 0.003
Bargadèra	North face	*Vaccinium myrtillus*	deciduous	21.25 ± 3.06	571.89 ± 32.63	85.88 ± 32.25	22.17 ± 4.02	326.33±30.16	1.57 ± 0.14	0.26 ± 0.02
Bargadèra	North face	*Calluna vulgaris*	evergreen	19.15 ± 3.25	525.59 ± 24.42	1.42 ± 0.24	15.33 ± 1.52	430.02±157.69	1.30 ± 0.18	0.035± 0.003

Supplementary table 2 (ST2) Means ± SD values for the element concentrations (% dry weight/dry weight), mass (g m-2)* and element contents (g m-2)

Site	Vegetation type	Succession stage	Compartment	mass (g m-2)*	sd	C	sd	N	sd	NP	sd	CP	sd	CN	sd	P	sd	K	sd	Mg	sd	Ca	sd	Fe	sd	C (g m-2)	sd	N (g m-2)	sd	P (g m-2)	sd	K (g m-2)	sd	Mg (g m-2)	sd	Ca (g m-2)	sd	Fe (g m-2)	sd
North face	Grasses	Pure grassland	leaf	509.470	282.474	45.187	0.450	1.931	0.253	14.456	3.136	339.643	65.364	23.724	3.200	0.137	0.024	1.591	0.303	0.102	0.029	0.220	0.037	0.013	0.005	230.083	127.939	9.435	4.114	0.713	0.424	8.555	5.666	0.545	0.423	1.125	0.706	0.060	0.023
North face	Grasses	Pure grassland	litter	509.470	282.474	45.079	0.810	1.091	0.124	13.891	0.902	583.832	110.084	41.787	5.175	0.079	0.014	0.387	0.184	0.095	0.029	0.342	0.109	0.054	0.016	230.435	128.819	5.469	2.977	0.396	0.221	1.982	1.284	0.476	0.317	1.674	0.977	0.247	0.078
North face	Grasses	Pure grassland	soil	34904.459	14647.668	10.725	1.488	0.864	0.118	6.367	0.980	79.044	12.182	12.418	0.196	0.136	0.005	1.128	0.033	0.030	0.004	0.089	0.028	4.071	0.172	3645.707	1502.849	294.789	124.998	47.564	20.203	394.992	168.268	10.282	4.481	28.409	9.357	1428.556	605.051
North face	Grasses	young shrubland	leaf	324.960	198.685	44.703	0.244	1.205	0.149	11.072	5.283	416.877	211.345	37.533	4.652	0.133	0.068	1.185	0.212	0.101	0.030	0.240	0.038	0.006	0.002	145.280	89.007	3.751	1.909	0.360	0.124	3.646	1.799	0.326	0.196	0.752	0.396	0.019	0.009
North face	Grasses	young shrubland	litter	324.960	198.685	45.857	3.964	0.784	0.057	15.253	5.047	881.623	253.462	58.588	4.012	0.056	0.019	0.117	0.005	0.049	0.012	0.345	0.089	0.045	0.009	146.892	83.962	2.529	1.457	0.160	0.053	0.376	0.216	0.165	0.108	1.249	1.080	0.147	0.083
North face	Grasses	young shrubland	soil	34412.597	2166.914	7.830	3.657	0.437	0.225	4.696	3.026	83.302	48.492	18.156	1.321	0.098	0.022	1.286	0.158	0.006	0.002	0.158	0.015	3.883	0.885	2672.341	1156.422	148.603	70.145	33.987	9.921	443.628	68.462	2.317	0.753	54.641	8.237	1349.040	392.592
North face	*Calluna vulgaris*	young shrubland	leaf	281.440	133.730	50.043	0.722	1.396	0.228	16.168	2.058	667.108	104.996	41.184	2.118	0.089	0.023	0.495	0.088	0.247	0.034	0.487	0.063	0.011	0.002	140.373	65.644	4.138	2.506	0.271	0.185	1.473	0.908	0.714	0.396	1.403	0.817	0.030	0.009
North face	*Calluna vulgaris*	young shrubland	litter	92.875	4.012	50.580	0.814	1.343	0.182	18.410	0.551	890.371	120.873	48.263	5.331	0.075	0.018	0.219	0.048	0.197	0.031	0.664	0.074	0.053	0.014	46.881	2.014	1.289	0.069	0.074	0.005	0.218	0.012	0.183	0.008	0.602	0.023	0.046	0.001
North face	*Calluna vulgaris*	young shrubland	soil	19705.414	2420.827	16.130	0.679	0.999	0.120	8.178	1.563	145.882	34.839	17.710	1.242	0.095	0.014	1.019	0.040	0.010	0.001	0.156	0.026	2.759	0.421	3170.267	256.714	195.344	6.887	18.577	0.467	201.269	32.423	1.865	0.043	30.306	1.473	538.489	16.017
North face	*Calluna vulgaris*	young shrubland	stems	630.440	151.417	48.842	0.319	0.482	0.037	15.002	3.661	1819.553	596.162	119.189	13.004	0.038	0.007	0.291	0.038	0.064	0.011	0.139	0.026	0.011	0.003	307.930	73.893	3.049	0.843	0.240	0.086	1.832	0.505	0.398	0.101	0.857	0.154	0.067	0.014
North face	*Calluna vulgaris*	mature shrubland	leaf	241.190	103.517	49.909	0.290	1.215	0.069	15.997	1.496	594.070	163.987	36.679	6.731	0.076	0.012	0.412	0.061	0.222	0.029	0.455	0.034	0.010	0.001	120.440	51.888	2.954	1.375	0.180	0.078	0.964	0.360	0.520	0.203	1.081	0.437	0.025	0.011
North face	*Calluna vulgaris*	mature shrubland	litter	79.593	3.105	50.816	0.356	1.063	0.128	18.290	2.213	707.698	189.492	38.210	5.468	0.058	0.009	0.282	0.039	0.148	0.020	0.552	0.092	0.047	0.016	40.488	1.587	0.864	0.041	0.047	0.002	0.223	0.008	0.120	0.006	0.457	0.024	0.039	0.002
North face	*Calluna vulgaris*	mature shrubland	soil	58136.943	18017.805	16.200	4.181	0.908	0.199	10.520	0.302	170.887	18.122	16.227	1.257	0.111	0.006	0.923	0.062	0.026	0.004	0.149	0.043	2.929	0.822	8953.515	1382.650	507.527	83.773	63.802	17.349	540.528	191.720	14.969	3.157	91.715	56.596	1594.039	97.568
North face	*Calluna vulgaris*	mature shrubland	stems	941.710	234.505	48.522	0.387	0.411	0.050	13.004	1.432	1331.117	227.657	101.931	8.929	0.029	0.011	0.191	0.038	0.054	0.007	0.141	0.007	0.010	0.002	457.223	115.314	3.941	1.397	0.291	0.175	1.781	0.495	0.508	0.163	1.334	0.361	0.093	0.028
North face	*Rhododendrum ferrugineum*	young shrubland	leaf	320.160	3.219	51.960	0.095	1.584	0.064	16.990	1.149	536.046	71.272	31.465	2.192	0.122	0.029	0.363	0.020	0.253	0.041	0.719	0.131	0.005	0.001	166.355	1.621	5.069	0.171	0.390	0.094	1.161	0.069	0.811	0.134	2.304	0.429	0.015	0.001
North face	*Rhododendrum ferrugineum*	young shrubland	litter	144.072	1.448	52.357	0.223	0.620	0.095	21.658	2.386	1298.731	221.473	59.687	4.157	0.056	0.044	0.110	0.020	0.266	0.020	1.181	0.108	0.009	0.002	75.430	0.625	0.893	0.131	0.081	0.064	0.158	0.029	0.383	0.031	1.702	0.166	0.012	0.002
North face	*Rhododendrum ferrugineum*	young shrubland	soil	28598.726	18288.659	12.165	4.606	0.692	0.257	9.524	0.447	166.175	6.527	17.456	0.394	0.096	0.025	1.233	0.188	0.007	0.002	0.130	0.040	2.980	1.023	3123.013	1362.050	185.905	94.497	25.160	11.426	361.177	249.255	1.805	0.738	35.623	21.500	877.189	742.115
North face	*Rhododendrum ferrugineum*	young shrubland	stems	2229.200	195.898	50.786	0.189	0.470	0.058	15.244	1.042	1239.203	225.822	81.270	13.415	0.040	0.008	0.141	0.021	0.050	0.007	0.165	0.007	0.006	0.002	1132.120	99.946	10.482	1.493	0.883	0.189	3.134	0.538	1.103	0.200	3.670	0.190	0.133	0.036
North face	*Rhododendrum ferrugineum*	mature shrubland	leaf	383.630	199.531	51.985	0.252	1.659	0.120	13.560	3.155	442.628	88.722	32.851	1.330	0.098	0.012	0.370	0.024	0.201	0.022	0.692	0.167	0.005	0.001	199.324	103.298	6.399	3.462	0.382	0.215	1.428	0.766	0.769	0.410	2.617	1.401	0.017	0.007
North face	*Rhododendrum ferrugineum*	mature shrubland	litter	172.634	89.789	52.341	0.405	0.881	0.065	16.100	9.156	1292.633	636.492	86.022	14.128	0.041	0.008	0.151	0.026	0.226	0.020	1.180	0.102	0.009	0.001	90.089	45.995	1.510	0.741	0.070	0.031	0.261	0.136	0.401	0.241	2.106	1.318	0.015	0.007
North face	*Rhododendrum ferrugineum*	mature shrubland	soil	46058.917	12133.859	16.685	3.526	0.954	0.190	7.287	1.995	125.387	26.548	17.657	3.082	0.101	0.025	1.095	0.179	0.017	0.005	0.124	0.023	3.274	1.226	7388.763	518.270	423.669	35.424	44.532	3.801	489.277	57.901	7.522	2.468	55.700	9.821	1426.293	348.089
North face	*Rhododendrum ferrugineum*	mature shrubland	stems	3410.090	587.799	50.996	0.817	0.641	0.111	12.099	1.642	1323.874	268.818	109.204	13.256	0.042	0.008	0.158	0.027	0.043	0.009	0.197	0.042	0.008	0.003	1741.600	321.935	21.731	4.115	1.427	0.261	5.282	0.623	1.491	0.420	6.776	1.982	0.286	0.112
North face	*Vaccinium myrtillus*	young shrubland	leaf	53.800	13.350	48.600	0.088	1.650	0.162	10.523	0.998	341.089	54.667	32.279	2.043	0.129	0.046	0.933	0.164	0.250	0.041	1.019	0.076	0.009	0.001	26.151	6.503	0.888	0.222	0.071	0.030	0.499	0.123	0.131	0.017	0.552	0.158	0.005	0.001
North face	*Vaccinium myrtillus*	young shrubland	litter	53.800	13.350	49.751	0.461	1.076	0.075	9.092	1.747	439.850	108.691	47.585	5.034	0.083	0.028	0.739	0.077	0.199	0.026	0.686	0.104	0.007	0.001	26.741	6.459	0.572	0.103	0.045	0.019	0.395	0.087	0.108	0.036	0.377	0.148	0.004	0.002
North face	*Vaccinium myrtillus*	young shrubland	soil	27251.194	6717.611	9.620	2.387	0.537	0.166	5.939	1.719	99.664	27.625	16.834	0.703	0.106	0.026	1.229	0.083	0.014	0.008	0.156	0.021	4.320	1.043	2571.347	767.210	143.393	48.784	28.164	7.170	332.893	78.092	3.835	2.800	42.915	12.629	1177.766	439.132
North face	*Vaccinium myrtillus*	young shrubland	stems	251.720	54.019	48.454	0.666	0.569	0.057	13.058	2.178	1064.300	74.665	82.416	7.651	0.047	0.008	0.169	0.046	0.044	0.003	0.278	0.048	0.011	0.003	121.903	25.792	1.445	0.404	0.119	0.042	0.419	0.130	0.110	0.019	0.715	0.253	0.027	0.007
North face	*Vaccinium myrtillus*	mature shrubland	leaf	99.850	23.341	48.419	0.116	1.505	0.094	13.915	4.472	421.145	173.811	29.667	2.889	0.144	0.020	0.885	0.113	0.241	0.030	0.921	0.069	0.010	0.001	48.352	11.326	1.509	0.388	0.146	0.046	0.873	0.163	0.235	0.027	0.922	0.250	0.009	0.002
North face	*Vaccinium myrtillus*	mature shrubland	litter	99.850	23.341	49.618	0.234	1.052	0.121	14.045	4.439	644.100	172.424	46.402	3.046	0.119	0.024	0.694	0.150	0.202	0.016	0.718	0.107	0.007	0.001	49.538	11.529	1.064	0.330	0.121	0.044	0.684	0.168	0.200	0.035	0.717	0.199	0.007	0.002
North face	*Vaccinium myrtillus*	mature shrubland	soil	37416.401	24137.044	13.105	3.673	0.783	0.236	5.221	2.047	92.505	26.199	18.164	1.609	0.132	0.017	1.076	0.025	0.029	0.003	0.175	0.057	3.980	0.341	5311.283	4772.649	317.727	287.402	49.756	32.431	405.408	267.472	10.414	5.584	55.631	19.061	1446.542	828.709
North face	*Vaccinium myrtillus*	mature shrubland	stems	543.590	119.430	48.198	0.378	0.589	0.063	12.502	2.855	1060.302	182.420	85.731	8.043	0.046	0.003	0.140	0.008	0.043	0.002	0.271	0.081	0.015	0.006	261.805	56.044	3.181	0.619	0.246	0.052	0.764	0.188	0.229	0.042	1.439	0.396	0.081	0.032
South face	Grasses	Pure grassland	leaf	425.550	173.566	44.925	0.193	1.995	0.428	15.670	3.964	353.636	48.834	23.245	4.607	0.129	0.017	1.588	0.240	0.103	0.012	0.397	0.088	0.012	0.009	191.074	77.781	8.243	3.271	0.563	0.288	6.711	2.893	0.452	0.230	1.755	0.937	0.049	0.040
South face	Grasses	Pure grassland	litter	425.550	173.566	44.400	0.135	1.162	0.407	14.343	2.311	601.166	224.254	41.439	12.605	0.084	0.037	0.180	0.064	0.083	0.026	0.716	0.166	0.052	0.009	189.016	77.450	5.440	4.093	0.396	0.334	0.839	0.638	0.382	0.274	3.247	2.123	0.222	0.084
South face	Grasses	Pure grassland	soil	76421.577	26473.473	10.730	1.501	0.933	0.122	8.798	1.082	101.168	13.011	11.512	0.657	0.106	0.003	1.503	0.251	0.111	0.099	0.556	0.044	3.411	0.244	8047.697	2203.441	695.629	171.841	81.264	29.053	1154.621	468.944	77.190	53.546	431.107	183.048	2652.185	1126.162
South face	Grasses	young shrubland	leaf	501.880	251.040	45.031	0.512	1.469	0.148	13.824	2.734	424.285	80.921	30.890	3.146	0.109	0.021	1.053	0.272	0.097	0.022	0.346	0.051	0.010	0.003	225.481	111.770	7.424	3.620	0.584	0.375	5.629	3.579	0.518	0.300	1.753	1.044	0.052	0.041
South face	Grasses	young shrubland	litter	501.880	251.040	48.274	7.857	0.765	0.155	17.678	2.130	1135.390	236.076	63.982	8.350	0.044	0.009	0.186	0.048	0.066	0.013	0.444	0.022	0.096	0.056	253.337	160.655	3.892	2.505	0.219	0.135	0.941	0.618	0.351	0.204	2.267	1.209	0.548	0.513
South face	Grasses	young shrubland	soil	94320.595	26877.397	7.385	2.437	0.566	0.153	6.494	1.777	83.611	22.942	12.892	0.977	0.090	0.025	1.374	0.386	0.010	0.003	0.203	0.034	5.484	1.257	6607.994	1627.223	513.215	127.025	85.688	38.596	1299.076	476.083	9.008	3.050	192.900	66.885	5183.239	2192.266
South face	*Arctostafilos uva ursi*	young shrubland	leaf	616.680	294.472	51.452	0.581	1.089	0.180	11.102	0.800	580.336	55.112	52.555	6.856	0.113	0.010	0.450	0.116	0.126	0.017	0.613	0.182	0.007	0.005	317.714	151.694	6.822	3.492	0.677	0.291	2.779	1.536	0.777	0.395	3.769	2.153	0.034	0.003
South face	*Arctostafilos uva ursi*	young shrubland	litter	448.692	108.955	51.315	0.670	0.575	0.239	12.288	1.731	1151.668	342.949	92.342	19.777	0.063	0.023	0.286	0.092	0.130	0.043	0.805	0.421	0.010	0.006	158.789	56.939	1.827	1.006	0.155	0.075	0.599	0.462	0.531	0.203	3.195	1.365	0.033	0.012
South face	*Arctostafilos uva ursi*	young shrubland	soil	109766.455	15402.342	8.515	8.800	0.466	0.308	9.044	2.125	158.312	79.411	16.763	4.252	0.079	0.023	1.214	0.326	0.009	0.003	0.192	0.055	5.203	1.913	9559.752	10343.166	519.455	369.384	85.827	22.709	1330.010	386.744	9.779	2.379	204.881	37.097	5662.860	2213.665
South face	*Arctostafilos uva ursi*	young shrubland	stems	590.120	482.740	47.454	0.432	0.415	0.029	12.319	2.446	1316.899	259.289	107.232	9.279	0.041	0.003	0.241	0.065	0.051	0.015	0.375	0.101	0.018	0.012	278.779	226.659	2.387	1.885	0.230	0.178	1.271	0.975	0.267	0.193	1.859	1.236	0.061	0.015
South face	*Arctostafilos uva ursi*	mature shrubland	leaf	825.760	142.343	52.116	0.502	1.006	0.148	9.686	1.521	459.383	44.094	48.186	7.499	0.091	0.009	0.444	0.131	0.158	0.046	0.660	0.164	0.008	0.003	430.394	74.930	8.382	2.262	0.754	0.188	3.728	1.350	1.285	0.398	5.332	1.070	0.067	0.029
South face	*Arctostafilos uva ursi*	mature shrubland	litter	305.531	52.667	51.979	0.661	0.586	0.147	9.075	1.737	909.895	373.079	102.569	43.177	0.050	0.020	0.191	0.053	0.174	0.033	0.925	0.281	0.012	0.004	230.292	27.457	2.839	0.705	0.297	0.082	1.386	0.249	0.581	0.136	2.784	0.871	0.037	0.008
South face	*Arctostafilos uva ursi*	mature shrubland	soil	65924.363	24261.525	10.267	6.477	0.572	0.211	6.254	3.893	111.237	103.505	15.679	5.348	0.062	0.008	1.186	0.241	0.011	0.002	0.181	0.028	4.213	0.522	5878.274	1893.361	348.190	70.133	39.845	11.942	820.059	432.015	7.518	4.107	123.063	61.295	2853.879	1290.589
South face	*Arctostafilos uva ursi*	mature shrubland	stems	952.190	159.332	47.887	0.891	0.450	0.043	10.188	0.572	1169.186	89.902	114.823	7.422	0.038	0.007	0.157	0.028	0.062	0.018	0.336	0.061	0.011	0.002	454.943	68.297	4.246	0.538	0.351	0.060	1.479	0.326	0.569	0.078	3.155	0.536	0.100	0.007
South face	*Juniperus communis*	young shrubland	leaf	1353.000	310.773	50.123	0.545	1.369	0.195	11.196	1.141	427.907	106.339	37.815	6.528	0.117	0.021	0.433	0.056	0.129	0.015	1.080	0.176	0.015	0.016	678.246	157.201	18.605	5.758	1.547	0.252	5.948	2.096	1.743	0.465	14.277	1.805	0.205	0.206
South face	*Juniperus communis*	young shrubland	litter	232.640	77.693	50.683	0.396	0.862	0.257	14.505	2.540	1319.663	272.808	91.010	9.138	0.058	0.023	0.184	0.093	0.115	0.014	1.358	0.413	0.023	0.003	180.853	39.227	2.059	1.020	0.139	0.070	0.780	0.326	0.380	0.077	3.014	1.501	0.068	0.026
South face	*Juniperus communis*	young shrubland	soil	98992.569	18745.130	7.793	4.854	0.494	0.159	4.521	0.258	69.490	9.963	15.326	1.634	0.094	0.045	1.432	0.286	0.012	0.004	0.309	0.126	5.115	2.195	7260.720	3401.211	470.062	86.734	98.199	68.107	1450.683	528.975	11.770	1.385	292.819	76.332	5333.709	3421.136
South face	*Juniperus communis*	young shrubland	stems	1041.680	311.288	47.047	0.453	0.447	0.093	9.716	3.522	1002.134	313.681	105.488	22.700	0.044	0.009	0.174	0.061	0.052	0.016	1.475	0.279	0.041	0.043	490.651	148.937	4.597	1.382	0.449	0.107	1.744	0.593	0.541	0.233	15.191	5.092	0.370	0.302
South face	*Juniperus communis*	mature shrubland	leaf	1420.920	728.065	50.363	0.373	1.364	0.250	11.859	1.724	438.772	68.330	37.178	5.186	0.124	0.037	0.589	0.189	0.115	0.043	1.133	0.324	0.009	0.003	716.910	368.389	18.462	8.674	1.608	0.655	7.570	3.069	1.460	0.675	16.756	10.677	0.131	0.077
South face	*Juniperus communis*	mature shrubland	litter	355.230	182.016	50.957	0.532	0.565	0.064	15.414	2.019	1025.888	537.393	64.442	25.317	0.040	0.008	0.202	0.050	0.113	0.030	2.067	0.386	0.018	0.004	117.997	92.811	2.060	1.169	0.139	0.078	0.458	0.512	0.262	0.196	7.280	3.466	0.053	0.041
South face	*Juniperus communis*	mature shrubland	soil	77357.882	28341.600	6.242	1.258	0.404	0.049	6.247	2.974	96.915	67.246	15.087	4.595	0.089	0.007	1.340	0.145	0.010	0.002	0.238	0.063	5.308	0.368	4968.572	2257.338	315.761	124.079	69.276	25.663	1033.194	397.277	7.615	2.755	179.869	64.706	4041.259	1264.630
South face	*Juniperus communis*	mature shrubland	stems	2975.570	2320.057	47.292	1.125	0.464	0.099	10.111	0.815	1093.779	192.396	108.821	22.346	0.053	0.023	0.165	0.058	0.049	0.022	2.075	0.234	0.025	0.012	1403.082	1076.362	14.563	11.970	1.928	2.284	5.774	6.312	1.799	2.161	61.346	50.332	0.826	0.721
South face	*Juniperus sabina*	young shrubland	leaf	1013.400	314.691	50.658	0.359	1.478	0.122	11.056	0.592	396.260	17.152	35.966	3.268	0.128	0.019	0.589	0.049	0.177	0.040	1.244	0.108	0.010	0.003	513.443	159.328	15.215	5.758	1.304	0.488	6.035	2.126	1.765	0.557	12.833	4.932	0.109	0.048
South face	*Juniperus sabina*	young shrubland	litter	566.224	22.028	50.748	0.343	0.914	0.158	11.842	1.230	471.031	23.376	40.167	5.252	0.071	0.018	0.322	0.050	0.172	0.056	1.889	0.293	0.038	0.021	488.039	10.990	12.163	0.317	1.041	0.028	2.930	0.106	1.889	0.046	11.017	0.616	0.185	0.010
South face	*Juniperus sabina*	young shrubland	soil	94466.561	24995.457	5.599	2.068	0.425	0.116	7.506	2.619	93.651	32.463	12.748	3.512	0.086	0.022	1.473	0.345	0.011	0.004	0.233	0.086	5.315	1.029	5500.468	3403.068	414.905	219.389	80.898	32.717	1352.210	324.001	10.585	6.649	233.236	149.642	5117.247	2102.707
South face	*Juniperus sabina*	young shrubland	stems	1004.400	610.002	46.571	0.273	0.409	0.046	9.281	0.291	803.547	72.169	86.790	10.218	0.047	0.014	0.196	0.030	0.056	0.012	1.988	0.198	0.020	0.004	467.541	283.059	3.968	2.136	0.512	0.450	1.839	1.006	0.506	0.236	20.407	12.880	0.195	0.106
South face	*Juniperus sabina*	mature shrubland	leaf	1091.850	293.276	51.852	0.337	1.451	0.136	11.720	1.303	404.639	64.340	34.464	2.876	0.131	0.006	0.558	0.032	0.201	0.015	1.327	0.294	0.010	0.001	566.356	153.613	15.655	3.237	1.422	0.334	6.032	1.288	2.213	0.725	14.867	6.475	0.107	0.032
South face	*Juniperus sabina*	mature shrubland	litter	938.991	20.529	52.031	0.430	1.313	0.183	13.034	1.099	745.039	169.520	56.722	9.237	0.111	0.006	0.301	0.072	0.203	0.013	1.440	0.134	0.020	0.001	286.540	10.408	5.644	0.207	0.457	0.023	1.978	0.121	0.826	0.036	13.643	0.356	0.200	0.004
South face	*Juniperus sabina*	mature shrubland	soil	88398.089	17150.669	5.808	2.035	0.449	0.087	5.036	0.978	65.493	16.103	12.958	1.457	0.064	0.019	1.542	0.177	0.010	0.002	0.166	0.019	5.353	0.757	5198.334	2264.674	402.161	142.229	56.242	18.212	1364.408	300.089	8.822	2.486	146.367	31.950	4732.029	1049.039
South face	*Juniperus sabina*	mature shrubland	stems	3254.980	1555.607	46.279	0.471	0.539	0.061	9.309	2.854	1046.164	250.815	115.034	12.684	0.058	0.005	0.208	0.052	0.081	0.015	2.459	0.497	0.024	0.002	1505.281	716.551	17.825	9.935	1.916	1.051	6.617	3.022	2.640	1.378	82.660	49.250	0.750	0.285

* Unities for litter correspond to (g m^{-2} year $^{-1}$)

Supplementary table 3 (ST3) GLS Models North Face

Leaves

	%C			d^{15}N			%N			NP			%P			CN			CP			%K			%Fe			%Ca			%Mg		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	linear	linear					linear	linear					linear	linear											linear	linear		linear	linear		linear	linear	
(Intercept)	45.20	0.00000		0.71	0.17400		1.93	0.00000		14.50	0.00000		0.14	0.00000		23.70	0.00000		340.00	0.00002		1.59	0.00000		0.01	0.00000		0.22	0.0001		0.10	0.0000	
Northern grassland young	-0.48	0.06020	.	-5.28	0.00000	***	-0.73	0.00000	***	-3.38	0.13500		-0.00	0.88900		13.80	0.00001	***	77.20	0.40500		-0.41	0.00102	**	-0.01	0.00014	***	0.02	0.7510		-0.00	0.9740	
***Calluna vulgaris* young**	4.86	0.00000	***	-5.46	0.00000	***	-0.54	0.00006	***	1.54	0.48800		-0.05	0.03180	*	13.00	0.00003	***	254.00	0.01010	*	-1.10	0.00000	***	-0.00	0.20800		0.27	0.0003	***	0.15	0.0000	***
***Calluna vulgaris* mature**	4.72	0.00000	***	-5.34	0.00000	***	-0.72	0.00000	***	1.71	0.44100		-0.06	0.01880	*	17.50	0.00000	***	327.00	0.00147	**	-1.18	0.00000	***	-0.00	0.06420	.	0.24	0.0010	**	0.12	0.0000	***
***Rhododendron ferrugineum* young**	6.77	0.00000	***	-6.51	0.00000	***	-0.35	0.00458	**	-0.90	0.68600		-0.02	0.53900		9.13	0.00131	**	103.00	0.27000		-1.23	0.00000	***	-0.01	0.00001	**	0.50	0.0000	***	0.15	0.0000	***
***Rhododendron ferrugineum* mature**	6.80	0.00000	***	-5.95	0.00000	***	-0.27	0.02180	*	2.53	0.25800		-0.04	0.10700		7.74	0.00507	**	196.00	0.04150	*	-1.22	0.00000	***	-0.01	0.00001	**	0.47	0.0000	***	0.10	0.0002	***
***Vaccinium myrtillus* young**	3.41	0.00000	***	-4.61	0.00000	***	-0.28	0.01840	*	-0.54	0.80700		-0.01	0.75800		5.94	0.02630	*	81.50	0.38000		-0.66	0.00000	***	-0.00	0.00767	**	0.80	0.0000	***	0.15	0.0000	***
***Vaccinium myrtillus* mature**	3.23	0.00000	***	-3.32	0.00011	***	-0.43	0.00079	***	-3.93	0.08460	.	0.01	0.76700		8.56	0.00231	**	1.45	0.98700		-0.71	0.00000	***	-0.00	0.02320	**	0.70	0.0000	***	0.14	0.0000	***

Litter

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		gaussian	gaussian		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		rational	rational		gaussian	gaussian		linear	linear	
(Intercept)	45.10	0.0000		-1.05	0.0357		1.09	0.0000		19.35	0.1010		0.08	0.0000		41.80	0.0000		584.00	0.0003		0.39	0.0000		0.06	0.0000		0.34	0.0000		0.09	0.0000	
Northern grassland young	0.78	0.4660		-3.92	0.0000	***	-0.31	0.0008	***	-1.15	0.9090		-0.02	0.1700		16.80	0.0015	**	298.00	0.1440		-0.27	0.0003	***	-0.01	0.0641	.	0.03	0.6210		-0.05	0.0049	**
***Calluna vulgaris* young**	5.50	0.0000	***	-4.47	0.0000	***	0.25	0.0042	**	2.01	0.8450		-0.00	0.7980		-3.58	0.4540		124.00	0.5360		-0.17	0.0158	**	-0.01	0.0854	*	0.33	0.0000	***	0.10	0.0000	***
***Calluna vulgaris* mature**	5.74	0.0000	***	-4.49	0.0000	***	-0.03	0.7350		7.58	0.3900		-0.02	0.2090		6.48	0.1810		307.00	0.1330		-0.11	0.1180		-0.01	0.1220		0.22	0.0022	**	0.05	0.0030	**
***Rhododendron ferrugineum* young**	7.28	0.0000	***	-4.99	0.0000	***	-0.47	0.0000	***	-1.51	0.8830		-0.02	0.1700		44.20	0.0000	***	709.00	0.0015	**	-0.28	0.0003	***	-0.05	0.0000	***	0.84	0.0000	***	0.17	0.0000	***
***Rhododendron ferrugineum* mature**	7.26	0.0000	***	-3.79	0.0000	***	-0.21	0.0145	*	5.90	0.2490		-0.04	0.0298	*	17.90	0.0008	***	715.00	0.0014	**	-0.24	0.0013	**	-0.06	0.0000	***	0.86	0.0000	***	0.13	0.0000	***
***Vaccinium myrtillus* young**	4.67	0.0002	***	-3.37	0.0000	***	-0.01	0.8570		-5.80	0.5740		0.00	0.8330		4.62	0.3350		60.30	0.7630		0.35	0.0000	***	-0.05	0.0000	***	0.35	0.0000	***	0.10	0.0000	***
***Vaccinium myrtillus* mature**	4.54	0.0002	***	-1.27	0.0687	**	-0.04	0.6350		-2.34	0.7430		0.04	0.0236	*	5.80	0.2290		-150.00	0.4540		0.31	0.0001	***	-0.05	0.0000	***	0.38	0.0000	***	0.11	0.0000	***

Soil

Function associated to gls	NSC	NSC		NSC	NSC		rational	rational		NSC	NSC		gaussian	gaussian		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		gaussian	gaussian		linear	linear	
(Intercept)	10.70	0.0000		5.09	0.0000		0.86	0.0000		6.37	0.0000		0.14	0.0000		12.40	0.0000		79.00	0.0001		1.13	0.0000		4.07	0.0000		0.09	0.0001		0.03	0.0000	
Northern grassland young	-1.10	0.6740		-3.30	0.0227	*	-0.31	0.0706		-0.69	0.6626		-0.04	0.0209	*	5.85	0.0000	***	21.40	0.3810		0.10	0.1350		-0.13	0.8610		0.09	0.0019	**	-0.02	0.0001	
***Calluna vulgaris* young**	4.92	0.1640		4.16	0.0254	*	0.12	0.5680		4.37	0.0499	*	-0.03	0.0835	.	4.70	0.0018	**	105.00	0.0054	**	-0.08	0.3360		-1.61	0.1230		0.06	0.0458	*	-0.02	0.0020	**
***Calluna vulgaris* mature**	4.20	0.1290		-3.14	0.0284	*	0.02	0.9310		1.39	0.3863		-0.02	0.2310		4.37	0.0005	***	52.30	0.0479	*	-0.22	0.0041	**	-1.44	0.0797	.	0.09	0.0041	**	-0.00	0.3430	
***Rhododendron ferrugineum* young**	-1.93	0.4670		-0.94	0.4660		-0.37	0.0403	*	1.16	0.4678		-0.05	0.0138	*	3.25	0.0038	**	39.00	0.1250		0.27	0.0010	**	-1.09	0.1730		0.06	0.0336	*	-0.02	0.0001	***
***Rhododendron ferrugineum* mature**	8.13	0.0088	**	-2.89	0.0409	*	0.22	0.2340		3.02	0.0752	.	-0.02	0.3250		5.03	0.0001	***	84.60	0.0042	**	0.11	0.1100		-0.59	0.4460		0.06	0.0508	.	-0.01	0.0053	**
***Vaccinium myrtillus* young**	-1.30	0.5760		-3.98	0.0040	**	-0.29	0.0779	*	-0.86	0.5404		-0.03	0.0623	.	5.29	0.0000	***	15.90	0.4570		0.13	0.0420	*	-0.10	0.8780		0.07	0.0132	*	-0.01	0.0020	**
***Vaccinium myrtillus* mature**	0.82	0.7230		-4.97	0.0009	***	-0.18	0.2710		-1.20	0.3937		-0.00	0.9250		4.47	0.0001	***	7.96	0.7080		-0.06	0.3000		0.07	0.9150		0.11	0.0004	***	0.00	0.8550	

Leaves

	C (g m^{-2})			N (g m^{-2})			Mg (g m^{-2})			P (g m^{-2})			K (g m^{-2})			Fe (g m^{-2})			Ca (g m^{-2})		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		rational	rational		gaussian	gaussian		rational	rational		gaussian	gaussian		gaussian	gaussian		gaussian	gaussian	
(Intercept)	230.00	0.00000		10.00	0.00000		0.63	0.00001		0.74	0.00000		8.16	0.00000		0.12	0.00025		1.53	0.00001	
Northern grassland young	-84.80	0.11100		-6.83	0.00010	***	-0.30	0.06010	.	-0.34	0.00879	**	-4.26	0.00621	**	-0.10	0.00030	***	-0.71	0.07990	.
***Calluna vulgaris* young**	-89.70	0.09320		-4.58	0.00471	**	0.12	0.43100		-0.51	0.00031	***	-4.89	0.00210	**	-0.09	0.00086	***	-0.08	0.83900	
***Calluna vulgaris* mature**	-110.00	0.04300	*	-7.05	0.00026	***	-0.11	0.54500		-0.56	0.00039	***	-7.20	0.00018	***	-0.08	0.00075	***	-0.45	0.33100	
***Rhododendron ferrugineum* young**	-63.70	0.22600		-5.48	0.00182	**	0.15	0.41000		-0.34	0.01270	*	-7.39	0.00004	***	-0.10	0.00038	***	0.69	0.13100	
***Rhododendron ferrugineum* mature**	-30.80	0.55500		-4.09	0.00000	***	0.09	0.00000	***	-0.37	0.00000	***	-6.18	0.00000	***	-0.08	0.00000	***	0.81	0.00000	***
***Vaccinium myrtillus* young**	-204.00	0.00056	***	-8.77	0.00001	***	-0.51	0.00783	**	-0.66	0.00003	***	-6.46	0.00024	***	-0.11	0.00013	***	-1.00	0.03760	*
***Vaccinium myrtillus* mature**	-182.00	0.00166	**	-8.50	0.00003	***	-0.40	0.03710	*	-0.59	0.00019	***	-7.29	0.00015	***	-0.08	0.00006	***	-0.61	0.19300	

Litter

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		linear	linear		linear	linear		gaussian	gaussian		gaussian	gaussian	
(Intercept)	542.00	0.0000		13.10	0.0000		0.48	0.0000		0.34	0.0000		1.98	0.0000		0.34	0.0248		1.72	0.0000	
Northern grassland young	9.35	0.4660		-3.69	0.0008	***	-0.31	0.0078		-0.16	0.0202	*	-1.61	0.0001	***	-0.20	0.1265		-0.69	0.0947	.
***Calluna vulgaris* young**	66.10	0.0000	***	3.04	0.0041	**	-0.29	0.0116	*	-0.26	0.0005	***	-1.76	0.0000	***	-0.31	0.0222	*	-0.79	0.0577	.
***Calluna vulgaris* mature**	69.00	0.0000	***	-0.32	0.7390		-0.36	0.0029	**	-0.29	0.0004	***	-1.76	0.0000	***	-0.18	0.1007		-1.27	0.0117	*
***Rhododendron ferrugineum* young**	87.50	0.0000	***	-5.65	0.0000	***	-0.09	0.3950		-0.26	0.0009	***	-1.82	0.0000	***	-0.32	0.0176	*	-0.17	0.7160	
***Rhododendron ferrugineum* mature**	87.30	0.0000	***	-2.53	0.0145	*	-0.08	0.4890		-0.19	0.0000	***	-1.72	0.0000	***	-0.19	0.0061	**	0.44	0.0000	***
***Vaccinium myrtillus* young**	56.20	0.0002	***	-0.17	0.8580		-0.37	0.0022	**	-0.27	0.0006	***	-1.59	0.0001	***	-0.33	0.0148	*	-1.34	0.0079	**
***Vaccinium myrtillus* mature**	54.60	0.0002	***	-0.46	0.6370		-0.28	0.0167	*	-0.22	0.0054	**	-1.30	0.0007	***	-0.20	0.0364	*	-1.01	0.0402	*

Soil

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	3650.00	0.0001		295.00	0.0000		10.30	0.0001		47.60	0.0002		395.00	0.0007		1430.00	0.0004		28.40	0.0457	
Northern grassland young	-362.00	0.7260		-112.00	0.1610		-7.91	0.0210	*	-11.40	0.4620		24.80	0.8700		-48.90	0.9240		25.40	0.2700	
***Calluna vulgaris* young**	-294.00	0.8250		-99.00	0.3270		-8.45	0.0480	*	-29.30	0.1560		-171.00	0.3900		-901.00	0.1890		0.86	0.9760	
***Calluna vulgaris* mature**	5600.00	0.0002	***	256.00	0.0056	**	6.42	0.0517	*	26.50	0.1040		224.00	0.1580		184.00	0.7200		97.30	0.0010	**
***Rhododendron ferrugineum* young**	-419.00	0.6850		-87.50	0.2660		-7.93	0.0208	*	-18.90	0.2310		126.00	0.4130		-174.00	0.7340		23.40	0.3060	
***Rhododendron ferrugineum* mature**	3440.00	0.0057	**	111.00	0.1640		-4.15	0.1860		-4.13	0.7870		73.30	0.6300		-148.00	0.7730		26.60	0.2490	
***Vaccinium myrtillus* young**	-1320.00	0.1650		-160.00	0.0334	*	-5.97	0.0421	*	-23.00	0.1090		-74.30	0.5800		-439.00	0.3400		12.60	0.5250	
***Vaccinium myrtillus* mature**	-648.00	0.4800		-116.00	0.1050		-2.08	0.4410		-10.90	0.4260		-107.00	0.4290		-302.00	0.5070		23.80	0.2420	

Supplementary table 4 (ST4) GLS models North Face Young Vs Mature shrubalnd

Calluna vulgaris

Leaves

	%C			delta^{15}N			%N			NP			%P			CN			CP			%K			%Fe			%Ca			%Mg		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		spherical	spherical		linear	linear		linear	linear		rational	rational	
(Intercept)	50.00	0.0000		-4.7478	0.0005		1.3500	0.0000		16.0000	0.0000		0.0887	0.0001		36.7000	0.0000		594.0000	0.0001		0.4841	0.0000		0.0113	0.0000		0.4870	0.0000		0.2450	0.0000	
***Calluna vulgaris* mature**	-0.13	0.7430		0.1245	0.9045		-0.1550	0.3660		0.1710	0.8970		-0.0128	0.3560		4.5000	0.2490		73.0000	0.4820		-0.0771	0.2786		-0.0011	0.3860		-0.0328	0.3960		-0.0247	0.3670	

Litter

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		linear	linear		gaussian	gaussian		linear	linear	
(Intercept)	50.60	0.0000		-5.5133	0.0002		-30.4000	0.0000		50.6000	0.0000		-5.5133	0.0002		38.2000	0.0000		708.0000	0.0001		0.2180	0.0001		0.0525	0.0004		0.6660	0.0000		0.1970	0.0000	
***Calluna vulgaris* mature**	0.24	0.6150		-0.0210	0.9840		0.7020	0.1700		0.2360	0.6150		-0.0210	0.9840		10.1000	0.0389	*	183.0000	0.1550		0.0630	0.0873	.	-0.0044	0.7025		-0.1100	0.1260		-0.0497	0.0358	*

Stems

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	48.80	0.0000		-5.3020	0.0002		0.4810	0.0000		13.0000	0.0001		0.0378	0.0002		102.0000	0.0000		1330.0000	0.0011		0.2910	0.0000		0.0110	0.0001		0.1390	0.0000		0.0640	0.0000	
***Calluna vulgaris* mature**	-0.31	0.2780		-0.0125	0.9896		-0.0702	0.0656	*	2.0000	0.3490		-0.0085	0.2479		17.3000	0.0713	.	488.0000	0.1770		-0.1000	0.0096	*	-0.0010	0.6036		0.0015	0.9130		-0.0105	0.1610	

Soil

Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		NSC	NSC		spherical	spherical		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	15.65	0.2400		9.2510	0.0956		0.9140	0.2100		10.7330	0.1250		0.0850	0.0738		17.1160	0.0401		183.7000	0.1500		1.0470	0.0587		2.4610	0.2920		0.1370	0.1639		0.0090	0.3570	
***Calluna vulgaris* mature**	-0.73	0.9390		-7.3035	0.1467		-0.0350	0.9420		-2.9800	0.4580		0.0270	0.2687		-0.3270	0.8456		-52.3900	0.5100		-0.1435	0.4398		0.1670	0.9290		0.0435	0.5048		0.0170	0.2460	

Leaves

	C (gm^{-2})			N (gm^{-2})			Mg (gm^{-2})			P (gm^{-2})			K (gm^{-2})			Fe (gm^{-2})			Ca (gm^{-2})		
	Value	p value		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	140.37	0.0032		4.1382	0.0064		0.7058	0.0044		0.2668	0.0100		1.4728	0.0053		0.0300	0.0011		1.4025	0.0052	
***Calluna vulgaris* mature**	-19.93	0.6506		-1.1845	0.4390		-0.1770	0.4751		-0.0835	0.4578		-0.5088	0.3380		-0.0048	0.5373		-0.3218	0.5135	

Litter

Function associated to gls	NSC	NSC		NSC	NSC		exponential	exponential		linear	linear		spherical	spherical		spherical	spherical		linear	linear		
(Intercept)	608.00	0.0000		16.1000	0.0000		0.1780	0.0049		0.0738	0.0104		0.2092	0.0137		0.0441	0.0082		0.5948	0.0033		
***Calluna vulgaris* mature**	2.83	0.6150		-3.3600	0.0459	*	-0.0565	0.3801		-0.0258	0.4124		0.0171	0.8539		-0.0032	0.8579		-0.1238	0.5343		

Stem

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		spherical	spherical		gaussian	gaussian		spherical	spherical		gaussian	gaussian		
(Intercept)	308.00	0.0007		3.0490	0.0019		0.3975	0.0012		0.2327	0.0168		1.7310	0.0010		0.0665	0.0010		0.8552	0.0009		
***Calluna vulgaris* mature**	149.00	0.0720	.	0.8915	0.3163		0.1173	0.2957		0.0647	0.5566		0.0616	0.8925		0.0265	0.1448		0.4937	0.0523	*	

Soil

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC NSC			NSC	NSC		
(Intercept)	3350.00	0.0828		195.8290	0.0302		1.8340	0.6100		18.2460	0.5530		224.1950	0.5820		527.1630	0.1880		29.2640	0.7460		
***Calluna vulgaris* mature**	5890.00	0.0578	*	355.0500	0.0204	*	14.8650	0.1350		55.7740	0.2810		394.4970	0.4670		1085.0830	0.1140		96.4400	0.4600		

Rhododendron ferrugineum

Leaves

	%C			delta^{15}N			%N			NP			%P			CN			CP			%K			%Fe			%Ca			%Mg		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	linear	linear		gaussian	gaussian		linear	linear		NSC	NSC		spherical	spherical		NSC	NSC		NSC	NSC		linear	linear		spherical	spherical		NSC	NSC		linear	linear	
(Intercept)	52.00	0.0000		-5.7800	0.0000		1.5900	0.0000		13.6000	0.0000		0.1220	0.0000		32.9000	0.0000		443.0000	0.0000		0.3620	0.0000		0.0045	0.0000		0.7085	0.0001		0.2510	0.0000	
***Rhododendron ferrugineum* mature**	0.02	0.8600		0.5080	0.1430		0.0551	0.4650		3.4300	0.0871	.	-0.0235	0.1850		-1.3900	0.3210		93.4000	0.1520		0.0070	0.6740		-0.0000	1.0000		-0.0138	0.9047		-0.0539	0.0907	

Litter

Function associated to gls	spherical	spherical		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		linear	linear		gaussian	gaussian		linear	linear	
(Intercept)	52.40	0.0000		-6.0400	0.0000		0.6200	0.0000		16.0998	0.0030		0.0560	0.0125		86.0000	0.0000		1290.0000	0.0016		0.1100	0.0001		0.0085	0.0000		1.1800	0.0000		0.2660	0.0000	

***Rhododendron ferrugineum* mature**	-0.02	0.9460		1.2000	0.0241	*	0.2600	0.0039	**	5.5580	0.2846		-0.0147	0.5361		-26.3000	0.0117	*	6.1000	0.9860		0.0408	0.0488	*	-0.0000	1.0000		-0.0008	0.9920		-0.0397	0.0332	
	Stems																														
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		linear	linear		linear	linear		linear	linear		linear	linear	
(Intercept)	50.80	0.0000		-5.1300	0.0000		0.4700	0.0000		12.1000	0.0000		0.0395	0.0001		109.0000	0.0000		1320.0000	0.0000		0.1410	0.0000		0.0060	0.0025		0.1660	0.0000		0.0495	0.0000	
***Rhododendron ferrugineum* mature**	0.21	0.6340		-0.8640	0.2000		0.1710	0.0342	*	3.1500	0.0178	*	0.0028	0.6315		-27.9000	0.0252	*	-84.7000	0.6470		0.0172	0.3550		0.0023	0.2343		0.0351	0.1690		-0.0063	0.3220	
	Soil																														
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		gaussian	gaussian		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	12.17	0.0010		2.4305	0.0298		0.6915	0.0009		7.2900	0.0001		0.0960	0.0003		17.7000	0.0000		125.0000	0.0000		1.2700	0.0000		2.9803	0.0019		0.1298	0.0002		0.0070	0.0136	
***Rhododendron ferrugineum* mature**	4.52	0.1701		0.3778	0.7661		0.2628	0.1516		2.2400	0.0712	.	0.0053	0.7771		-0.2010	0.9010		40.8000	0.0245	*	-0.1990	0.2420		0.2940	0.7253		-0.0055	0.8210		0.0098	0.0145	*

	Leaves																														
	C (gm^{-2})			**N (gm^{-2})**			**Mg (gm^{-2})**			**P (gm^{-2})**			**K (gm^{-2})**			**Fe (gm^{-2})**			**Ca (gm^{-2})**												
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*											
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		spherical	spherical		NSC	NSC		NSC	NSC		NSC	NSC											
(Intercept)	166.00	0.0039		5.0690	0.0061		0.8107	0.0018		0.3898	0.0033		1.1610	0.0053		0.0145	0.0015		2.3035	0.0044											
***Rhododendron ferrugineum* mature**	33.00	0.5470		1.3303	0.4719		-0.0415	0.8537		-0.0083	0.9462		0.2665	0.5142		0.0025	0.5277		0.3130	0.6841											
	Litter																														
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC											
(Intercept)	630.00	0.0000		7.4600	0.0000		0.3833	0.0042		0.0812	0.0184		0.1582	0.0182		0.0120	0.0040		1.7017	0.0111											
***Rhododendron ferrugineum* mature**	-0.19	0.9470		3.1300	0.0040	*	0.0175	0.8900		-0.0117	0.7539		0.1028	0.1899		0.0025	0.5301		0.4040	0.5654											
	Stem																														
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		linear	linear		NSC	NSC		gaussian	gaussian		NSC	NSC											
(Intercept)	1130.00	7.76E-05		1.05E+01	5.07E-04		1.1025	0.0005		0.8828	0.0002		3.1338	0.0000		0.1361	0.0266		3.6695	0.0020											
***Rhododendron ferrugineum* mature**	609.00	0.0111	*	11.2000	0.0021	**	0.3888	0.1456		0.5443	0.0150		2.1485	0.0020		0.1374	0.0843		3.1068	0.0206											
	Soil																														
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC											
(Intercept)	3120.00	0.0009		186.0000	0.0020		1.8050	0.0948		25.1600	0.0010		361.0000	0.0072		877.1885	0.0232		35.6228	0.0053											
***Rhododendron ferrugineum* mature**	4270.00	0.0011	**	238.0000	0.0033	**	5.7165	0.0044	**	19.3715	0.0182	*	128.0000	0.3550		549.1040	0.2288		20.0768	0.1403											

	Vaccinium myrtillus																														
	Leaves																														
	%C			**delta^{15}N**			**%N**			**NP**			**%P**			**CN**			**CP**			**%K**			**%Fe**			**%Ca**			**%Mg**		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	linear	linear					linear	linear					linear	linear								linear	linear		rational	rational		spherical	spherical		linear	linear	
(Intercept)	48.60	0.0000		-3.90	0.0002		1.65	0.0000		13.92	0.0001		0.13	0.0010		29.70	0.0000		421.00	0.0006		0.93	0.0000		0.0088	0.0000		1.0200	0.0000		0.2500	0.0000	
***Vaccinium martillos* mature**	-0.18	0.0463	*	1.29	0.1084		-0.15	0.1720		-3.39	0.1891		0.02	0.6135		2.61	0.1900		-80.10	0.4130		-0.04	0.6730		0.0008	0.0972	.	-0.0977	0.1040		-0.0083	0.7550	
	Litter																														
Function associated to gls	spherical	spherical		NSC	NSC		linear	linear		NSC	NSC		spherical	spherical		NSC	NSC		NSC	NSC		linear	linear		gaussian	gaussian		linear	linear		gaussian	gaussian	
(Intercept)	49.80	0.0000		-4.42	0.0000		1.08	0.0000		14.04	0.0002		0.08	0.0009		46.40	0.0000		644.00	0.0001		0.74	0.0000		0.0070	0.0000		0.6860	0.0000		0.1980	0.0000	
***Vaccinium martillos* mature**	-0.13	0.6240		2.11	0.0117		-0.02	0.7490		-4.95	0.0831	.	0.03	0.1296		1.18	0.7020		-210.00	0.0847	.	-0.04	0.6590		-0.0003	0.6450		0.0320	0.6830		0.0048	0.7700	
	Stems																														
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		spherical	spherical		spherical	spherical		spherical	spherical		spherical	spherical	
(Intercept)	48.50	0.0000		-3.31	0.0131		0.57	0.0000		12.50	0.0001		0.05	0.0000		85.70	0.0000		1060.00	0.0000		0.17	0.0000		0.1690	0.0000		0.1690	0.0000		0.1690	0.0000	
***Vaccinium martillos* mature**	-0.26	0.5290		1.24	0.3925		0.02	0.6530		0.56	0.7670		-0.00	0.7700		-3.31	0.5720		4.00	0.9690		-0.03	0.2660		-0.0286	0.2660		-0.0286	0.2660		-0.0286	0.2660	
	Soil																														
Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		NSC	NSC		spherical	spherical		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		linear	linear		spherical	spherical	
(Intercept)	9.62	0.0008		0.53	0.5230		0.54	0.0019		5.22	0.0015		0.11	0.0001		18.20	0.0000		92.50	0.0005		1.23	0.0000		4.3200	0.0000		0.1574	0.0005		0.0135	0.0043	
***Vaccinium martillos* mature**	3.49	0.1627		0.07	0.9540		0.25	0.1382		0.72	0.6106		0.03	0.1470		-1.33	0.1810		7.16	0.7200		-0.15	0.0122		-0.3400	0.5580		0.0118	0.7368		0.0157	0.0106	*

	Leaves							
	C (gm^{-2})	**N (gm^{-2})**	**Mg (gm^{-2})**	**P (gm^{-2})**	**K (gm^{-2})**	**Fe (gm^{-2})**	**Ca (gm^{-2})**

	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		gaussian	gaussian		gaussian	gaussian		linear	linear		linear	linear		linear	linear		spherical	spherical	
(Intercept)	26.15	0.0013		0.87	0.0028		0.13	0.0003		0.05	0.0513		0.39	0.0011		0.00	0.0034		0.38	0.0051	
***Vaccinium martillos* mature**	22.20	0.0145	*	0.58	0.0615	.	0.11	0.0046	**	0.07	0.0390	*	0.28	0.0254	*	0.00	0.0445	*	0.34	0.0341	*
	Litter																				
Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		linear	linear		linear	linear		linear	linear		spherical	spherical	
(Intercept)	598.00	1.65E-13		12.90	6.8E-07		0.11	0.0015		0.05	0.0513		0.39	0.0011		0.00	0.0034		0.38	0.0051	
***Vaccinium martillos* mature**	-1.61	0.6230		-0.28	0.7510		0.09	0.0163	*	0.07	0.0390	*	0.28	0.0254	*	0.00	0.0445	*	0.34	0.0341	*
	Stem																				
Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		spherical	spherical		spherical	spherical		spherical	spherical		spherical	spherical	
(Intercept)	122.00	0.0014		1.45	0.0015		0.11	0.0005		0.12	0.0023		0.42	0.0020		0.03	0.0602		0.72	0.0051	
***Vaccinium martillos* mature**	140.00	0.0040	**	1.74	0.0033	**	0.12	0.0021	**	0.13	0.0088	**	0.35	0.0235	*	0.05	0.0171	*	0.73	0.0220	*
	Soil																				
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC NSC			NSC	NSC	
(Intercept)	2571.35	0.1830		143.39	0.2140		3.83	0.1332		28.16	0.0534		332.89	0.0149		1177.77	0.0120		42.91	0.0018	
***Vaccinium martillos* mature**	2739.94	0.3000		174.33	0.2770		6.58	0.0798	.	21.59	0.2413		72.51	0.6214		268.78	0.5870		12.72	0.3086	

Supplementary table 5 (ST5) GLS Models South face

South Face site

Leaves

	%C			d15N			%N			NP			%P			CN			CP			%K			%Fe			%Ca			%Mg		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	exponential	exponential		gaussian	gaussian		gaussian	gaussian		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		spherical	spherical		gaussian	gaussian		gaussian	gaussian		spherical	spherical	
(Intercept)	44.90	0.00000		-2.68	0.00021		2.00	0.00000		15.70	0.00000		0.13	0.00000		23.20	0.00000		354.00	0.00000		1.59	0.00000		0.01	0.00266		0.40	0.0007		0.10	0.0000	
Southern grassland young	0.18	0.54400		-1.28	0.11419		-0.51	0.00241	**	-1.85	0.20700		-0.02	0.17400		7.65	0.05160		70.60	0.14000		-0.53	0.00008	***	-0.00	0.46615		-0.04	0.7890		-0.01	0.7770	
***Arctostaphylos uva-ursi* young**	6.54	0.00000	***	0.83	0.32543		-0.85	0.00001	***	-5.98	0.00032	***	-0.02	0.25500		24.90	0.00000	***	106.00	0.03160	*	-1.14	0.00000	***	-0.01	0.20146		0.23	0.1010		0.02	0.2830	
***Arctostaphylos uva-ursi* mature**	7.19	0.00000	***	-0.12	0.89514		-1.00	0.00000	***	-4.57	0.00378	**	-0.04	0.01130	*	29.30	0.00000	***	227.00	0.00005	***	-1.14	0.00000	***	-0.00	0.47776		0.26	0.0796	*	0.05	0.0160	*
***Juniperus communis* young**	5.23	0.00000	***	-0.84	0.32291		-0.63	0.00055	***	-3.81	0.01320	*	-0.01	0.38800		13.90	0.00103	**	85.10	0.07850	*	-1.15	0.00000	***	0.00	0.50548		0.72	0.0000	***	0.03	0.2350	
***Juniperus communis* mature**	5.44	0.00000	***	-0.67	0.45061		-0.63	0.00138	**	-4.47	0.00443	**	-0.00	0.75000		14.60	0.00067	***	74.30	0.12200		-1.00	0.00000	***	-0.00	0.61117		0.74	0.0000	***	0.01	0.5880	
***Juniperus sabina* young**	5.66	0.00000	***	-1.71	0.03753	*	-0.56	0.00088	***	-3.95	0.01060	*	-0.00	0.94300		11.20	0.00611	**	51.00	0.28200		-0.99	0.00000	***	-0.00	0.94945		0.78	0.0000	***	0.07	0.0017	**
***Juniperus sabina* mature**	6.93	0.00000	***	-0.92	0.29813		-0.54	0.00310	**	-4.61	0.00350	**	0.00	0.87300		12.70	0.00231	**	42.60	0.36700		-1.03	0.00000	***	-0.00	0.72156		0.93	0.0000	***	0.10	0.0001	***

Litter

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		gaussian	gaussian		linear	linear		spherical	spherical		spherical	spherical	
(Intercept)	44.40	0.0000		-3.75	0.0000		1.16	0.0000		14.30	0.0000		0.08	0.0000		41.44	0.0004		601.00	0.0007		0.18	0.0000		0.05	0.0001		0.72	0.0001		0.08	0.0000	
Southern grassland young	3.87	0.0634	.	-1.14	0.1700		-0.40	0.0187	*	3.33	0.0210	*	-0.04	0.0099	**	22.54	0.1308		534.00	0.0215	*	0.02	0.6150		0.04	0.0093	**	-0.26	0.2250		-0.02	0.4670	
***Arctostaphylos uva-ursi* young**	6.92	0.0020	**	1.71	0.0429	*	-0.59	0.0011	**	-5.27	0.0007	***	-0.02	0.1670		61.13	0.0003	***	309.00	0.1680		0.12	0.0153	*	-0.04	0.0108	*	0.09	0.6730		0.05	0.0489	*
***Arctostaphylos uva-ursi* mature**	7.58	0.0009	***	0.95	0.2500		-0.58	0.0013	**	-2.06	0.1410		-0.03	0.0254	*	50.90	0.0017	**	551.00	0.0182	*	0.01	0.8350		-0.04	0.0140	*	0.21	0.3290		0.09	0.0005	***
***Juniperus communis* young**	6.28	0.0043	**	0.15	0.8540		-0.30	0.0685	.	1.07	0.4350		-0.03	0.0886	.	23.00	0.1234		425.00	0.0624	.	-0.02	0.6350		-0.03	0.0669	.	0.64	0.0055	**	0.03	0.1770	
***Juniperus communis* mature**	6.56	0.0031	**	0.33	0.6850		-0.60	0.0009	***	0.16	0.9050		-0.04	0.0056	**	49.57	0.0021	**	718.00	0.0030	**	0.02	0.6640		-0.03	0.0367	*	1.35	0.0000	***	0.03	0.1980	
***Juniperus sabina* young**	6.35	0.0039	**	-1.13	0.1700		-0.25	0.1280		-1.31	0.3420		-0.01	0.3840		15.28	0.2993		144.00	0.5140		0.14	0.0069	**	-0.01	0.3550		1.17	0.0000	***	0.09	0.0006	***
***Juniperus sabina* mature**	7.63	0.0008	***	0.68	0.4050		0.15	0.3480		-2.50	0.0761	.	0.03	0.0724	.	-1.27	0.9304		-130.00	0.5550		0.12	0.0211	*	-0.03	0.0451	*	0.72	0.0021	**	0.12	0.0000	***

Soil

Function associated to gls	NSC	NSC		NSC	NSC		gaussian	gaussian					linear	linear								spherical	spherical					rational	rational		gaussian	gaussian	
(Intercept)	10.73	0.0004		3.92	0.0000		0.93	0.0000		8.80	0.0000		0.11	0.0000		11.50	0.0000		101.17	0.0033		1.50	0.0000		3.41	0.0001		0.56	0.0000		0.11	0.0023	
Southern grassland young	-2.57	0.4950		-3.10	0.0023	**	-0.25	0.0736	.	-2.61	0.1460		-0.00	0.7330		1.72	0.4720		-18.99	0.6778		-0.27	0.1300		2.28	0.0398	*	-0.34	0.0000	***	-0.10	0.0310	*
***Arctostaphylos uva-ursi* young**	-1.13	0.7622		-1.62	0.0772	.	-0.47	0.0035	**	-3.09	0.0897	.	-0.02	0.2560		4.75	0.0590	*	10.60	0.8163		-0.45	0.0172	*	2.05	0.0616	.	-0.37	0.0000	***	-0.09	0.0329	*
***Arctostaphylos uva-ursi* mature**	-0.46	0.8933		-2.86	0.0023	**	-0.36	0.0133	*	0.25	0.8790		-0.04	0.0037	**	5.25	0.0275	*	57.14	0.1880		-0.32	0.0613	.	0.80	0.4069		-0.38	0.0000	***	-0.10	0.0601	.
***Juniperus communis* young**	-5.54	0.2026		-1.48	0.1470		-0.53	0.0032	**	-4.47	0.0347	*	0.01	0.6780		2.35	0.3880		-44.12	0.3988		0.10	0.6190		2.52	0.0445	*	-0.31	0.0000	***	-0.09	0.0355	*
***Juniperus communis* mature**	-4.49	0.2058		-2.24	0.0123	*	-0.53	0.0009	***	-4.28	0.0157	*	-0.02	0.2040		3.81	0.0972	.	-31.68	0.4569		-0.16	0.3170		1.90	0.0611		-0.32	0.0000	***	-0.10	0.0561	*
***Juniperus sabina* young**	-3.65	0.3947		-2.56	0.0180	*	-0.35	0.0264	*	-3.94	0.0589	*	-0.00	0.8120		2.54	0.3530		-32.70	0.5296		-0.26	0.2000		2.26	0.0680	.	-0.28	0.0000	***	-0.09	0.0316	*
***Juniperus sabina* mature**	-4.51	0.2949		-2.83	0.0100	*	-0.42	0.0169	*	0.96	0.6270		-0.05	0.0039	**	0.68	0.8010		17.78	0.7313		-0.05	0.7880		1.40	0.2439		-0.40	0.0000	***	-0.10	0.0640	.

Leaves

	C (g m-2)			N (g m-2)			Mg (g m-2)			P (g m-2)			K (g m-2)			Fe (g m-2)			Ca (g m-2)		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		NSC	NSC		gaussian	gaussian		gaussian	gaussian		NSC	NSC		linear	linear		NSC	NSC	
(Intercept)	191.00	0.04330		8.24	0.00263		0.45	0.09090		0.56	0.00685		6.71	0.00001		0.05	0.25052		1.76	0.47971	
Southern grassland young	34.40	0.78800		-0.82	0.81553		-0.04	0.91100		0.09	0.70925		-1.08	0.52700		0.00	0.96302		-0.00	0.99943	
***Arctostaphylos uva-ursi* young**	127.00	0.32700		-1.42	0.68616		0.24	0.49700		0.15	0.55248		-3.93	0.02820	*	-0.02	0.75381		2.01	0.56570	
***Arctostaphylos uva-ursi* mature**	239.00	0.07090	**	0.14	0.96842		0.83	0.03380	*	0.19	0.48672		-2.98	0.08910	.	0.02	0.76987		3.58	0.31117	
***Juniperus communis* young**	487.00	0.00078	***	10.36	0.00647	**	1.25	0.00154	**	1.02	0.00065	***	-0.76	0.65500		0.16	0.01480	*	12.52	0.00136	**
***Juniperus communis* mature**	526.00	0.00036	***	10.22	0.00713	**	1.00	0.01360	*	1.04	0.00076	***	0.86	0.61500		0.08	0.18095		15.00	0.00022	***
***Juniperus sabina* young**	322.00	0.01770	*	6.97	0.05619	*	1.35	0.00035	***	0.72	0.00664	**	-0.68	0.69200		0.06	0.29952		11.08	0.00380	**
***Juniperus sabina* mature**	375.00	0.00677	**	7.41	0.04332	*	1.76	0.00006	***	0.86	0.00393	**	-0.68	0.69000		0.06	0.33862		13.11	0.00089	***

Litter

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		gaussian	gaussian		gaussian	gaussian		linear	linear		NSC	NSC	
(Intercept)	534.00	0.0000		14.00	0.0000		0.38	0.0143		0.40	0.0048		0.84	0.1187		0.22	0.0296		3.25	0.1380	
Southern grassland young	46.60	0.0634	.	-4.79	0.0186	*	-0.03	0.8810		-0.11	0.4875		0.27	0.6822		0.33	0.0242	*	-0.98	0.7461	
***Arctostaphylos uva-ursi* young**	83.20	0.0020	**	-7.07	0.0011	**	0.20	0.3400		-0.09	0.6118		0.47	0.5089		-0.19	0.1843		-0.05	0.9863	
***Arctostaphylos uva-ursi* mature**	91.10	0.0009	***	-6.93	0.0013	**	0.15	0.4720		-0.24	0.1946		-0.24	0.7464		-0.19	0.1770		-0.46	0.8782	
***Juniperus communis* young**	75.60	0.0043	**	-3.62	0.0682	.	-0.12	0.5630		-0.34	0.0623	.	-0.69	0.3382		-0.17	0.2258		-0.23	0.9386	
***Juniperus communis* mature**	78.90	0.0031	**	-7.19	0.0009	***	-0.00	0.9940		-0.26	0.1678		-0.06	0.9365		-0.15	0.2671		4.03	0.1905	
***Juniperus sabina* young**	76.30	0.0039	**	-2.99	0.1280		0.44	0.0399	*	0.10	0.5291		1.42	0.0430	*	-0.02	0.8753		7.77	0.0159	*
***Juniperus sabina* mature**	91.80	0.0008	***	1.81	0.3480		1.51	0.0000	***	0.64	0.0015	**	2.09	0.0088	**	-0.04	0.7858		10.40	0.0020	**

Soil

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	8050.00	0.0043		696.00	0.0000		77.20	0.0000		81.30	0.0003		1150.00	0.0000		2650.00	0.0318		431.00	0.0000	
Southern grassland young	-824.00	0.8270		-145.00	0.3850		-67.20	0.0018	**	14.90	0.5910		11.60	0.9720		2730.00	0.1330		-229.00	0.0160	*
***Arctostaphylos uva-ursi* young**	2770.00	0.4650		-141.00	0.3970		-66.90	0.0018	**	15.60	0.5740		-3.28	0.9920		3270.00	0.0757	.	-238.00	0.0129	*
***Arctostaphylos uva-ursi* mature**	-2170.00	0.5360		-347.00	0.0346	*	-69.70	0.0007	***	-41.40	0.1200		-335.00	0.2750		202.00	0.9010		-308.00	0.0013	**
***Juniperus communis* young**	-2520.00	0.5560		-297.00	0.1260		-65.90	0.0051	**	48.60	0.1350		584.00	0.1270		4150.00	0.0498	*	-176.00	0.0872	.
***Juniperus communis* mature**	-3080.00	0.3820		-380.00	0.0225	*	-69.60	0.0007	***	-12.00	0.6410		-121.00	0.6870		1390.00	0.3970		-251.00	0.0057	**
***Juniperus sabina* young**	-931.00	0.8270		-193.00	0.3100		-63.90	0.0063	**	16.40	0.6030		-56.10	0.8790		2900.00	0.1580		-146.00	0.1500	
***Juniperus sabina* mature**	-2240.00	0.6010		-220.00	0.2490		-68.80	0.0038	**	-32.40	0.3100		190.00	0.6070		1810.00	0.3680		-286.00	0.0092	**

Supplementary table 6 (ST6) GLS Models South face

Arctostaphylos uva-ursi

Leaves

	%C			delta^{15}N			%N			NP			%P			CN			CP			%K			%Fe			%Ca			%Mg	
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear														linear	linear		linear	linear		linear	linear		linear	linear
(Intercept)	51.50	0.0000		-1.9597	0.0576		1.0900	0.0000		9.6900	0.0000		0.1120	0.0000		48.20	0.0000		459.00	0.0000		0.45	0.0003		0.01	0.0144		0.61	0.0004		0.13	0.0004
***Arctostaphylos uva-ursi* mature**	0.66	0.1340		-0.8345	0.5070		-0.0828	0.5050		1.4200	0.1500		-0.0220	0.0177	*	4.37	0.4230		121.00	0.0140	*	-0.01	0.9476		0.00	0.8116		0.05	0.7095		0.03	0.2519

Litter

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		linear	linear		NSC	NSC		spherical	spherical
(Intercept)	51.30	0.0000		-2.0350	0.0140		0.5748	0.0012		9.0800	0.0000		0.0632	0.0011		103.00	0.0009		910.00	0.0023		0.29	0.0003		0.01	0.0102		0.81	0.0041		0.13	0.0005
***Arctostaphylos uva-ursi* mature**	0.66	0.2080		-0.7680	0.3960		0.0115	0.9374		3.2100	0.0396	*	-0.0137	0.4029		-10.20	0.6820		242.00	0.3770		-0.10	0.1236		0.00	0.6563		0.12	0.6535		0.04	0.1561

Stems

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		exponential	exponential		rational	rational		gaussian	gaussian		linear	linear
(Intercept)	47.50	0.0000		-2.6670	0.0034		0.4140	0.0000		10.2000	0.0000		0.0405	0.0000		115.00	0.0000		1170.00	0.0000		0.24	0.0001		0.02	0.0251		0.38	0.0005		0.05	0.0007
***Arctostaphylos uva-ursi* mature**	0.43	0.4150		-0.8075	0.3549		0.0350	0.2290		2.1300	0.1410		-0.0030	0.4480		-7.59	0.2490		148.00	0.3230		-0.09	0.1010		-0.01	0.6538		-0.06	0.6413		0.01	0.4324

Soil

Function associated to gls	NSC	NSC		rational	rational		gaussian	gaussian		NSC	NSC		gaussian	gaussian		NSC	NSC		NSC	NSC		gaussian	gaussian		NSC	NSC		linear	linear		linear	linear
(Intercept)	8.51	0.0697		2.5759	0.0596		0.4655	0.0176		6.2535	0.0072		0.0801	0.0006		15.70	0.0006		111.24	0.0525		1.21	0.0002		5.20	0.0003		0.19	0.0001		0.01	0.0009
***Arctostaphylos uva-ursi* mature**	1.75	0.7593		-1.0437	0.5999		0.1434	0.6147		2.7903	0.2551		-0.0177	0.4841		1.08	0.7620		47.08	0.4976		-0.05	0.8345		-0.99	0.3565		-0.01	0.7211		0.00	0.3738

Leaves

	C (gm^{-2})			N (gm^{-2})			Mg (gm^{-2})			P (gm^{-2})			K (gm^{-2})			Fe (gm^{-2})			Ca (gm^{-2})		
	Value	p value		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		linear	linear		NSC	NSC		linear	linear		NSC	NSC	
(Intercept)	318.00	0.0018		6.8223	0.0036		0.7772	0.0078		0.6770	0.0015		2.7793	0.0085		0.03	0.0170		3.77	0.0044	
***Arctostaphylos uva-ursi* mature**	113.00	0.2310		1.5600	0.4817		0.5061	0.1216		0.0551	0.7955		0.9485	0.3893		0.03	0.0614	.	1.56	0.2411	

Litter

Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		linear	linear		NSC	NSC		linear	linear		NSC	NSC	
(Intercept)	617.00	0.0000		6.9130	0.0012		0.5805	0.0021		0.2973	0.0069		1.3860	0.0075		0.04	0.0000		3.20	0.0033	
***Arctostaphylos uva-ursi* mature**	7.98	0.2080		0.1385	0.9373		-0.0511	0.7595		-0.1420	0.2224		-0.7870	0.1629		-0.00	0.4430		-0.41	0.6834	

Stem

Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		linear	linear		NSC	NSC		exponential	exponential		exponential	exponential	
(Intercept)	278.78	0.0158		2.3865	0.0137		0.2353	0.0821		0.2199	0.0879		1.2705	0.0129		0.06	0.0004		1.86	0.0290	
***Arctostaphylos uva-ursi* mature**	176.16	0.1872		1.8590	0.1067		0.2861	0.1647		0.0707	0.6550		0.2085	0.6990		0.04	0.0373	*	1.13	0.3540	

Soil

Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	9560.0	0.0423		519	0.0079		9.78	0.0011		85.8	0.0001		1330.0	0.0006		5660.00	0.0008		205.00	0.0002	
***Arctostaphylos uva-ursi* mature**	-3680.0	0.5100		-171	0.3970		-2.26	0.3777		-46.0	0.0116	*	-510.0	0.1290		-2810.00	0.0708	.	-81.80	0.0625	.

Juniperus communis

Leaves

	%C			delta^{15}N			%N			NP			%P			CN			CP			%K			%Fe			%Ca			%Mg	
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*
Function associated to gls	linear	linear		NSC	NSC		linear	linear		NSC	NSC		spherical	spherical		NSC	NSC		NSC	NSC		spherical	spherical		spherical	spherical		linear	linear		spherical	spherical
(Intercept)	50.10	0.0000		-3.5358	0.0006		1.3700	0.0000		11.9000	0.0000		0.1165	0.0002		37.20	0.0000		439.00	0.0001		0.43	0.0008		0.01	0.0403		1.08	0.0002		0.13	0.0002
***Juniperus communis* mature**	0.23	0.5420		0.1870	0.8167		-0.0045	0.9780		-0.6630	0.5450		0.0082	0.7143		0.64	0.8840		-10.90	0.8690		0.16	0.1587		-0.01	0.4995		0.05	0.7814		-0.01	0.5626

Litter

Function associated to gls	linear	linear		NSC	NSC		gaussian	gaussian		NSC	NSC		spherical	spherical		NSC	NSC		NSC	NSC		spherical	spherical		spherical	spherical		linear	linear		spherical	spherical
(Intercept)	50.70	0.0000		-3.5993	0.0009		0.8614	0.0002		15.4000	0.0000		0.0583	0.0005		64.40	0.0005		1030.00	0.0030		0.18	0.0026		0.02	0.0000		1.36	0.0005		0.11	0.0001
***Juniperus communis* mature**	0.27	0.4400		0.1798	0.8379		-0.3193	0.1687		-0.9090	0.5950		-0.0183	0.1831		26.60	0.0958	.	294.00	0.3670		0.02	0.7409		-0.00	0.1470		0.71	0.0459	*	-0.00	0.9300

Stems

Function associated to gls	linear	linear		NSC	NSC		spherical	spherical		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		spherical	spherical		linear	linear		spherical	spherical	spherical	spherical	spherical
(Intercept)	47.00	0.0000		-2.7963	0.0055		0.4470	0.0001		10.1110	0.0002		0.0440	0.0022		109.00	0.0001		1090.00	0.0002		0.17	0.0011		0.04	0.0555		1.47	0.0000		0.05	0.0018
***Juniperus communis* mature**	0.25	0.7000		-0.5878	0.5528		0.0210	0.7730		-0.3955	0.8340		0.0093	0.4788		-3.33	0.8410		-91.60	0.6360		-0.01	0.8732		-0.01	0.6992		0.60	0.0164	*	-0.00	0.8756

Soil

Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		linear	linear		linear	linear
(Intercept)	7.7928	0.0046		1.5150	0.1180		0.4940	0.0002		6.2465	0.0010		0.0945	0.0021		15.10	0.0001		96.91	0.0069		1.43	0.0000		5.11	0.0006		0.31	0.0008		0.01	0.0002

***Juniperus communis* mature**	-1.55	0.5590		0.1710	0.8890		-0.0898	0.3218		-1.7253	0.2917		-0.0036	0.9240		0.24	0.9250		-27.42	0.4506		-0.09	0.5890		0.19	0.8677		-0.07	0.3551		-0.00	0.3407	

	Leaves																				
	C (gm-2)			**N (gm-2)**			**Mg (gm-2)**			**P (gm-2)**			**K (gm-2)**			**Fe (gm-2)**			**Ca (gm-2)**		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		spherical	spherical		NSC	NSC		linear	linear		NSC	NSC	
(Intercept)	678.00	0.0030		18.6048	0.0023		1.7433	0.0010		1.5470	0.0008		5.9480	0.0040		0.20	0.0393		14.28	0.0098	
***Juniperus communis* mature**	38.70	0.8530		-0.1425	0.9791		-0.2838	0.5146		0.0610	0.8678		1.6218	0.4164		-0.08	0.5299		2.48	0.6633	
	Litter																				
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		linear	linear		spherical	spherical		spherical	spherical		NSC	NSC	
(Intercept)	610.00	0.0000		10.4000	0.0001		0.2618	0.0097		0.1390	0.0092		0.4575	0.0723		0.05	0.0132		3.01	0.0504	
***Juniperus communis* mature**	3.30	0.4400		-3.5700	0.0660		0.1185	0.2776		0.0003	0.9963		0.3227	0.3190		0.01	0.5285		4.27	0.0503	*
	Stem																				
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC	
(Intercept)	490.65	0.2490		4.5960	0.3220		0.5410	0.5080		0.4490	0.5980		1.7440	0.4660		0.37	0.1730		15.19	0.4280	
***Juniperus communis* mature**	912.43	0.1440		9.9660	0.1490		1.2580	0.2910		1.4790	0.2430		4.0300	0.2510		0.48	0.2450		46.16	0.1180	
	Soil																				
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	7260	0.0024		470	0.0001		11.80	0.0000		98.20	0.0088		1450	0.0008		5330	0.0061		293	0.0002	
***Juniperus communis* mature**	-2290	0.3040		-154	0.0876	.	-4.16	0.0358	*	-28.92	0.4570		-417	0.2540		-1290	0.5050		-113	0.0648	.

	Juniperus sabina																																
	Leaves																																
	%C			**delta15N**			**%N**			**NP**			**%P**			**CN**			**CP**			**%K**			**%Fe**			**%Ca**			**%Mg**		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	spherical	spherical		NSC	NSC		spherical	spherical		NSC	NSC		gaussian	gaussian		NSC	NSC		NSC	NSC		spherical	spherical		rational	rational		spherical	spherical		spherical	spherical	
(Intercept)	50.70	0.0000		-5.03	0.0001		1.48	0.0000		11.70	0.0000		0.13	0.0000		34.50	0.0000		405.00	0.0000		0.59	0.0000		0.01	0.0002		1.24	0.0000		0.18	0.0000	
***Juniperus sabina* mature**	1.19	0.0029	**	1.43	0.1204		-0.01	0.9480		-0.66	0.3900		0.00	0.8050		1.50	0.5160		-8.38	0.8100		-0.03	0.3260		-0.00	0.7329		0.08	0.6130		0.02	0.3073	
	Litter																																
Function associated to gls	linear	linear		NSC	NSC		gaussian	gaussian		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		linear	linear		linear	linear		linear	linear		linear	linear	
(Intercept)	50.70	0.0000		-4.88	0.0002		0.91	0.0000		13.00	0.0000		0.07	0.0001		56.70	0.0000		745.00	0.0000		0.32	0.0000		0.04	0.0047		1.89	0.0000		0.17	0.0002	
***Juniperus sabina* mature**	1.34	0.0045	**	1.81	0.0843	.	0.42	0.0318	*	-1.19	0.1980		0.04	0.0232	*	-16.60	0.0207	*	-274.00	0.0185	*	-0.02	0.6530		-0.02	0.2953		-0.45	0.0316	*	0.03	0.4524	
	Stems																																
Function associated to gls	spherical	spherical		NSC	NSC		linear	linear					spherical	spherical		NSC	NSC		NSC	NSC		linear	linear		spherical	spherical		spherical	spherical		spherical	spherical	
(Intercept)	46.60	0.0000		-4.30	0.0001		0.41	0.0000		9.31	0.0001		0.05	0.0001		115.00	0.0000		1050.00	0.0000		0.20	0.0001		0.02	0.0000		1.99	0.0000		0.06	0.0002	
***Juniperus sabina* mature**	-0.29	0.3250		1.10	0.1370		0.13	0.0148		-0.03	0.9850		0.01	0.1763		-28.20	0.0133	*	-243.00	0.1120		0.01	0.6730		0.00	0.1440		0.47	0.1290		0.03	0.0398	*
	Soil																																
Function associated to gls	NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		linear	linear		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC		gaussian	gaussian		gaussian	gaussian	
(Intercept)	5.60	0.0016		2.12	0.0044		0.42	0.0002		5.04	0.0022		0.09	0.0002		13.00	0.0001		65.49	0.0022		1.47	0.0000		5.32	0.0000		0.23	0.0005		0.01	0.0009	
***Juniperus sabina* mature**	0.21	0.8898		-1.25	0.1145		0.03	0.7384		2.47	0.1277		-0.02	0.1771		-0.21	0.9160		28.16	0.1712		0.07	0.7330		0.04	0.9540		-0.07	0.3329		-0.00	0.9085	

	Leaves																				
	C (gm-2)			**N (gm-2)**			**Mg (gm-2)**			**P (gm-2)**			**K (gm-2)**			**Fe (gm-2)**			**Ca (gm-2)**		
	Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*		Value	*p value*	
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		gaussian	gaussian		NSC	NSC		spherical	spherical		NSC	NSC	
(Intercept)	513.44	0.0006		15.20	0.0006		1.77	0.0016		1.30	0.0008		6.04	0.0005		0.11	0.0019		12.83	0.0043	
***Juniperus sabina* mature**	52.91	0.6495		0.44	0.8980		0.45	0.3654		0.12	0.7025		-0.00	0.9978		-0.00	0.9605		2.03	0.6350	
	Litter																				
Function associated to gls	NSC	NSC		NSC	NSC		spherical	spherical		spherical	spherical		NSC	NSC		spherical	spherical		NSC	NSC	
(Intercept)	610.00	0.0000		11.00	0.0000		0.83	0.0108		0.46	0.0566		1.98	0.0589		0.20	0.0089		11.02	0.0301	
***Juniperus sabina* mature**	15.40	0.0035	**	4.80	0.0165	*	1.06	0.0161	*	0.58	0.0773	.	0.95	0.4586		-0.02	0.8393		2.63	0.6505	
	Stem																				
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		linear	linear		NSC	NSC	
(Intercept)	468.00	0.1370		3.97	0.3117		0.51	0.3455		0.51	0.2521		1.84	0.1540		0.19	0.1199		20.41	0.3001	
***Juniperus sabina* mature**	1040.00	0.0359	*	13.86	0.0343	*	2.13	0.0224	*	1.40	0.0494	*	4.78	0.0240	*	0.55	0.0107	*	62.25	0.0501	*
	Soil																				
Function associated to gls	NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC		NSC	NSC	
(Intercept)	5500	0.0089		414.91	0.0042		10.59	0.0056		80.9	0.0009		1350.0	0.0001		5120	0.0008		233.24	0.0050	
***Juniperus sabina* mature**	-302	0.8870		-12.74	0.9255		-1.76	0.6369		-24.7	0.2360		12.2	0.9580		-385	0.7540		-86.87	0.2995	