

Title: Heather management modifies climate sensitivity of surface peat moisture in UK upland peatlands

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Table S1. Results of beta-inflated regression model (BEINF) testing the effects of climatic and environmental factors on percentage surface peat moisture (SPM < 98%) across deep peat sites (NM: combination of Nidd and Moss; 2013-2024). Rainfall and temperature (temp) were evaluated at five temporal scales (3 days, 5 days, 1 week, 2 weeks, 3 weeks) preceding SPM measurement. Management treatments (conducted in 2013) are relative to the baseline DN (do nothing). Coef. = coefficient; Int. = intercept; FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed; CV:Ht = *Calluna vulgaris* height; PD = peat depth; A.ESE = aspect east-southeast; A.NE = aspect northeast; A.SE = aspect southeast; A.SSE = aspect south-southeast; **β** = model estimate; SE = standard error. Bold values denote statistically significant effects (p < 0.05).

Coef.	3 days				5 days				1 week				2 weeks				3 weeks			
	β	SE	t	p	β	SE	t	p	β	SE	t	p	β	SE	t	p	β	SE	t	p
(Int.)	3.060	0.25	12.48	<0.001	2.791	0.26	10.85	<0.001	2.757	0.27	10.22	<0.001	2.589	0.28	9.18	<0.001	2.444	0.28	8.89	<0.001
rainfall	0.006	0.00	2.29	0.022	0.009	0.00	3.79	<0.001	0.006	0.00	2.90	0.004	0.004	0.00	3.74	<0.001	0.005	0.00	6.52	<0.001
temp	-0.125	0.01	-17.31	<0.001	-0.109	0.01	-14.73	<0.001	-0.104	0.01	-12.27	<0.001	-0.094	0.01	-10.01	<0.001	-0.102	0.01	-11.38	<0.001
FI	0.157	0.14	1.10	0.269	0.142	0.14	0.98	0.326	0.127	0.15	0.87	0.384	0.103	0.15	0.71	0.481	0.101	0.15	0.69	0.489
LB	0.302	0.11	2.67	0.008	0.293	0.12	2.54	0.011	0.276	0.12	2.36	0.018	0.250	0.12	2.13	0.033	0.246	0.12	2.12	0.034
BR	0.277	0.12	2.37	0.018	0.260	0.12	2.18	0.029	0.248	0.12	2.06	0.040	0.226	0.12	1.87	0.061	0.224	0.12	1.87	0.062
CV:Ht	-0.003	0.00	-0.88	0.380	-0.003	0.00	-0.81	0.418	-0.003	0.00	-0.87	0.384	-0.004	0.00	-1.05	0.296	-0.004	0.00	-1.16	0.248
PD	0.002	0.00	2.37	0.018	0.002	0.00	2.45	0.015	0.002	0.00	2.18	0.030	0.002	0.00	2.01	0.044	0.002	0.00	2.26	0.024
Slope	-0.017	0.02	-1.01	0.313	-0.016	0.02	-0.89	0.375	-0.016	0.02	-0.89	0.376	-0.014	0.02	-0.78	0.434	-0.008	0.02	-0.47	0.640
A.ESE	0.180	0.20	0.92	0.360	0.127	0.20	0.63	0.527	0.153	0.20	0.76	0.448	0.123	0.20	0.60	0.548	0.052	0.21	0.25	0.800
A.NE	0.307	0.08	3.81	<0.001	0.267	0.08	3.27	0.001	0.260	0.08	3.15	0.002	0.231	0.08	2.77	0.006	0.201	0.08	2.43	0.015
A.SE	0.180	0.07	2.52	0.012	0.160	0.07	2.20	0.028	0.153	0.07	2.09	0.037	0.141	0.07	1.90	0.058	0.149	0.07	2.03	0.042
A.SSE	0.778	0.27	2.89	0.004	0.748	0.27	2.76	0.006	0.710	0.27	2.60	0.009	0.677	0.27	2.47	0.014	0.671	0.27	2.46	0.014

Table S2. Results of pairwise comparisons of percentage surface peat moisture (SPM) between management types following Kruskal-Wallis test for each season and year (2013-2024) across combined Nidderdale and Mossdale (NM) sites. DN = do nothing (control); FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed; Mag1 = Management type1; Mag2 = Management type 2; P.adj = fdr adjusted p value; sig. = significance level (***p < 0.001, **p < 0.01, *p < 0.05; ns = not significant).

Year	Season	Mag1	Mag2	Statistic	P	P.adj	P.adj.sig.
2013	Summer	DN	FI	1.777	0.0756	0.1511	ns
	Summer	DN	LB	2.5417	0.011	0.0412	*
	Summer	DN	BR	2.4644	0.0137	0.0412	*
	Summer	FI	LB	0.4898	0.6243	0.816	ns
	Summer	FI	BR	0.4124	0.68	0.816	ns
	Summer	LB	BR	-0.0947	0.9245	0.9245	ns
	Autumn	DN	FI	0.3346	0.7379	0.924	ns
	Autumn	DN	LB	-0.4125	0.68	0.924	ns
	Autumn	DN	BR	0.094	0.9251	0.9251	ns
	Autumn	FI	LB	-0.7988	0.4244	0.924	ns
	Autumn	FI	BR	-0.2924	0.77	0.924	ns
	Autumn	LB	BR	0.6202	0.5351	0.924	ns
	Winter	DN	FI	0.4845	0.628	0.628	ns
	Winter	DN	LB	1.8804	0.0601	0.1201	ns
	Winter	DN	BR	2.5642	0.0103	0.0621	ns
	Winter	FI	LB	1.3209	0.1865	0.2798	ns
	Winter	FI	BR	2.0047	0.045	0.1201	ns
	Winter	LB	BR	0.8375	0.4023	0.4828	ns
2014	Spring	DN	FI	0.2708	0.7865	0.7865	ns
	Spring	DN	LB	0.9433	0.3455	0.6911	ns
	Spring	DN	BR	1.2768	0.2017	0.6911	ns
	Spring	FI	LB	0.6306	0.5283	0.7865	ns
	Spring	FI	BR	0.9641	0.335	0.6911	ns
	Spring	LB	BR	0.4085	0.6829	0.7865	ns
	Summer	DN	FI	0.6965	0.4861	0.5833	ns
	Summer	DN	LB	0.7991	0.4242	0.5833	ns
	Summer	DN	BR	1.5518	0.1207	0.5833	ns
	Summer	FI	LB	-0.0052	0.9959	0.9959	ns
	Summer	FI	BR	0.7476	0.4547	0.5833	ns
	Summer	LB	BR	0.9219	0.3566	0.5833	ns
	Autumn	DN	FI	1.5309	0.1258	0.4306	ns
	Autumn	DN	LB	1.2198	0.2225	0.4451	ns
	Autumn	DN	BR	1.4627	0.1435	0.4306	ns
	Autumn	FI	LB	-0.5479	0.5838	0.7661	ns
	Autumn	FI	BR	-0.305	0.7604	0.7661	ns
	Autumn	LB	BR	0.2975	0.7661	0.7661	ns
	Winter	DN	FI	1.6193	0.1054	0.2108	ns
	Winter	DN	LB	2.4203	0.0155	0.0726	ns
	Winter	DN	BR	2.2541	0.0242	0.0726	ns
	Winter	FI	LB	0.5505	0.5819	0.8387	ns
	Winter	FI	BR	0.3843	0.7007	0.8387	ns

	Winter	LB	BR	-0.2036	0.8387	0.8387	ns
2015	Spring	DN	FI	2.3956	0.0166	0.0332	*
	Spring	DN	LB	2.4036	0.0162	0.0332	*
	Spring	DN	BR	2.5538	0.0107	0.0332	*
	Spring	FI	LB	-0.3626	0.7169	0.854	ns
	Spring	FI	BR	-0.2124	0.8318	0.854	ns
	Spring	LB	BR	0.184	0.854	0.854	ns
	Summer	DN	FI	0.8305	0.4063	0.6094	ns
	Summer	DN	LB	-0.1495	0.8811	0.8934	ns
	Summer	DN	BR	1.093	0.2744	0.5488	ns
	Summer	FI	LB	-1.1085	0.2677	0.5488	ns
	Summer	FI	BR	0.134	0.8934	0.8934	ns
	Summer	LB	BR	1.5217	0.1281	0.5488	ns
	Autumn	DN	FI	1.6451	0.1	0.2999	ns
	Autumn	DN	LB	1.244	0.2135	0.3595	ns
	Autumn	DN	BR	2.2041	0.0275	0.1651	ns
	Autumn	FI	LB	-0.6556	0.5121	0.6145	ns
	Autumn	FI	BR	0.3046	0.7607	0.7607	ns
	Autumn	LB	BR	1.1759	0.2396	0.3595	ns
	Winter	DN	FI	2.0937	0.0363	0.0726	ns
	Winter	DN	LB	3.7748	0.0002	< 0.001	***
	Winter	DN	BR	3.3825	0.0007	0.0022	**
	Winter	FI	LB	1.3572	0.1747	0.2621	ns
	Winter	FI	BR	0.9649	0.3346	0.4015	ns
	Winter	LB	BR	-0.4805	0.6309	0.6309	ns
2016	Spring	DN	FI	0.5118	0.6088	0.6982	ns
	Spring	DN	LB	1.3561	0.1751	0.6982	ns
	Spring	DN	BR	1.0395	0.2986	0.6982	ns
	Spring	FI	LB	0.7651	0.4442	0.6982	ns
	Spring	FI	BR	0.4485	0.6538	0.6982	ns
	Spring	LB	BR	-0.3878	0.6982	0.6982	ns
	Summer	DN	FI	0.7231	0.4696	0.6581	ns
	Summer	DN	LB	1.4352	0.1512	0.4537	ns
	Summer	DN	BR	1.7796	0.0751	0.4509	ns
	Summer	FI	LB	0.6002	0.5484	0.6581	ns
	Summer	FI	BR	0.9446	0.3449	0.6581	ns
	Summer	LB	BR	0.4218	0.6731	0.6731	ns
	Autumn	DN	FI	1.9883	0.0468	0.0936	ns
	Autumn	DN	LB	2.6157	0.0089	0.0413	*
	Autumn	DN	BR	2.4637	0.0138	0.0413	*
	Autumn	FI	LB	0.3198	0.7492	0.8668	ns
	Autumn	FI	BR	0.1677	0.8668	0.8668	ns
	Autumn	LB	BR	-0.1862	0.8523	0.8668	ns
2017	Summer	DN	FI	-0.975	0.3296	0.6591	ns
	Summer	DN	LB	0.3254	0.7449	0.7449	ns
	Summer	DN	BR	0.6751	0.4996	0.7449	ns
	Summer	FI	LB	1.4512	0.1467	0.4402	ns
	Summer	FI	BR	1.8009	0.0717	0.4303	ns
	Summer	LB	BR	0.4283	0.6684	0.7449	ns
	Autumn	DN	FI	0.4339	0.6643	0.7655	ns

	Autumn	DN	LB	1.3123	0.1894	0.7655	ns
	Autumn	DN	BR	0.7993	0.4241	0.7655	ns
	Autumn	FI	LB	0.8112	0.4172	0.7655	ns
	Autumn	FI	BR	0.2982	0.7655	0.7655	ns
	Autumn	LB	BR	-0.6283	0.5298	0.7655	ns
2018	Summer	DN	FI	0.7611	0.4466	0.8932	ns
	Summer	DN	LB	1.183	0.2368	0.7104	ns
	Summer	DN	BR	1.1999	0.2302	0.7104	ns
	Summer	FI	LB	0.3042	0.761	0.9132	ns
	Summer	FI	BR	0.3211	0.7481	0.9132	ns
	Summer	LB	BR	0.0207	0.9835	0.9835	ns
2019	Spring	DN	FI	0.6063	0.5443	0.6532	ns
	Spring	DN	LB	1.4655	0.1428	0.6532	ns
	Spring	DN	BR	0.8188	0.4129	0.6532	ns
	Spring	FI	LB	0.7654	0.4441	0.6532	ns
	Spring	FI	BR	0.1187	0.9055	0.9055	ns
	Spring	LB	BR	-0.7921	0.4283	0.6532	ns
	Summer	DN	FI	-0.0094	0.9925	0.9925	ns
	Summer	DN	LB	0.6622	0.5078	0.7775	ns
	Summer	DN	BR	0.6459	0.5183	0.7775	ns
	Summer	FI	LB	0.6731	0.5009	0.7775	ns
	Summer	FI	BR	0.6568	0.5113	0.7775	ns
	Summer	LB	BR	-0.0199	0.9841	0.9925	ns
2020	Summer	DN	FI	0.0591	0.9529	0.9778	ns
	Summer	DN	LB	0.4662	0.6411	0.9778	ns
	Summer	DN	BR	0.489	0.6249	0.9778	ns
	Summer	FI	LB	0.398	0.6906	0.9778	ns
	Summer	FI	BR	0.4207	0.6739	0.9778	ns
	Summer	LB	BR	0.0279	0.9778	0.9778	ns
	Autumn	DN	FI	0.7	0.4839	0.8916	ns
	Autumn	DN	LB	0.6268	0.5308	0.8916	ns
	Autumn	DN	BR	0.5155	0.6062	0.8916	ns
	Autumn	FI	LB	-0.1816	0.8559	0.8916	ns
	Autumn	FI	BR	-0.2929	0.7696	0.8916	ns
	Autumn	LB	BR	-0.1363	0.8916	0.8916	ns
	Winter	DN	FI	-0.347	0.7286	0.8595	ns
	Winter	DN	LB	0.8951	0.3707	0.6794	ns
	Winter	DN	BR	0.7506	0.4529	0.6794	ns
	Winter	FI	LB	1.2958	0.1951	0.6794	ns
	Winter	FI	BR	1.1512	0.2496	0.6794	ns
	Winter	LB	BR	-0.177	0.8595	0.8595	ns
2021	Spring	DN	FI	0.188	0.8509	0.9298	ns
	Spring	DN	LB	0.7659	0.4437	0.9298	ns
	Spring	DN	BR	0.3051	0.7603	0.9298	ns
	Spring	FI	LB	0.5488	0.5831	0.9298	ns
	Spring	FI	BR	0.0881	0.9298	0.9298	ns
	Spring	LB	BR	-0.5643	0.5725	0.9298	ns
	Summer	DN	FI	0.3247	0.7454	0.8383	ns
	Summer	DN	LB	1.0206	0.3075	0.8383	ns
	Summer	DN	BR	0.854	0.3931	0.8383	ns

	Summer	FI	LB	0.6457	0.5185	0.8383	ns
	Summer	FI	BR	0.479	0.6319	0.8383	ns
	Summer	LB	BR	-0.2041	0.8383	0.8383	ns
	Autumn	DN	FI	0.6771	0.4983	0.701	ns
	Autumn	DN	LB	1.5012	0.1333	0.5514	ns
	Autumn	DN	BR	1.3292	0.1838	0.5514	ns
	Autumn	FI	LB	0.7193	0.472	0.701	ns
	Autumn	FI	BR	0.5473	0.5842	0.701	ns
	Autumn	LB	BR	-0.2107	0.8331	0.8331	ns
2022	Spring	DN	FI	0.0228	0.9818	0.9818	ns
	Spring	DN	LB	0.7406	0.4589	0.8468	ns
	Spring	DN	BR	0.4322	0.6656	0.8468	ns
	Spring	FI	LB	0.7142	0.4751	0.8468	ns
	Spring	FI	BR	0.4059	0.6848	0.8468	ns
	Spring	LB	BR	-0.3777	0.7057	0.8468	ns
	Summer	DN	FI	0.5116	0.609	0.9949	ns
	Summer	DN	LB	0.7099	0.4778	0.9949	ns
	Summer	DN	BR	0.7047	0.481	0.9949	ns
	Summer	FI	LB	0.1192	0.9051	0.9949	ns
	Summer	FI	BR	0.114	0.9092	0.9949	ns
	Summer	LB	BR	-0.0063	0.9949	0.9949	ns
	Autumn	DN	FI	-0.5258	0.599	0.907	ns
	Autumn	DN	LB	0.2569	0.7973	0.907	ns
	Autumn	DN	BR	0.1168	0.907	0.907	ns
	Autumn	FI	LB	0.864	0.3876	0.907	ns
	Autumn	FI	BR	0.7239	0.4691	0.907	ns
	Autumn	LB	BR	-0.1716	0.8637	0.907	ns
	Winter	DN	FI	-0.913	0.3612	0.7225	ns
	Winter	DN	LB	0.4716	0.6372	0.8302	ns
	Winter	DN	BR	0.148	0.8824	0.8824	ns
	Winter	FI	LB	1.5259	0.127	0.6878	ns
	Winter	FI	BR	1.2022	0.2293	0.6878	ns
	Winter	LB	BR	-0.3964	0.6918	0.8302	ns
2023	Spring	DN	FI	2.3833	0.0172	0.103	ns
	Spring	DN	LB	0.8811	0.3783	0.4539	ns
	Spring	DN	BR	1.0742	0.2827	0.4241	ns
	Spring	FI	LB	-1.8709	0.0614	0.1841	ns
	Spring	FI	BR	-1.6777	0.0934	0.1868	ns
	Spring	LB	BR	0.2365	0.813	0.813	ns
	Summer	DN	FI	0.6491	0.5163	0.7647	ns
	Summer	DN	LB	1.4624	0.1436	0.6697	ns
	Summer	DN	BR	1.218	0.2232	0.6697	ns
	Summer	FI	LB	0.7129	0.4759	0.7647	ns
	Summer	FI	BR	0.4684	0.6395	0.7647	ns
	Summer	LB	BR	-0.2993	0.7647	0.7647	ns
	Autumn	DN	FI	1.0843	0.2782	0.5916	ns
	Autumn	DN	LB	1.0778	0.2811	0.5916	ns
	Autumn	DN	BR	1.0455	0.2958	0.5916	ns
	Autumn	FI	LB	-0.1743	0.8617	0.9685	ns
	Autumn	FI	BR	-0.2065	0.8364	0.9685	ns

	Autumn	LB	BR	-0.0395	0.9685	0.9685	ns
2024	Spring	DN	FI	1.6388	0.1013	0.2833	ns
	Spring	DN	LB	1.5427	0.1229	0.2833	ns
	Spring	DN	BR	0.4226	0.6726	0.6997	ns
	Spring	FI	LB	-0.3857	0.6997	0.6997	ns
	Spring	FI	BR	-1.4262	0.1538	0.2833	ns
	Spring	LB	BR	-1.3139	0.1889	0.2833	ns
	Summer	DN	FI	-0.0704	0.9439	1	ns
	Summer	DN	LB	0	1	1	ns
	Summer	DN	BR	0.4787	0.6322	1	ns
	Summer	FI	LB	0.0794	0.9367	1	ns
	Summer	FI	BR	0.5615	0.5745	1	ns
	Summer	LB	BR	0.5708	0.5682	1	ns

Table S3. Results of pairwise comparisons of percentage surface peat moisture (SPM) between management types following Kruskal-Wallis test for each season and year (2013-2024) at Nidderdale. DN = do nothing (control); FI = prescribed burning; LB = mowing with brash left; BR = mowing with brash removed; Mag1 = Management type1; Mag2 = Management type 2; P.adj = fdr adjusted p value; sig. = significance level (**p < 0.001, **p < 0.01, *p < 0.05; ns = not significant).

Year	Season	Mag1	Mag2	Statistic	P	P.adj	P.adj.sig.
2013	Summer	DN	FI	1.7754	0.0758	0.1517	ns
	Summer	DN	LB	1.8912	0.0586	0.1517	ns
	Summer	DN	BR	2.281	0.0225	0.1353	ns
	Summer	FI	LB	-0.1588	0.8738	0.8738	ns
	Summer	FI	BR	0.231	0.8173	0.8738	ns
	Summer	LB	BR	0.4774	0.6331	0.8738	ns
	Autumn	DN	FI	0.9531	0.3405	0.8515	ns
	Autumn	DN	LB	0.7965	0.4258	0.8515	ns
	Autumn	DN	BR	0.8254	0.4091	0.8515	ns
	Autumn	FI	LB	-0.3041	0.7611	0.9399	ns
	Autumn	FI	BR	-0.2751	0.7832	0.9399	ns
	Autumn	LB	BR	0.0355	0.9717	0.9717	ns
	Winter	DN	FI	0.8303	0.4064	0.8128	ns
	Winter	DN	LB	1.0313	0.3024	0.8128	ns
	Winter	DN	BR	1.1039	0.2696	0.8128	ns
	Winter	FI	LB	0.0726	0.9421	0.9421	ns
	Winter	FI	BR	0.1453	0.8845	0.9421	ns
	Winter	LB	BR	0.089	0.9291	0.9421	ns
2014	Spring	DN	FI	1.0345	0.3009	0.7322	ns
	Spring	DN	LB	0.6847	0.4936	0.7322	ns
	Spring	DN	BR	0.2039	0.8384	0.8384	ns
	Spring	FI	LB	-0.5099	0.6102	0.7322	ns
	Spring	FI	BR	-0.9906	0.3219	0.7322	ns
	Spring	LB	BR	-0.5888	0.556	0.7322	ns
	Summer	DN	FI	1.2756	0.2021	0.659	ns

	Summer	DN	LB	0.8953	0.3706	0.7413	ns
	Summer	DN	BR	1.2274	0.2197	0.659	ns
	Summer	FI	LB	-0.5776	0.5635	0.8061	ns
	Summer	FI	BR	-0.2455	0.8061	0.8061	ns
	Summer	LB	BR	0.4068	0.6842	0.8061	ns
	Autumn	DN	FI	0.6268	0.5308	0.9078	ns
	Autumn	DN	LB	0.8395	0.4012	0.9078	ns
	Autumn	DN	BR	0.275	0.7833	0.9078	ns
	Autumn	FI	LB	0.1158	0.9078	0.9078	ns
	Autumn	FI	BR	-0.4487	0.6536	0.9078	ns
	Autumn	LB	BR	-0.6914	0.4893	0.9078	ns
	Winter	DN	FI	1.4102	0.1585	0.2998	ns
	Winter	DN	LB	2.4279	0.0152	0.0911	ns
	Winter	DN	BR	1.3812	0.1672	0.2998	ns
	Winter	FI	LB	0.7996	0.4239	0.5087	ns
	Winter	FI	BR	-0.2472	0.8048	0.8048	ns
	Winter	LB	BR	-1.282	0.1998	0.2998	ns
2015	Spring	DN	FI	2.3928	0.0167	0.0812	ns
	Spring	DN	LB	2.2103	0.0271	0.0812	ns
	Spring	DN	BR	1.6432	0.1003	0.2007	ns
	Spring	FI	LB	-0.5526	0.5805	0.5805	ns
	Spring	FI	BR	-1.1197	0.2628	0.3943	ns
	Spring	LB	BR	-0.6946	0.4873	0.5805	ns
	Summer	DN	FI	0.6251	0.5319	0.8738	ns
	Summer	DN	LB	0.231	0.8173	0.8738	ns
	Summer	DN	BR	0.8807	0.3785	0.8738	ns
	Summer	FI	LB	-0.4909	0.6235	0.8738	ns
	Summer	FI	BR	0.1588	0.8738	0.8738	ns
	Summer	LB	BR	0.7957	0.4262	0.8738	ns
	Autumn	DN	FI	1.1014	0.2707	0.8043	ns
	Autumn	DN	LB	0.6648	0.5062	0.8043	ns
	Autumn	DN	BR	0.8672	0.3859	0.8043	ns
	Autumn	FI	LB	-0.607	0.5438	0.8043	ns
	Autumn	FI	BR	-0.4047	0.6857	0.8043	ns
	Autumn	LB	BR	0.2478	0.8043	0.8043	ns
	Winter	DN	FI	2.0325	0.0421	0.0842	ns
	Winter	DN	LB	2.8163	0.0049	0.0291	*
	Winter	DN	BR	2.2589	0.0239	0.0717	ns
	Winter	FI	LB	0.4694	0.6388	0.7665	ns
	Winter	FI	BR	-0.088	0.9299	0.9299	ns
	Winter	LB	BR	-0.6827	0.4948	0.7422	ns
2016	Spring	DN	FI	0.7896	0.4298	0.6447	ns
	Spring	DN	LB	0.9558	0.3392	0.6447	ns
	Spring	DN	BR	0	1	1	ns
	Spring	FI	LB	0.0441	0.9648	1	ns
	Spring	FI	BR	-0.9117	0.3619	0.6447	ns
	Spring	LB	BR	-1.1706	0.2417	0.6447	ns
	Summer	DN	FI	-1.5116	0.1306	0.3919	ns
	Summer	DN	LB	0.1479	0.8824	0.8824	ns
	Summer	DN	BR	-0.5177	0.6047	0.7256	ns

	Summer	FI	LB	1.8934	0.0583	0.3499	ns
	Summer	FI	BR	1.2277	0.2196	0.4391	ns
	Summer	LB	BR	-0.8152	0.4149	0.6224	ns
	Autumn	DN	FI	1.8572	0.0633	0.3481	ns
	Autumn	DN	LB	1.5716	0.116	0.3481	ns
	Autumn	DN	BR	0.8813	0.3782	0.4774	ns
	Autumn	FI	LB	-0.5728	0.5668	0.5668	ns
	Autumn	FI	BR	-1.2632	0.2065	0.413	ns
	Autumn	LB	BR	-0.8455	0.3978	0.4774	ns
2017	Summer	DN	FI	-0.6032	0.5464	0.5464	ns
	Summer	DN	LB	0.7121	0.4764	0.5464	ns
	Summer	DN	BR	1.3515	0.1765	0.3531	ns
	Summer	FI	LB	1.4087	0.1589	0.3531	ns
	Summer	FI	BR	2.0481	0.0406	0.2433	ns
	Summer	LB	BR	0.7831	0.4336	0.5464	ns
	Autumn	DN	FI	1.0999	0.2714	0.5427	ns
	Autumn	DN	LB	1.8749	0.0608	0.3649	ns
	Autumn	DN	BR	1.3003	0.1935	0.5427	ns
	Autumn	FI	LB	0.6048	0.5453	0.6544	ns
	Autumn	FI	BR	0.0302	0.9759	0.9759	ns
	Autumn	LB	BR	-0.7037	0.4816	0.6544	ns
2018	Summer	DN	FI	0.1877	0.8511	0.8933	ns
	Summer	DN	LB	0.5006	0.6167	0.8933	ns
	Summer	DN	BR	0.3509	0.7256	0.8933	ns
	Summer	FI	LB	0.2838	0.7765	0.8933	ns
	Summer	FI	BR	0.1342	0.8933	0.8933	ns
	Summer	LB	BR	-0.1833	0.8546	0.8933	ns
2019	Spring	DN	FI	0.4323	0.6655	0.8432	ns
	Spring	DN	LB	1.0424	0.2972	0.8432	ns
	Spring	DN	BR	0.1175	0.9065	0.9065	ns
	Spring	FI	LB	0.5432	0.587	0.8432	ns
	Spring	FI	BR	-0.3817	0.7027	0.8432	ns
	Spring	LB	BR	-1.1328	0.2573	0.8432	ns
	Summer	DN	FI	-0.6279	0.5301	0.8391	ns
	Summer	DN	LB	-0.3335	0.7388	0.8391	ns
	Summer	DN	BR	-0.522	0.6017	0.8391	ns
	Summer	FI	LB	0.3915	0.6954	0.8391	ns
	Summer	FI	BR	0.203	0.8391	0.8391	ns
	Summer	LB	BR	-0.2309	0.8174	0.8391	ns
2020	Summer	DN	FI	0.1502	0.8806	0.8806	ns
	Summer	DN	LB	0.8384	0.4018	0.8679	ns
	Summer	DN	BR	0.5493	0.5828	0.8679	ns
	Summer	FI	LB	0.665	0.5061	0.8679	ns
	Summer	FI	BR	0.3759	0.707	0.8679	ns
	Summer	LB	BR	-0.3541	0.7233	0.8679	ns
	Autumn	DN	FI	1.1542	0.2484	0.7304	ns
	Autumn	DN	LB	0.8737	0.3823	0.7304	ns
	Autumn	DN	BR	0.5923	0.5536	0.7304	ns
	Autumn	FI	LB	-0.4591	0.6462	0.7304	ns
	Autumn	FI	BR	-0.7404	0.459	0.7304	ns

	Autumn	LB	BR	-0.3446	0.7304	0.7304	ns
	Winter	DN	FI	0.1855	0.8528	0.9303	ns
	Winter	DN	LB	0.4463	0.6554	0.9303	ns
	Winter	DN	BR	0.3749	0.7078	0.9303	ns
	Winter	FI	LB	0.2321	0.8165	0.9303	ns
	Winter	FI	BR	0.1607	0.8724	0.9303	ns
	Winter	LB	BR	-0.0875	0.9303	0.9303	ns
2021	Spring	DN	FI	-0.108	0.914	0.9834	ns
	Spring	DN	LB	0.769	0.4419	0.8838	ns
	Spring	DN	BR	-0.1455	0.8843	0.9834	ns
	Spring	FI	LB	0.8937	0.3715	0.8838	ns
	Spring	FI	BR	-0.0208	0.9834	0.9834	ns
	Spring	LB	BR	-1.12	0.2627	0.8838	ns
	Summer	DN	FI	-0.025	0.98	0.9859	ns
	Summer	DN	LB	0.3613	0.7179	0.9859	ns
	Summer	DN	BR	0.3469	0.7287	0.9859	ns
	Summer	FI	LB	0.3902	0.6964	0.9859	ns
	Summer	FI	BR	0.3758	0.7071	0.9859	ns
	Summer	LB	BR	-0.0177	0.9859	0.9859	ns
	Autumn	DN	FI	-0.1005	0.9199	0.9199	ns
	Autumn	DN	LB	0.5804	0.5617	0.9199	ns
	Autumn	DN	BR	0.1741	0.8618	0.9199	ns
	Autumn	FI	LB	0.6965	0.4861	0.9199	ns
	Autumn	FI	BR	0.2902	0.7717	0.9199	ns
	Autumn	LB	BR	-0.4976	0.6188	0.9199	ns
2022	Spring	DN	FI	-0.2682	0.7885	0.9462	ns
	Spring	DN	LB	0.4229	0.6723	0.9462	ns
	Spring	DN	BR	0.0179	0.9857	0.9857	ns
	Spring	FI	LB	0.7327	0.4638	0.9462	ns
	Spring	FI	BR	0.3276	0.7432	0.9462	ns
	Spring	LB	BR	-0.4961	0.6198	0.9462	ns
	Summer	DN	FI	-0.2	0.8415	0.977	ns
	Summer	DN	LB	0.433	0.665	0.977	ns
	Summer	DN	BR	0.0289	0.977	0.977	ns
	Summer	FI	LB	0.664	0.5067	0.977	ns
	Summer	FI	BR	0.2598	0.795	0.977	ns
	Summer	LB	BR	-0.495	0.6206	0.977	ns
	Autumn	DN	FI	-0.7031	0.482	0.7719	ns
	Autumn	DN	LB	0.6379	0.5236	0.7719	ns
	Autumn	DN	BR	0.2899	0.7719	0.7719	ns
	Autumn	FI	LB	1.4497	0.1471	0.7719	ns
	Autumn	FI	BR	1.1018	0.2706	0.7719	ns
	Autumn	LB	BR	-0.4261	0.67	0.7719	ns
	Winter	DN	FI	-0.8589	0.3904	0.7313	ns
	Winter	DN	LB	0.6943	0.4875	0.7313	ns
	Winter	DN	BR	0.3174	0.751	0.751	ns
	Winter	FI	LB	1.6861	0.0918	0.5507	ns
	Winter	FI	BR	1.3092	0.1905	0.5714	ns
	Winter	LB	BR	-0.4616	0.6444	0.751	ns
2023	Spring	DN	FI	1.5495	0.1213	0.5389	ns

	Spring	DN	LB	0.7226	0.47	0.7049	ns
	Spring	DN	BR	0.4473	0.6547	0.736	ns
	Spring	FI	LB	-1.0666	0.2861	0.5723	ns
	Spring	FI	BR	-1.3419	0.1796	0.5389	ns
	Spring	LB	BR	-0.3371	0.736	0.736	ns
	Summer	DN	FI	0.1189	0.9054	0.9789	ns
	Summer	DN	LB	0.0264	0.9789	0.9789	ns
	Summer	DN	BR	-0.6652	0.5059	0.9789	ns
	Summer	FI	LB	-0.1109	0.9117	0.9789	ns
	Summer	FI	BR	-0.8025	0.4223	0.9789	ns
	Summer	LB	BR	-0.847	0.397	0.9789	ns
	Autumn	DN	FI	1.2751	0.2023	0.6787	ns
	Autumn	DN	LB	0.5169	0.6052	0.7932	ns
	Autumn	DN	BR	0.4386	0.661	0.7932	ns
	Autumn	FI	LB	-0.9555	0.3393	0.6787	ns
	Autumn	FI	BR	-1.0338	0.3012	0.6787	ns
	Autumn	LB	BR	-0.0959	0.9236	0.9236	ns
2024	Spring	DN	FI	1.3255	0.185	0.5477	ns
	Spring	DN	LB	0.8838	0.3768	0.5559	ns
	Spring	DN	BR	0.232	0.8166	0.8166	ns
	Spring	FI	LB	-0.7335	0.4632	0.5559	ns
	Spring	FI	BR	-1.6366	0.1017	0.5477	ns
	Spring	LB	BR	-1.0943	0.2738	0.5477	ns
	Summer	DN	FI	-0.5082	0.6113	0.9194	ns
	Summer	DN	LB	-0.1012	0.9194	0.9194	ns
	Summer	DN	BR	-0.2525	0.8006	0.9194	ns
	Summer	FI	LB	0.4464	0.6553	0.9194	ns
	Summer	FI	BR	0.2823	0.7777	0.9194	ns
	Summer	LB	BR	-0.1687	0.866	0.9194	ns

Table S4. Results of pairwise comparisons of percentage surface peat moisture (SPM) between management types following Kruskal-Wallis test for each season and year (2013-2024) at Mossdale. DN = do nothing (control); FI = prescribed burning; LB = mowing with brash left; BR = mowing with brash removed; Mag1 = Management type1; Mag2 = Management type 2; P.adj = fdr adjusted p value; sig. = significance level (***p < 0.001, **p < 0.01, *p < 0.05; ns = not significant).

Year	Season	Mag1	Mag2	Statistic	P	P.adj	P.adj.sig.
2013	Summer	DN	FI	0.7	0.4839	0.5807	ns
	Summer	DN	LB	1.6454	0.0999	0.5807	ns
	Summer	DN	BR	1.0681	0.2855	0.5807	ns
	Summer	FI	LB	0.8372	0.4025	0.5807	ns
	Summer	FI	BR	0.2598	0.795	0.795	ns
	Summer	LB	BR	-0.7071	0.4795	0.5807	ns
	Autumn	DN	FI	-0.0519	0.9586	0.9586	ns
	Autumn	DN	LB	-0.9141	0.3607	0.9258	ns
	Autumn	DN	BR	-0.3147	0.753	0.9586	ns

	Autumn	FI	LB	-0.8541	0.393	0.9258	ns
	Autumn	FI	BR	-0.2547	0.7989	0.9586	ns
	Autumn	LB	BR	0.7341	0.4629	0.9258	ns
	Winter	DN	FI	-0.1506	0.8803	0.8803	ns
	Winter	DN	LB	1.5798	0.1141	0.1712	ns
	Winter	DN	BR	2.4205	0.0155	0.0465	*
	Winter	FI	LB	1.7537	0.0795	0.1589	ns
	Winter	FI	BR	2.5944	0.0095	0.0465	*
	Winter	LB	BR	1.0296	0.3032	0.3639	ns
2014	Spring	DN	FI	-0.2295	0.8185	0.8185	ns
	Spring	DN	LB	0.7361	0.4617	0.554	ns
	Spring	DN	BR	1.6046	0.1086	0.3257	ns
	Spring	FI	LB	1.0011	0.3168	0.4752	ns
	Spring	FI	BR	1.8696	0.0615	0.3257	ns
	Spring	LB	BR	1.0638	0.2874	0.4752	ns
	Summer	DN	FI	-0.1501	0.8807	0.9654	ns
	Summer	DN	LB	0.0433	0.9654	0.9654	ns
	Summer	DN	BR	1.083	0.2788	0.5576	ns
	Summer	FI	LB	0.2166	0.8285	0.9654	ns
	Summer	FI	BR	1.2563	0.209	0.5576	ns
	Summer	LB	BR	1.2733	0.2029	0.5576	ns
	Autumn	DN	FI	1.5049	0.1323	0.397	ns
	Autumn	DN	LB	0.8689	0.3849	0.4619	ns
	Autumn	DN	BR	1.6508	0.0988	0.397	ns
	Autumn	FI	LB	-0.8689	0.3849	0.4619	ns
	Autumn	FI	BR	-0.0869	0.9308	0.9308	ns
	Autumn	LB	BR	0.9577	0.3382	0.4619	ns
	Winter	DN	FI	0.7561	0.4496	0.5395	ns
	Winter	DN	LB	0.8294	0.4069	0.5395	ns
	Winter	DN	BR	1.7898	0.0735	0.4409	ns
	Winter	FI	LB	-0.0437	0.9652	0.9652	ns
	Winter	FI	BR	0.9167	0.3593	0.5395	ns
	Winter	LB	BR	1.1762	0.2395	0.5395	ns
2015	Spring	DN	FI	1.2074	0.2273	0.4546	ns
	Spring	DN	LB	1.278	0.2013	0.4546	ns
	Spring	DN	BR	1.8589	0.063	0.3783	ns
	Spring	FI	LB	-0.1162	0.9075	0.9075	ns
	Spring	FI	BR	0.4647	0.6421	0.7706	ns
	Spring	LB	BR	0.7115	0.4768	0.7152	ns
	Summer	DN	FI	0.8254	0.4092	0.6138	ns
	Summer	DN	LB	-0.2022	0.8398	0.8738	ns
	Summer	DN	BR	1.1119	0.2662	0.5324	ns
	Summer	FI	LB	-1.1552	0.248	0.5324	ns
	Summer	FI	BR	0.1588	0.8738	0.8738	ns
	Summer	LB	BR	1.6094	0.1075	0.5324	ns
	Autumn	DN	FI	1.4338	0.1516	0.32	ns
	Autumn	DN	LB	1.0166	0.3094	0.464	ns
	Autumn	DN	BR	2.1638	0.0305	0.1829	ns
	Autumn	FI	LB	-0.639	0.5228	0.6113	ns
	Autumn	FI	BR	0.5083	0.6113	0.6113	ns

	Autumn	LB	BR	1.4051	0.16	0.32	ns
	Winter	DN	FI	1.3711	0.1704	0.2044	ns
	Winter	DN	LB	2.9646	0.003	0.0091	**
	Winter	DN	BR	3.0422	0.0023	0.0091	**
	Winter	FI	LB	1.3814	0.1672	0.2044	ns
	Winter	FI	BR	1.459	0.1446	0.2044	ns
	Winter	LB	BR	0.095	0.9243	0.9243	ns
2016	Spring	DN	FI	0	1	1	ns
	Spring	DN	LB	0.9648	0.3346	0.5019	ns
	Spring	DN	BR	1.5162	0.1295	0.3884	ns
	Spring	FI	LB	0.9648	0.3346	0.5019	ns
	Spring	FI	BR	1.5162	0.1295	0.3884	ns
	Spring	LB	BR	0.6752	0.4995	0.5994	ns
	Summer	DN	FI	1.7785	0.0753	0.2111	ns
	Summer	DN	LB	1.6135	0.1066	0.2111	ns
	Summer	DN	BR	2.8163	0.0049	0.0291	*
	Summer	FI	LB	-0.4401	0.6599	0.6599	ns
	Summer	FI	BR	0.7628	0.4456	0.5347	ns
	Summer	LB	BR	1.4731	0.1407	0.2111	ns
	Autumn	DN	FI	1.1537	0.2486	0.4972	ns
	Autumn	DN	LB	2.1167	0.0343	0.1029	ns
	Autumn	DN	BR	2.2795	0.0226	0.1029	ns
	Autumn	FI	LB	0.7845	0.4327	0.5193	ns
	Autumn	FI	BR	0.9473	0.3435	0.5152	ns
	Autumn	LB	BR	0.1994	0.8419	0.8419	ns
2017	Summer	DN	FI	-1.1618	0.2453	0.4998	ns
	Summer	DN	LB	-0.1527	0.8786	0.9627	ns
	Summer	DN	BR	-0.1909	0.8486	0.9627	ns
	Summer	FI	LB	1.1888	0.2345	0.4998	ns
	Summer	FI	BR	1.1506	0.2499	0.4998	ns
	Summer	LB	BR	-0.0468	0.9627	0.9627	ns
2018	Summer	DN	FI	1.2503	0.2112	0.4224	ns
	Summer	DN	LB	1.4726	0.1409	0.4224	ns
	Summer	DN	BR	1.9634	0.0496	0.2976	ns
	Summer	FI	LB	0.0289	0.977	0.977	ns
	Summer	FI	BR	0.5197	0.6033	0.7239	ns
	Summer	LB	BR	0.6012	0.5477	0.7239	ns
2019	Spring	DN	FI	1.7321	0.0833	0.1665	ns
	Spring	DN	LB	2	0.0455	0.1365	ns
	Spring	DN	BR	2	0.0455	0.1365	ns
	Spring	FI	LB	0	1	1	ns
	Spring	FI	BR	0	1	1	ns
	Spring	LB	BR	0	1	1	ns
	Summer	DN	FI	0.5014	0.6161	0.7393	ns
	Summer	DN	LB	1.3749	0.1691	0.5074	ns
	Summer	DN	BR	1.3749	0.1691	0.5074	ns
	Summer	FI	LB	0.796	0.426	0.639	ns
	Summer	FI	BR	0.796	0.426	0.639	ns
	Summer	LB	BR	0	1	1	ns
2020	Winter	DN	FI	-0.9364	0.3491	0.4189	ns

	Winter	DN	LB	1.2287	0.2192	0.3288	ns
	Winter	DN	BR	1.2287	0.2192	0.3288	ns
	Winter	FI	LB	2.3099	0.0209	0.0627	ns
	Winter	FI	BR	2.3099	0.0209	0.0627	ns
	Winter	LB	BR	0	1	1	ns
2021	Spring	DN	FI	1.7321	0.0833	0.1665	ns
	Spring	DN	LB	2	0.0455	0.1365	ns
	Spring	DN	BR	2	0.0455	0.1365	ns
	Spring	FI	LB	0	1	1	ns
	Spring	FI	BR	0	1	1	ns
	Spring	LB	BR	0	1	1	ns
	Summer	DN	FI	1.1184	0.2634	0.5268	ns
	Summer	DN	LB	1.3214	0.1864	0.5268	ns
	Summer	DN	BR	1.4566	0.1452	0.5268	ns
	Summer	FI	LB	0.03	0.976	0.976	ns
	Summer	FI	BR	0.1652	0.8688	0.976	ns
	Summer	LB	BR	0.1655	0.8685	0.976	ns
	Autumn	DN	FI	1.5529	0.1204	0.2409	ns
	Autumn	DN	LB	1.7035	0.0885	0.2409	ns
	Autumn	DN	BR	2.0621	0.0392	0.2352	ns
	Autumn	FI	LB	-0.0897	0.9286	0.9286	ns
	Autumn	FI	BR	0.269	0.788	0.9286	ns
	Autumn	LB	BR	0.4392	0.6605	0.9286	ns
2022	Spring	DN	FI	1.2649	0.2059	0.4118	ns
	Spring	DN	LB	1.5811	0.1138	0.4118	ns
	Spring	DN	BR	1.2649	0.2059	0.4118	ns
	Spring	FI	LB	0	1	1	ns
	Spring	FI	BR	0	1	1	ns
	Spring	LB	BR	0	1	1	ns
	Summer	DN	FI	-1.0484	0.2944	0.6207	ns
	Summer	DN	LB	-1.0902	0.2756	0.6207	ns
	Summer	DN	BR	-0.6993	0.4844	0.6207	ns
	Summer	FI	LB	0.0276	0.978	0.978	ns
	Summer	FI	BR	0.6476	0.5173	0.6207	ns
	Summer	LB	BR	0.7121	0.4764	0.6207	ns
	Summer	LB	BR	0.7121	0.4764	0.6207	ns
2023	Spring	DN	FI	1.7851	0.0742	0.3429	ns
	Spring	DN	LB	0.4821	0.6298	0.6298	ns
	Spring	DN	BR	1.0805	0.2799	0.4901	ns
	Spring	FI	LB	-1.5792	0.1143	0.3429	ns
	Spring	FI	BR	-0.9808	0.3267	0.4901	ns
	Spring	LB	BR	0.7329	0.4636	0.5563	ns
	Summer	DN	FI	0.9183	0.3584	0.4301	ns
	Summer	DN	LB	2.8252	0.0047	0.0142	*
	Summer	DN	BR	2.8252	0.0047	0.0142	*
	Summer	FI	LB	1.7648	0.0776	0.1164	ns
	Summer	FI	BR	1.7648	0.0776	0.1164	ns
	Summer	LB	BR	0	1	1	ns
	Autumn	DN	FI	0	1	1	ns
	Autumn	DN	LB	1.446	0.1482	0.2223	ns
	Autumn	DN	BR	1.446	0.1482	0.2223	ns

	Autumn	FI	LB	1.446	0.1482	0.2223	ns
	Autumn	FI	BR	1.446	0.1482	0.2223	ns
	Autumn	LB	BR	0	1	1	ns
2024	Spring	DN	FI	0	1	1	ns
	Spring	DN	LB	2.1337	0.0329	0.0493	*
	Spring	DN	BR	2.1337	0.0329	0.0493	*
	Spring	FI	LB	2.1337	0.0329	0.0493	*
	Spring	FI	BR	2.1337	0.0329	0.0493	*
	Summer	DN	FI	1.7321	0.0833	0.1665	ns
	Summer	DN	LB	2	0.0455	0.1365	ns
	Summer	DN	BR	2	0.0455	0.1365	ns
	Summer	FI	LB	0	1	1	ns
	Summer	FI	BR	0	1	1	ns
	Summer	LB	BR	0	1	1	ns

Table S5. Results of pairwise comparisons of percentage surface peat moisture (SPM) between management types following Kruskal-Wallis test for each season and year (2013-2024) at Whitendale. DN = do nothing (control); FI = prescribed burning; LB = mowing with brash left; BR = mowing with brash removed; Mag1 = Management type1; Mag2 = Management type 2; P.adj = fdr adjusted p value; sig. = significance level (***p < 0.001, **p < 0.01, *p < 0.05; ns = not significant).

Year	Season	Mag1	Mag2	Statistic	P	P.adj	P.adj.sig.
2013	Summer	DN	FI	-1.2541	0.2098	0.6844	ns
	Summer	DN	LB	-1.0861	0.2774	0.6844	ns
	Summer	DN	BR	-0.6227	0.5335	0.6844	ns
	Summer	FI	LB	0.362	0.7173	0.7173	ns
	Summer	FI	BR	0.8254	0.4091	0.6844	ns
	Summer	LB	BR	0.5675	0.5703	0.6844	ns
	Autumn	DN	FI	-1.1431	0.253	0.4554	ns
	Autumn	DN	LB	-0.285	0.7757	0.8454	ns
	Autumn	DN	BR	-1.1249	0.2606	0.4554	ns
	Autumn	FI	LB	1.0349	0.3007	0.4554	ns
	Autumn	FI	BR	0.195	0.8454	0.8454	ns
	Autumn	LB	BR	-1.0287	0.3036	0.4554	ns
	Winter	DN	FI	-0.781	0.4348	0.5218	ns
	Winter	DN	LB	1.4399	0.1499	0.2248	ns
	Winter	DN	BR	1.7163	0.0861	0.1722	ns
	Winter	FI	LB	2.3417	0.0192	0.0576	ns
	Winter	FI	BR	2.6181	0.0088	0.0531	ns
	Winter	LB	BR	0.3385	0.735	0.735	ns
2014	Spring	DN	FI	-1.8655	0.0621	0.1242	ns
	Spring	DN	LB	0.9847	0.3248	0.3897	ns
	Spring	DN	BR	1.0155	0.3099	0.3897	ns
	Spring	FI	LB	3.1388	0.0017	0.0051	**
	Spring	FI	BR	3.1696	0.0015	0.0051	**
	Spring	LB	BR	0.0377	0.9699	0.9699	ns

	Summer	DN	FI	-1.4272	0.1535	0.3071	ns
	Summer	DN	LB	0.8963	0.3701	0.5552	ns
	Summer	DN	BR	0.5349	0.5927	0.658	ns
	Summer	FI	LB	2.5442	0.011	0.0657	ns
	Summer	FI	BR	2.1828	0.029	0.0871	ns
	Summer	LB	BR	-0.4426	0.658	0.658	ns
	Autumn	DN	FI	-1.8512	0.0641	0.1283	ns
	Autumn	DN	LB	0.9821	0.326	0.3912	ns
	Autumn	DN	BR	-0.26	0.7949	0.7949	ns
	Autumn	FI	LB	3.1197	0.0018	0.0109	*
	Autumn	FI	BR	1.8776	0.0604	0.1283	ns
	Autumn	LB	BR	-1.5213	0.1282	0.1923	ns
	Winter	DN	FI	0.306	0.7596	0.7596	ns
	Winter	DN	LB	2.1204	0.034	0.068	ns
	Winter	DN	BR	3.2689	0.0011	0.0065	**
	Winter	FI	LB	1.767	0.0772	0.1159	ns
	Winter	FI	BR	2.9155	0.0036	0.0107	*
	Winter	LB	BR	1.4067	0.1595	0.1914	ns
2015	Spring	DN	FI	-0.6834	0.4944	0.4944	ns
	Spring	DN	LB	1.2129	0.2252	0.3378	ns
	Spring	DN	BR	2.075	0.038	0.0906	ns
	Spring	FI	LB	2.0019	0.0453	0.0906	ns
	Spring	FI	BR	2.8641	0.0042	0.0251	*
	Spring	LB	BR	1.0559	0.291	0.3492	ns
	Summer	DN	FI	-2.5517	0.0107	0.0643	ns
	Summer	DN	LB	-0.9099	0.3629	0.4354	ns
	Summer	DN	BR	-1.3432	0.1792	0.2688	ns
	Summer	FI	LB	2.0365	0.0417	0.1251	ns
	Summer	FI	BR	1.6032	0.1089	0.2178	ns
	Summer	LB	BR	-0.5307	0.5956	0.5956	ns
	Autumn	DN	FI	-0.4535	0.6502	0.6502	ns
	Autumn	DN	LB	1.2363	0.2163	0.3245	ns
	Autumn	DN	BR	1.6436	0.1003	0.2005	ns
	Autumn	FI	LB	1.7599	0.0784	0.2005	ns
	Autumn	FI	BR	2.1672	0.0302	0.1813	ns
	Autumn	LB	BR	0.4988	0.6179	0.6502	ns
	Winter	DN	FI	-0.1033	0.9177	0.9177	ns
	Winter	DN	LB	2.3858	0.017	0.0256	*
	Winter	DN	BR	2.863	0.0042	0.0126	*
	Winter	FI	LB	2.5051	0.0122	0.0245	*
	Winter	FI	BR	2.9823	0.0029	0.0126	*
	Winter	LB	BR	0.5844	0.5589	0.6707	ns
2016	Spring	DN	FI	-0.2802	0.7793	0.7793	ns
	Spring	DN	LB	1.2355	0.2167	0.26	ns
	Spring	DN	BR	2.2798	0.0226	0.0679	ns
	Spring	FI	LB	1.5591	0.119	0.238	ns
	Spring	FI	BR	2.6033	0.0092	0.0554	ns
	Spring	LB	BR	1.279	0.2009	0.26	ns
	Summer	DN	FI	1.6472	0.0995	0.199	ns
	Summer	DN	LB	2.2884	0.0221	0.0663	ns

	Summer	DN	BR	2.8234	0.0048	0.0285	*
	Summer	FI	LB	0.3864	0.6992	0.6992	ns
	Summer	FI	BR	0.9213	0.3569	0.5353	ns
	Summer	LB	BR	0.6552	0.5124	0.6148	ns
	Autumn	DN	FI	-1.6681	0.0953	0.1906	ns
	Autumn	DN	LB	0.316	0.752	0.752	ns
	Autumn	DN	BR	1.2791	0.2009	0.2858	ns
	Autumn	FI	LB	2.2422	0.0249	0.0748	ns
	Autumn	FI	BR	3.2053	0.0013	0.0081	**
	Autumn	LB	BR	1.1795	0.2382	0.2858	ns
2017	Summer	DN	FI	-3.182	0.0015	0.0044	**
	Summer	DN	LB	-0.6646	0.5063	0.6076	ns
	Summer	DN	BR	0.0054	0.9957	0.9957	ns
	Summer	FI	LB	3.0096	0.0026	0.0052	**
	Summer	FI	BR	3.6797	0.0002	0.0014	**
	Summer	LB	BR	0.8206	0.4119	0.6076	ns
2018	Summer	DN	FI	-1.0007	0.317	0.4785	ns
	Summer	DN	LB	-0.9966	0.319	0.4785	ns
	Summer	DN	BR	0.3611	0.718	0.8616	ns
	Summer	FI	LB	0.1589	0.8738	0.8738	ns
	Summer	FI	BR	1.5165	0.1294	0.3882	ns
	Summer	LB	BR	1.6628	0.0964	0.3882	ns
2019	Summer	DN	FI	-2.7081	0.0068	0.0377	*
	Summer	DN	LB	-0.6314	0.5278	0.5278	ns
	Summer	DN	BR	-1.2328	0.2177	0.3265	ns
	Summer	FI	LB	2.4956	0.0126	0.0377	*
	Summer	FI	BR	1.8943	0.0582	0.1164	ns
	Summer	LB	BR	-0.7365	0.4614	0.5278	ns
2020	Summer	DN	FI	-1.8234	0.0682	0.1365	ns
	Summer	DN	LB	0	1	1	ns
	Summer	DN	BR	-0.536	0.5919	0.7103	ns
	Summer	FI	LB	2.4463	0.0144	0.0866	ns
	Summer	FI	BR	2.026	0.0428	0.1283	ns
	Summer	LB	BR	-0.8188	0.4129	0.6194	ns
	Autumn	DN	FI	-1.3862	0.1657	0.6639	ns
	Autumn	DN	LB	-0.853	0.3936	0.6639	ns
	Autumn	DN	BR	-0.4265	0.6697	0.7801	ns
	Autumn	FI	LB	0.7678	0.4426	0.6639	ns
	Autumn	FI	BR	0.876	0.381	0.6639	ns
	Autumn	LB	BR	0.2792	0.7801	0.7801	ns
2021	Summer	DN	FI	-2.8558	0.0043	0.0129	*
	Summer	DN	LB	-0.5425	0.5875	0.5875	ns
	Summer	DN	BR	-2.1104	0.0348	0.0522	ns
	Summer	FI	LB	3.1452	0.0017	0.01	**
	Summer	FI	BR	1.4918	0.1357	0.1629	ns
	Summer	LB	BR	-2.3378	0.0194	0.0388	*
	Autumn	DN	FI	-1.0088	0.3131	0.8514	ns
	Autumn	DN	LB	-0.4268	0.6695	0.8514	ns
	Autumn	DN	BR	0	1	1	ns
	Autumn	FI	LB	0.7282	0.4665	0.8514	ns

	Autumn	FI	BR	0.9209	0.3571	0.8514	ns
	Autumn	LB	BR	0.3725	0.7095	0.8514	ns
2022	Summer	DN	FI	-0.5805	0.5616	0.6739	ns
	Summer	DN	LB	0.9852	0.3245	0.4868	ns
	Summer	DN	BR	1.0093	0.3128	0.4868	ns
	Summer	FI	LB	2.025	0.0429	0.1286	ns
	Summer	FI	BR	2.206	0.0274	0.1286	ns
	Summer	LB	BR	-0.067	0.9466	0.9466	ns
	Autumn	DN	FI	-0.6617	0.5081	0.6098	ns
	Autumn	DN	LB	1.0704	0.2844	0.5688	ns
	Autumn	DN	BR	0.8563	0.3918	0.5877	ns
	Autumn	FI	LB	1.6564	0.0977	0.4974	ns
	Autumn	FI	BR	1.3858	0.1658	0.4974	ns
	Autumn	LB	BR	0	1	1	ns
	Spring	DN	FI	-3.1334	0.0017	0.0035	**
2023	Spring	DN	LB	0	1	1	ns
	Spring	DN	BR	0	1	1	ns
	Spring	FI	LB	3.6181	0.0003	0.0009	***
	Spring	FI	BR	3.6181	0.0003	0.0009	***
	Spring	LB	BR	0	1	1	ns
	Summer	DN	FI	-0.9503	0.342	0.6607	ns
	Summer	DN	LB	0.4389	0.6607	0.6607	ns
	Summer	DN	BR	-0.5487	0.5832	0.6607	ns
	Summer	FI	LB	1.5362	0.1245	0.6607	ns
	Summer	FI	BR	0.5487	0.5832	0.6607	ns
	Summer	LB	BR	-1.2095	0.2265	0.6607	ns
	Autumn	DN	FI	-1.7321	0.0833	0.1665	ns
	Autumn	DN	LB	0	1	1	ns
	Autumn	DN	BR	0	1	1	ns
	Autumn	FI	LB	2	0.0455	0.1365	ns
	Autumn	FI	BR	2	0.0455	0.1365	ns
	Autumn	LB	BR	0	1	1	ns
2024	Spring	DN	FI	-1.4142	0.1573	0.3146	ns
	Spring	DN	LB	0	1	1	ns
	Spring	DN	BR	0	1	1	ns
	Spring	FI	LB	1.8974	0.0578	0.1733	ns
	Spring	FI	BR	2.1213	0.0339	0.1733	ns
	Spring	LB	BR	0	1	1	ns
	Summer	DN	FI	-0.9115	0.3621	0.7241	ns
	Summer	DN	LB	-1.2912	0.1966	0.7241	ns
	Summer	DN	BR	-1.0634	0.2876	0.7241	ns
	Summer	FI	LB	-0.1326	0.8945	0.9736	ns
	Summer	FI	BR	-0.1387	0.8897	0.9736	ns
	Summer	LB	BR	-0.0331	0.9736	0.9736	ns

Table S6. Mean and median percentage surface peat moisture (SPM) for each season and period, summarized by management type across deep peat sites (NM: combination of Nidd and Moss). Mag = Management; DN = do nothing (control); FI = prescribed burning; LB = mowing with brash left; BR = mowing with brash removed.

Seasons	Mag	2013-2024		2013-2015		2016-2020		2021-2024	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Spring	DN	96.78	99.00	95.06	95.75	96.56	100.00	97.46	100.00
	FI	98.27	100.00	96.56	97.00	98.59	99.50	98.68	100.00
	LB	98.51	100.00	96.73	96.50	98.80	100.00	98.96	100.00
	BR	97.67	100.00	96.78	98.00	98.13	100.00	97.73	100.00
Summer	DN	83.24	92.90	67.75	71.55	89.64	94.30	84.22	97.00
	FI	89.34	93.85	82.23	88.55	92.44	93.95	89.56	99.00
	LB	90.11	95.00	77.11	85.30	93.91	96.00	92.97	99.00
	BR	89.84	94.85	81.99	90.80	92.97	95.50	90.49	99.00
Autumn	DN	91.04	96.00	84.10	92.90	98.13	99.50	88.52	99.00
	FI	94.54	99.00	91.90	94.00	99.03	100.00	91.18	99.00
	LB	95.54	99.00	92.90	93.30	99.16	100.00	93.36	100.00
	BR	94.99	99.00	92.74	93.80	98.68	100.00	92.34	99.50
Winter	DN	97.41	100.00	93.06	94.40	99.46	100.00	99.71	100.00
	FI	98.47	100.00	95.91	96.00	99.75	100.00	99.75	100.00
	LB	98.87	100.00	96.96	97.00	99.73	100.00	99.94	100.00
	BR	98.87	100.00	96.95	97.00	99.77	100.00	99.88	100.00

Table S7. Mean and median percentage surface peat moisture (SPM) for the removed dataset (cases with SPM > 90% when WTD > 35 cm and total rainfall between 0 and 15 mm in the preceding week), summarized by management type and period across deep peat sites (NMW: combination of Nidd, Moss, and Whit). Mag = Management; DN = do nothing (control); FI = prescribed burning; LB = mowing with brash left; BR = mowing with brash removed.

Mag	2013-2024		2013-2015		2016-2020		2021-2024	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
DN	91.37	97.00	83.85	91.50	92.63	96.00	93.82	99.00
FI	91.74	96.00	82.39	91.65	93.40	96.00	94.98	99.00
LB	94.02	98.00	87.22	92.60	95.01	98.00	96.39	100.00
BR	94.05	98.00	88.68	92.55	95.36	98.00	95.68	100.00

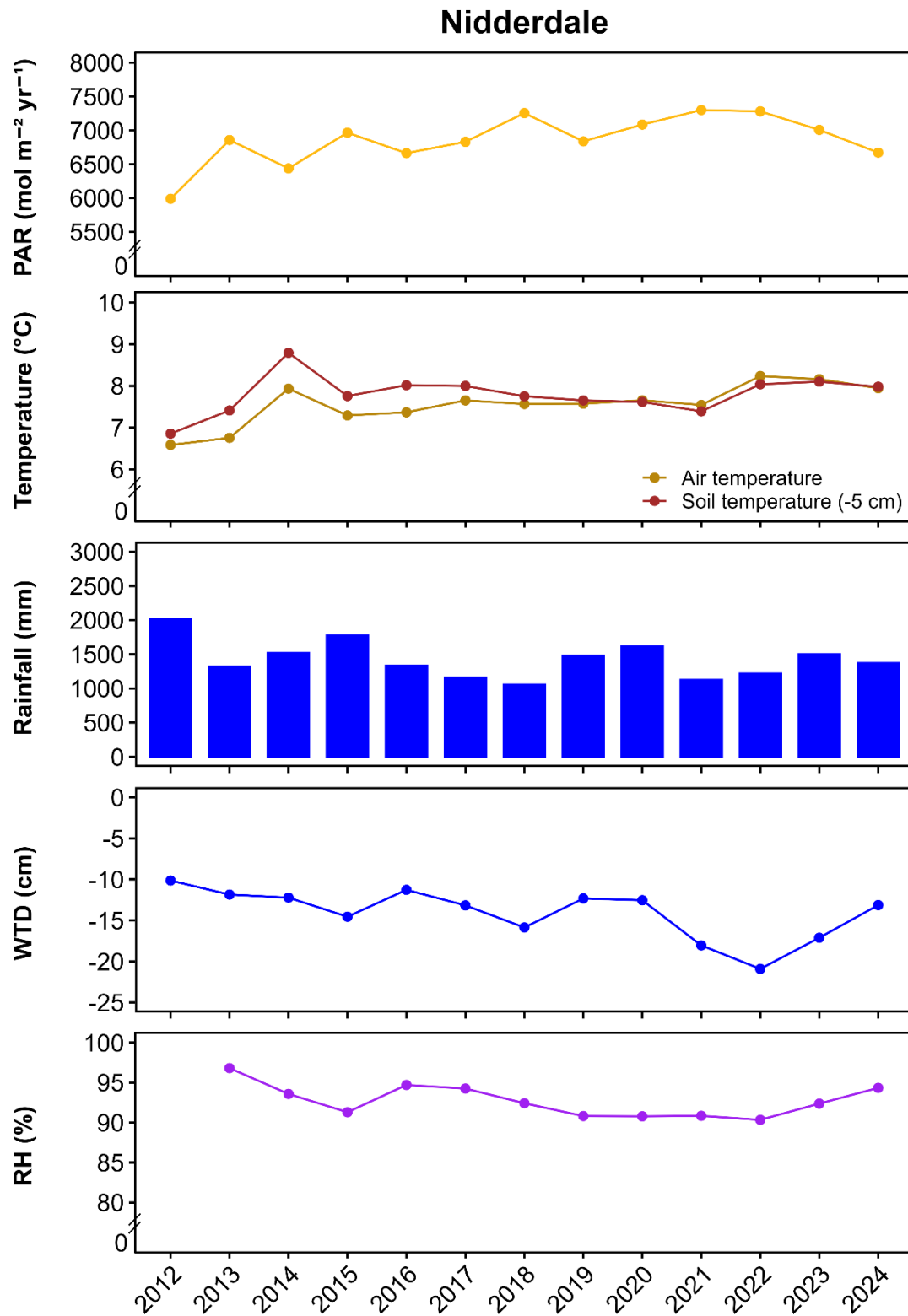


Figure S1. Interannual variation in climate-related variables at Nidderdale from 2012 to 2024. Panels show (from top to bottom) total photosynthetically active radiation (PAR), air and soil temperature (–5 cm), annual rainfall, water table depth (WTD), and relative humidity (RH).

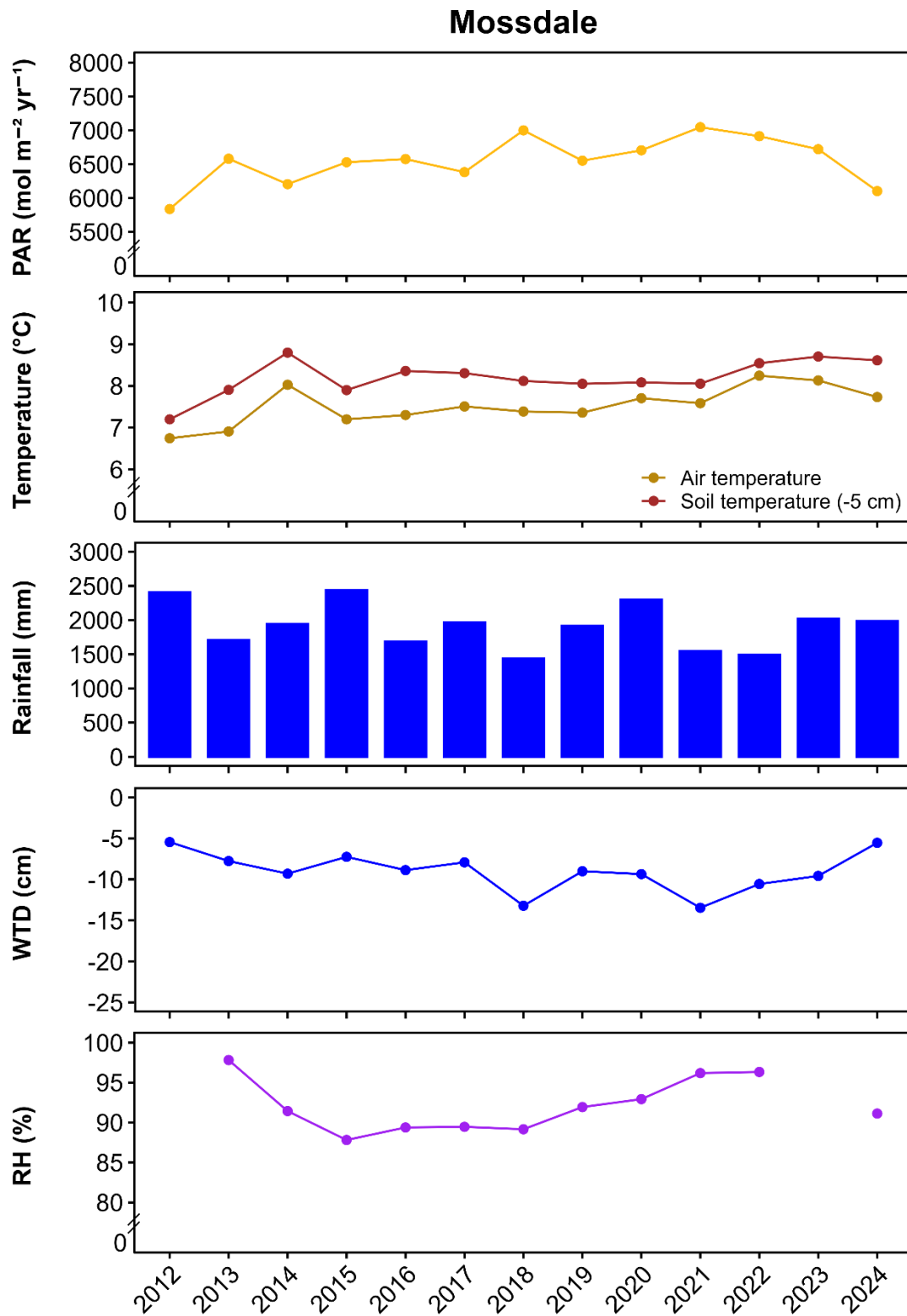


Figure S2. Interannual variation in climate-related variables at Mosssdale from 2012 to 2024. Panels show (from top to bottom) total photosynthetically active radiation (PAR), air and soil temperature (–5 cm), annual rainfall, water table depth (WTD), and relative humidity (RH).

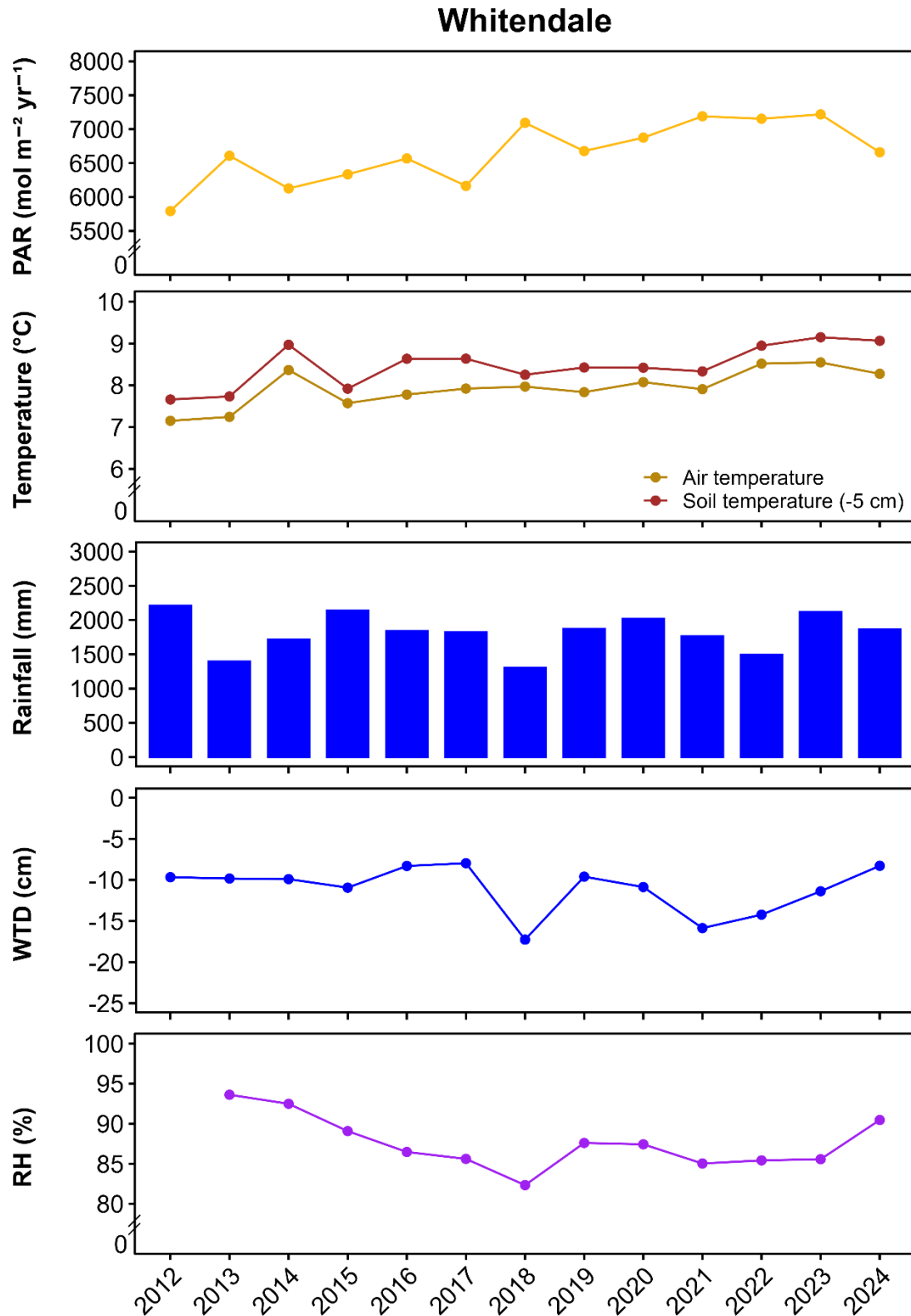


Figure S3. Interannual variation in climate-related variables at Whitendale from 2012 to 2024. Panels show (from top to bottom) total photosynthetically active radiation (PAR), air and soil temperature (–5 cm), annual rainfall, water table depth (WTD), and relative humidity (RH).

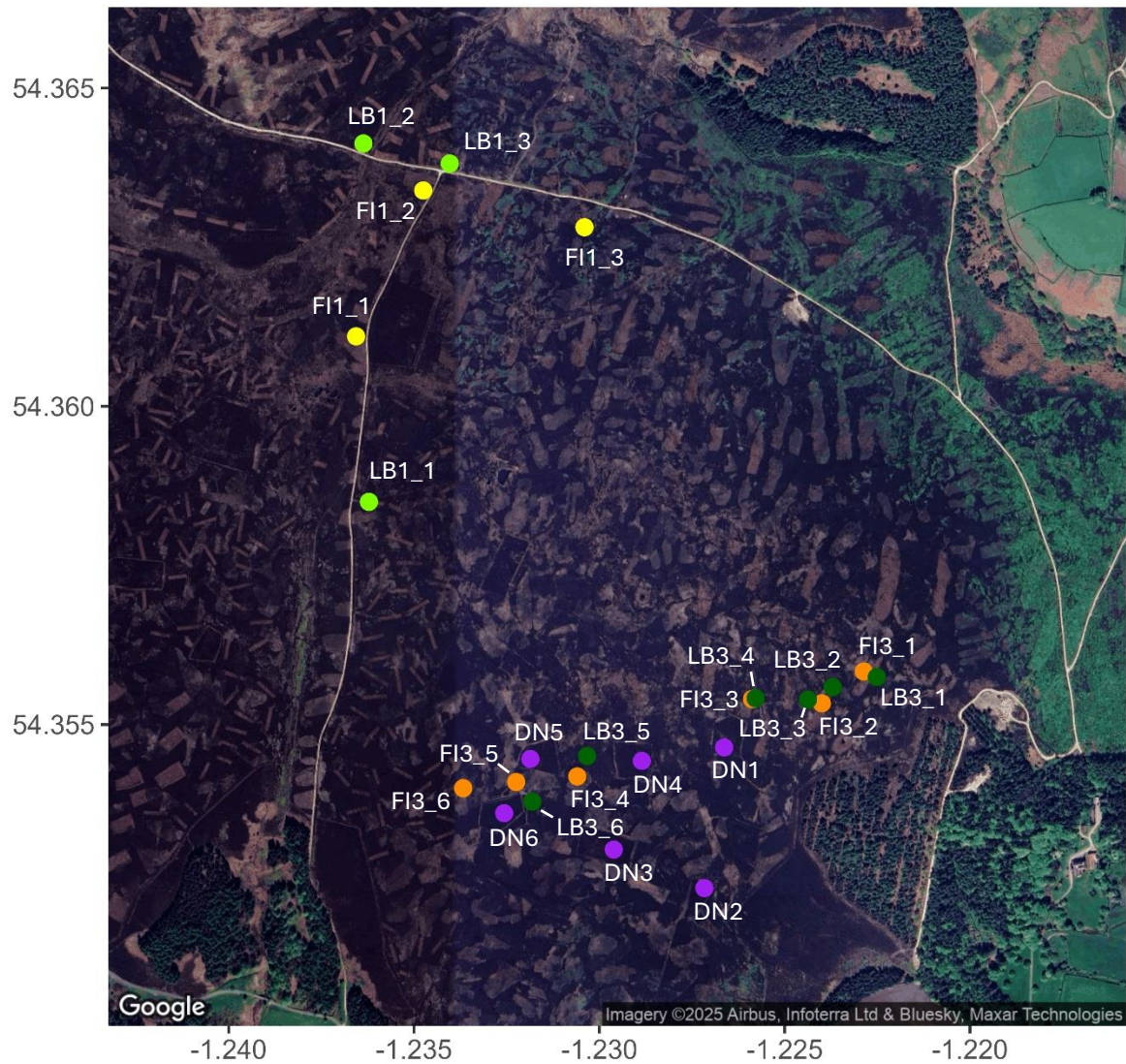


Figure S4. Locations of sampling plots at the shallow peat site. Coloured points represent different management treatments: DN = do nothing (control); FI3 = three years after prescribed fire; FI1 = within one year after prescribed fire; LB3 = three years after mowing with brash left. LB1 = within one year after mowing with brash left. Background satellite imagery © Airbus, Infoterra Ltd & Bluesky, Maxar Technologies (2025).

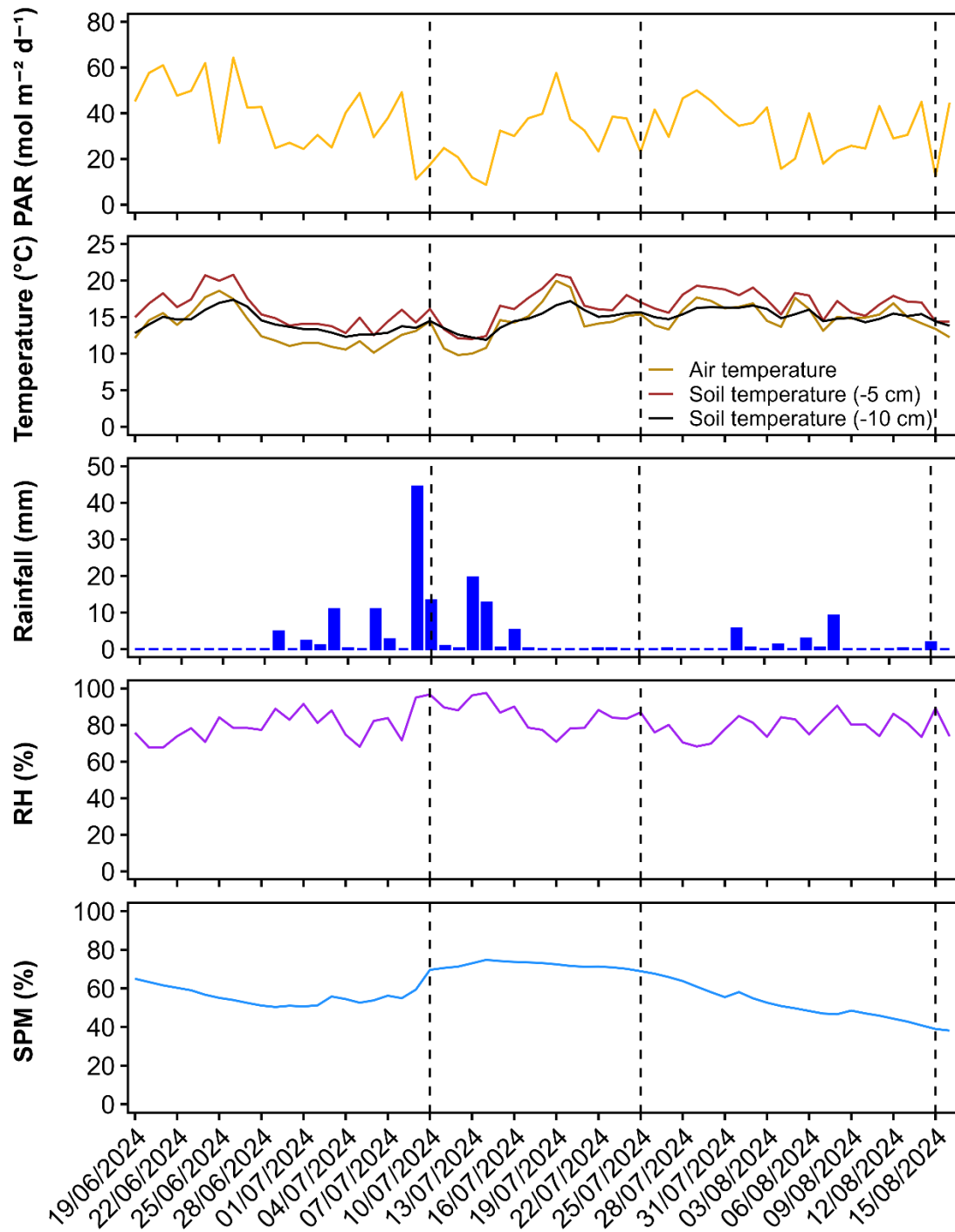


Figure S5. Temporal variation in daily climate-related variables at the shallow peat site from 19/06/2024 to 15/08/2024. Panels show (from top to bottom) totals of photosynthetically active radiation (PAR), mean air and soil temperature (-5 and -10 cm), total rainfall, mean relative humidity (RH) and surface peat moisture (SPM). Vertical dashed lines indicate the timing of SPM measurements.

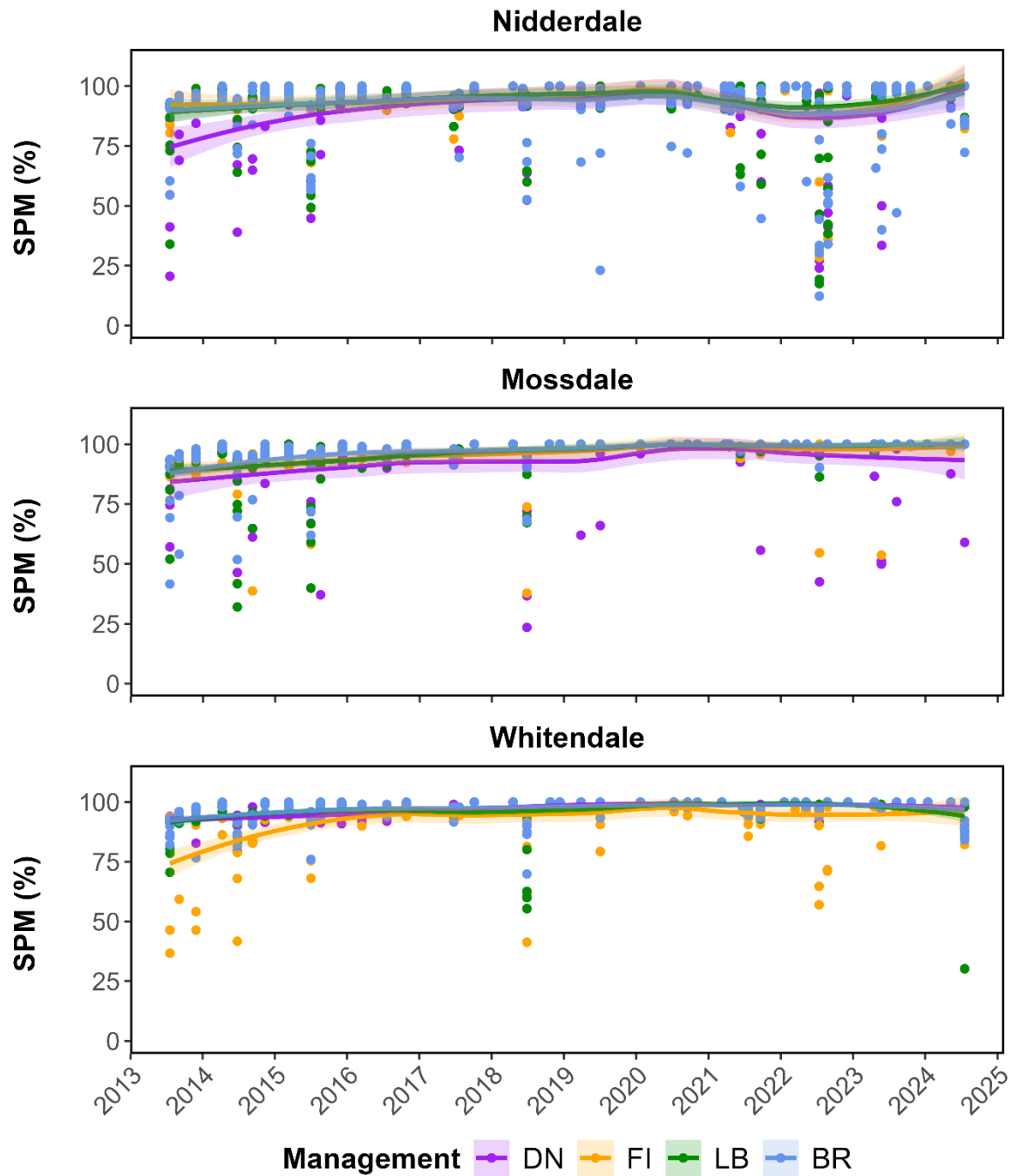


Figure S6. Temporal variation in percentage surface peat moisture (SPM) under different management treatments at the deep peat sites (Nidderdale, Mossdale, and Whitendale) from 2013 to 2024. Lines show LOESS-smoothed trends with 95% confidence intervals for each management type: DN = do nothing (control), FI = prescribed fire, LB = mowing with brash left, and BR = mowing with brash removed.

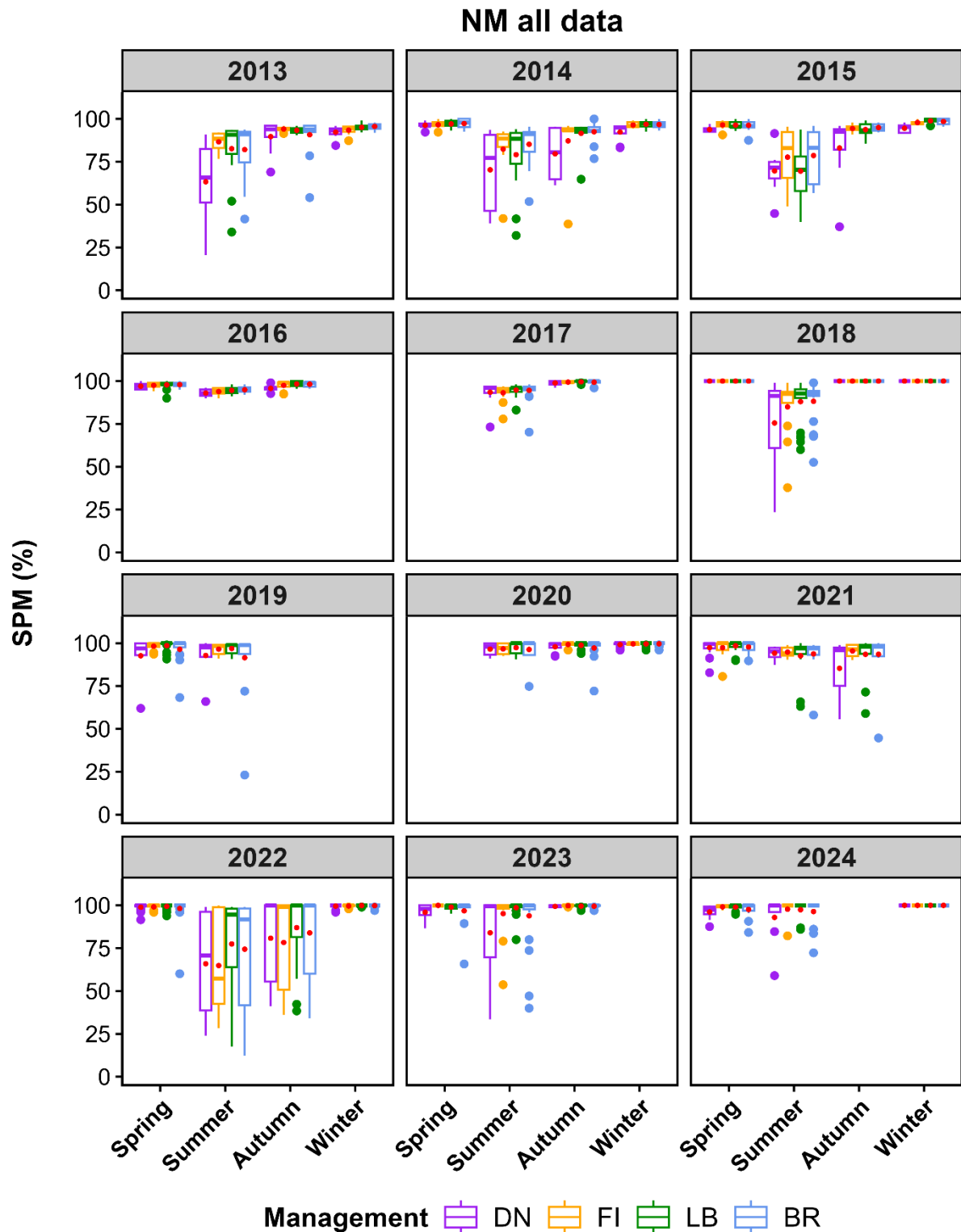


Figure S7. Seasonal and interannual variation in surface peat moisture (SPM) under different management treatments across the combined Nidderdale and Mossdale (NM) sites from 2013-2024. Boxplots show the median (50%), interquartile range (25–75%), and variability in SPM for each management treatment: DN = do nothing (control); FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed. Red points represent mean values.

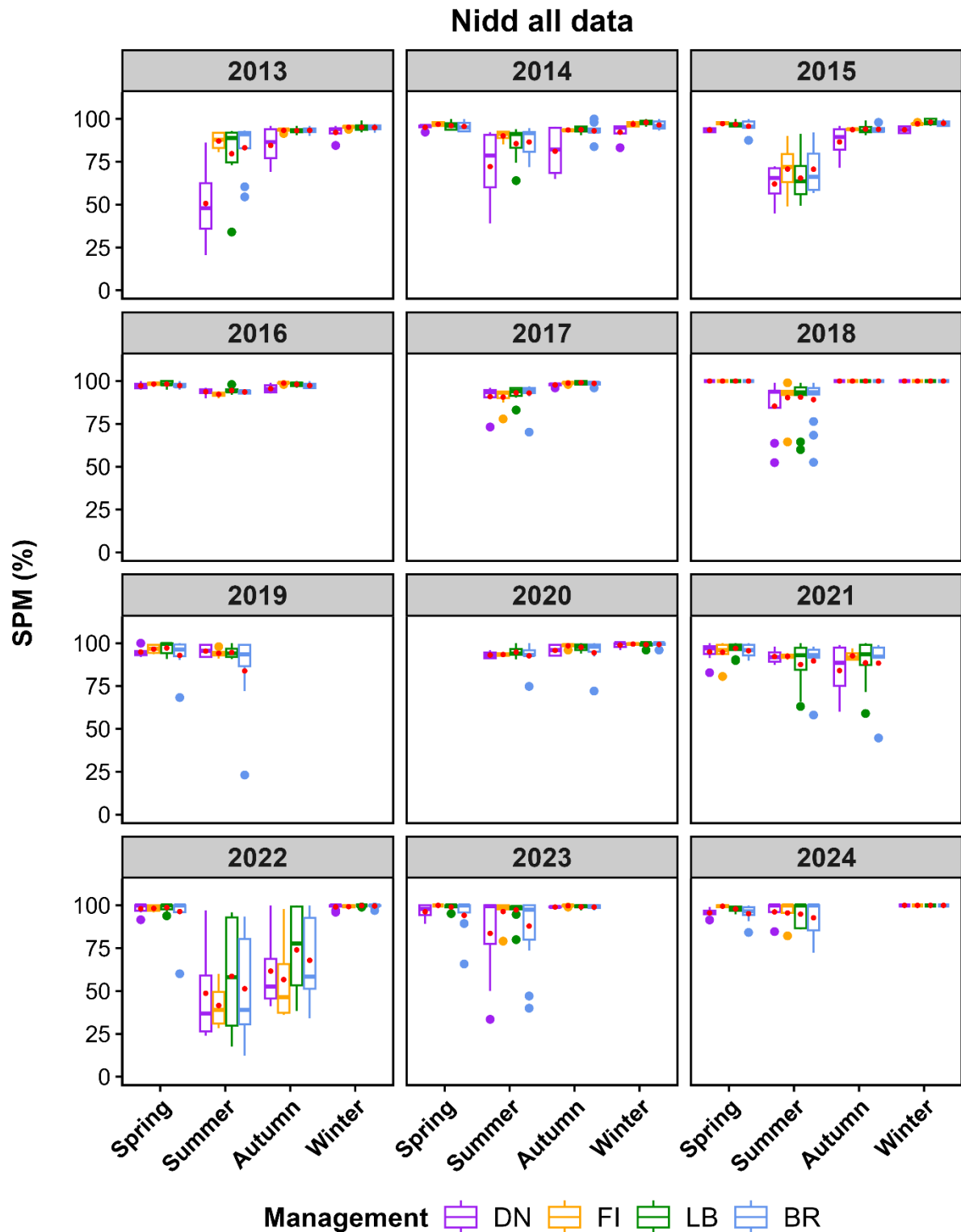


Figure S8. Seasonal and interannual variation in surface peat moisture (SPM) under different management treatments at Nidderdale from 2013-2024. Boxplots show the median (50%), interquartile range (25–75%), and variability in SPM for each management treatment: DN = do nothing (control); FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed. Red points represent mean values.

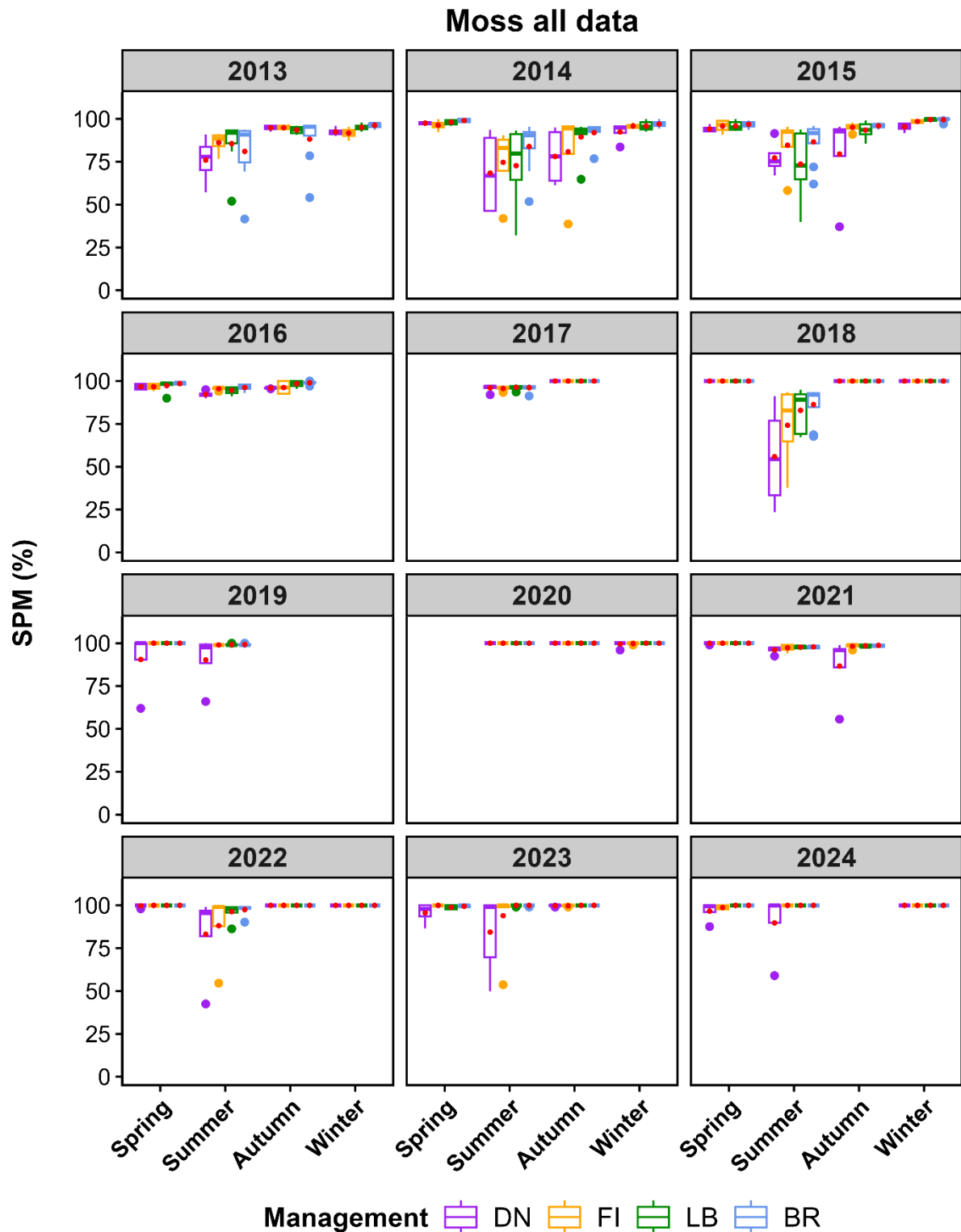


Figure S9. Seasonal and interannual variation in surface peat moisture (SPM) under different management treatments at Mossdale from 2013-2024. Boxplots show the median (50%), interquartile range (25–75%), and variability in SPM for each management treatment: DN = do nothing (control); FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed. Red points represent mean values.

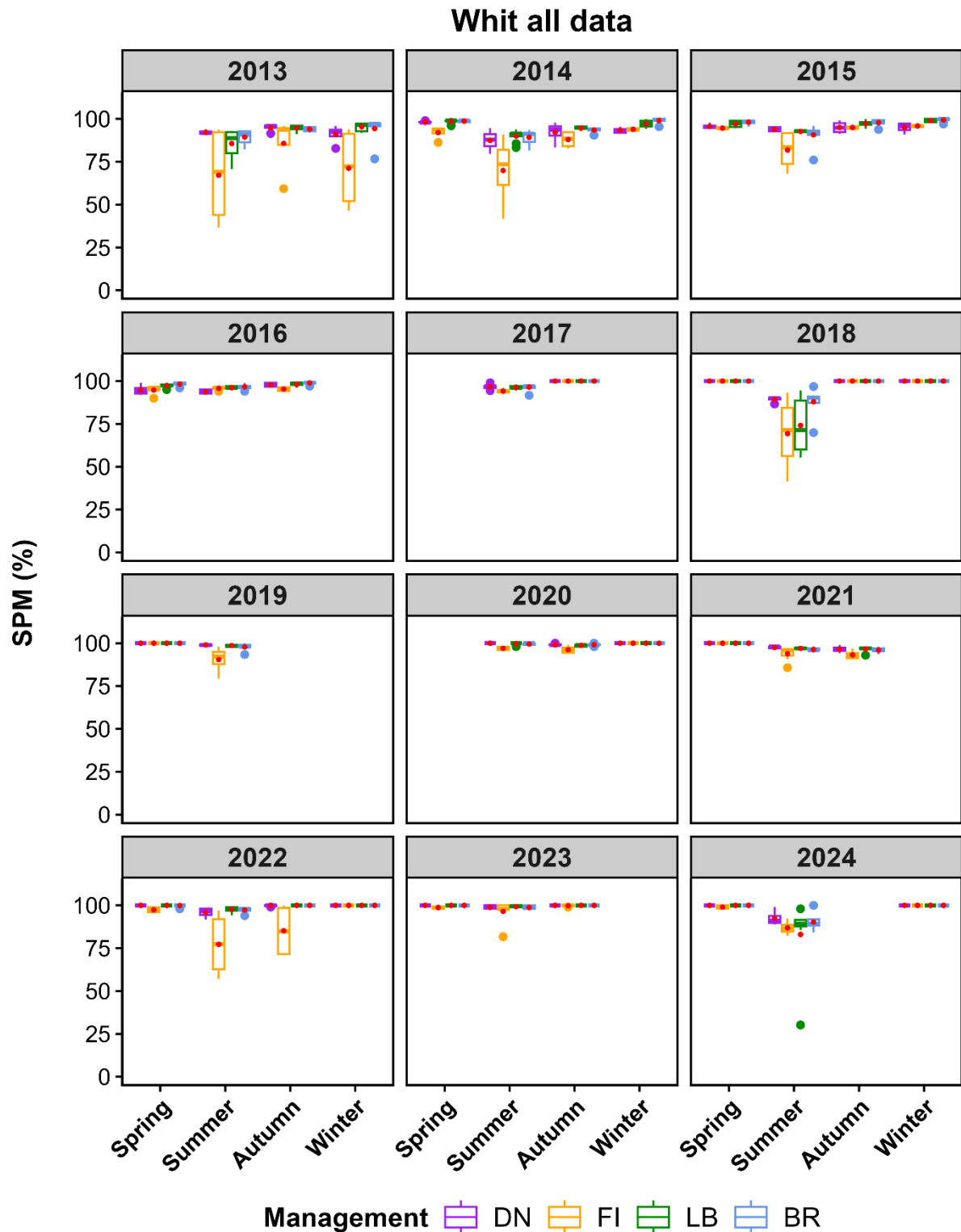


Figure S10. Seasonal and interannual variation in surface peat moisture (SPM) under different management treatments at Whitendale from 2013-2024. Boxplots show the median (50%), interquartile range (25–75%), and variability in SPM for each management treatment: DN = do nothing (control); FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed. Red points represent mean values.

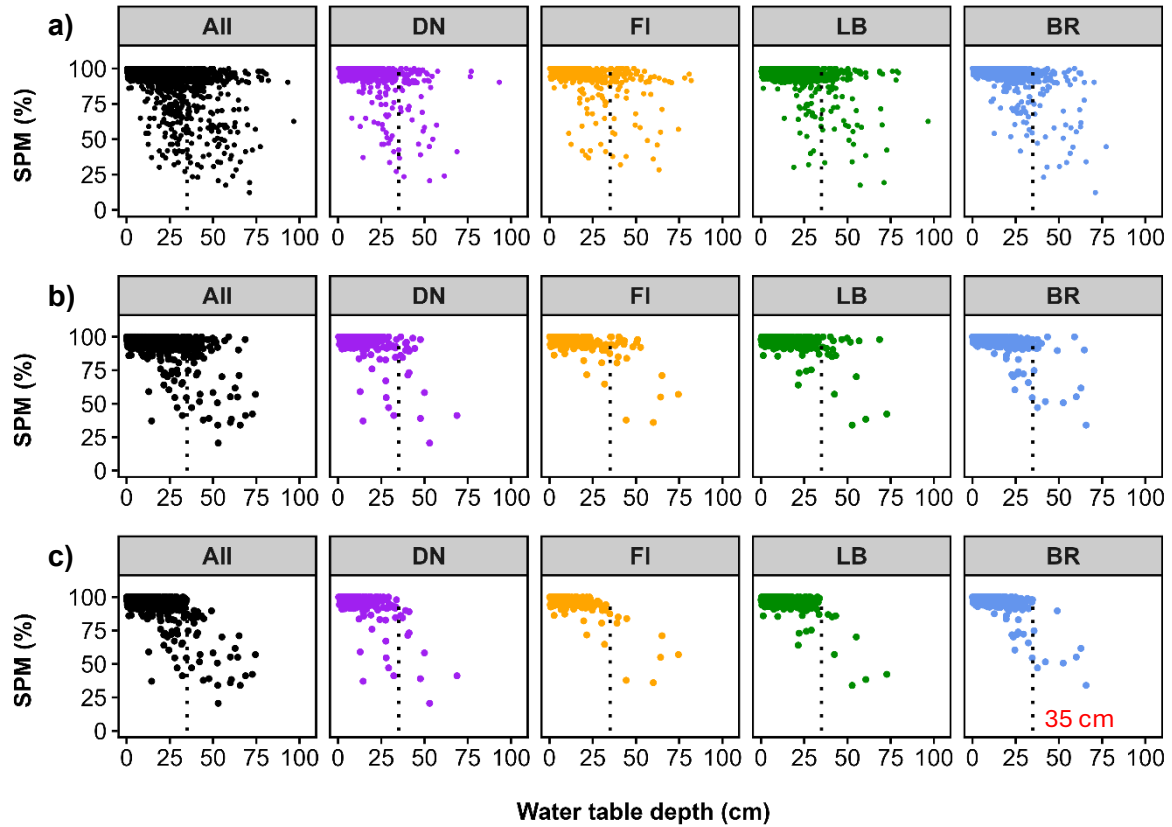


Figure S11. Stepwise removal of low amounts of rainfall for each management treatment and the combined deep peat sites dataset (All). (a) Observations with standing water excluded; (b) further exclusion of cases with total rainfall between 0 and 15 mm in the preceding week; (c) further exclusion of cases where percentage surface peat moisture (SPM) > 90% when WTD > 35 cm. The black dashed line indicates WTD = 35 cm. DN = do nothing (control), FI = prescribed fire, LB = mowing with brash left, and BR = mowing with brash removed.

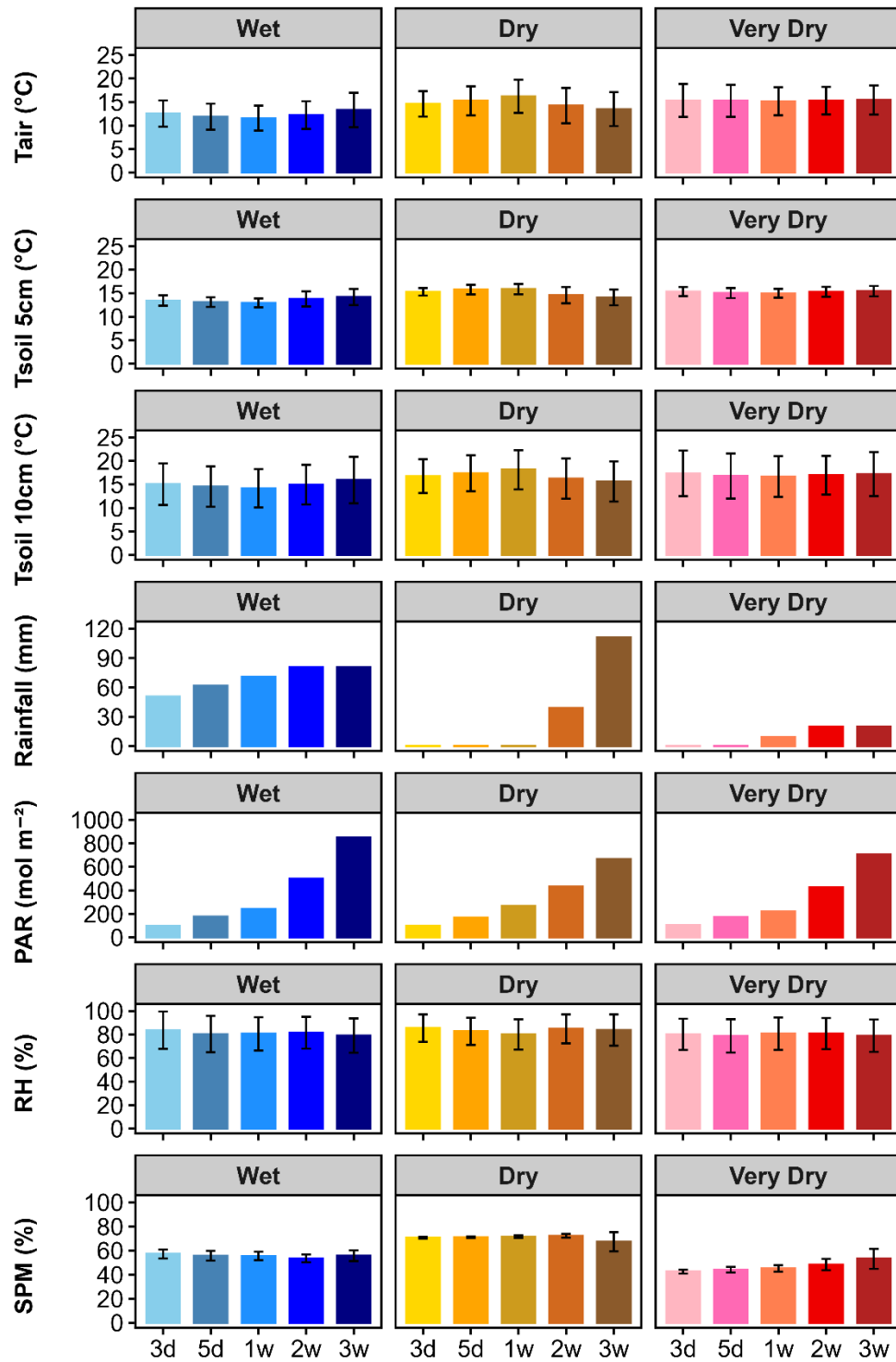


Figure S12. Variations in climate-related variables as measured hourly by the weather station at the shallow peat site under Wet, Dry, and Very Dry conditions at different timescales prior to surface peat moisture (SPM) measurements. Timescales represent periods before SPM measurement: 3 d = 3 days, 5 d = 5 days, 1 w = 1 week, 2 w = 2 weeks, and 3 w = 3 weeks. Panels show mean air temperature (Tair), soil temperature at 5 cm and 10 cm depth (Tsoil), total rainfall, total photosynthetically active radiation (PAR), mean relative humidity (RH), and mean SPM.

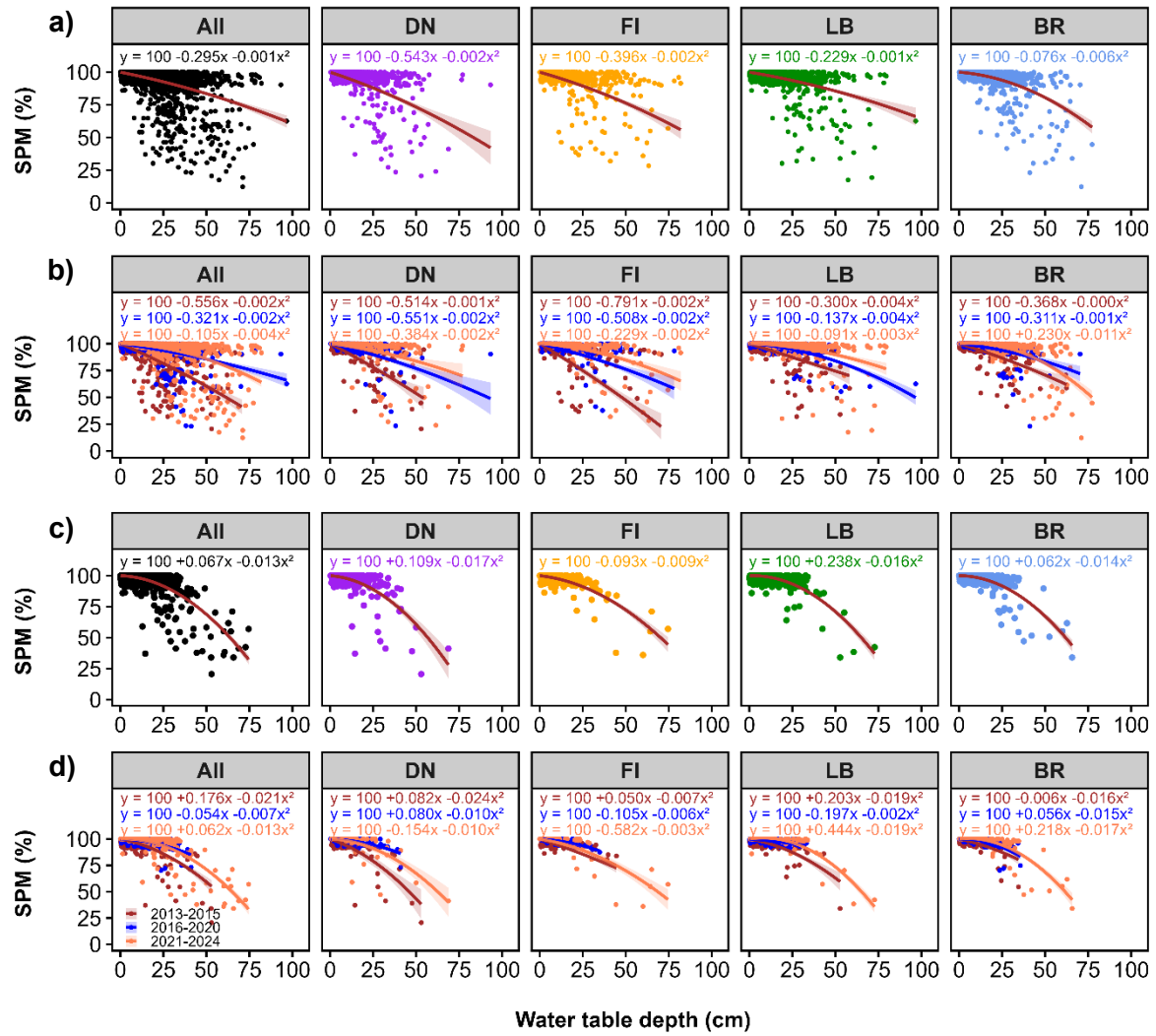


Figure S13. Effects of heather management and climate on the relationship between percentage surface peat moisture (SPM) and water table depth (WTD) across deep peat sites. (a, b) Relationships excluding observations with standing water, and (c, d) further excluding cases with SPM > 90% when WTD > 35 cm. The black dashed line indicates WTD = 35 cm. Coloured lines show quadratic regression fits with 95% confidence intervals. The corresponding equations are shown in each panel. All: all management types combined; DN = do nothing (control); FI = prescribed fire; LB = mowing with brash left; BR = mowing with brash removed.

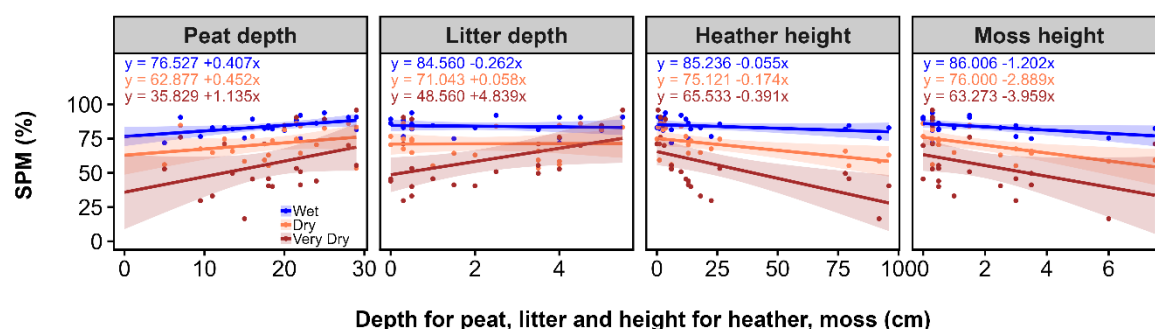


Figure S14. Linear relationships between percentage peat surface moisture (SPM) and environmental variables (peat depth, heather height, moss height, and litter depth) under wet (blue), dry (orange), and very dry (brown) conditions. Shaded areas represent 95% confidence intervals, and the corresponding equations are shown in each panel (for coefficient of determination and p-values see Fig. 2 in the main manuscript).