

Table S1: Catchment characteristics of unmanaged and managed boreal catchments used in the study.

Catchment	Managed	Area (ha)	Waterbodies (%)	Arable (%)	Drainage (m ha ⁻¹)	Rich _p	Poor _{rm}	Peatland (%)	Fertilization*	Scots pine (%)	Norway spruce (%)	Deciduous trees (%)	Tvol (m ³ ha ⁻¹)	av. runoff (mm)	Temp (°C, 1980- 2010)	Prec (mm, mean)
Rudbäcken	1	436	0.0	4.9	41.7	0.007	0.006	5.6	-	36	39	25	148	334	1454	661
Rantainrahka	1	36.5	0.0	0	87.7	0	0.063	8.0	-	32	57	11	145	215	1439	583
Ojakorpi	1	30.9	0.0	0	133.4	0	0.035	5.2	-	8	76	16	137	228	1425	574
Kroopinsuo	1	179.1	0.0	0	118.7	0.016	0.117	27.5	-	10	77	13	143	253	1404	558
Huhtisuonoja	1	505.4	0.0	0	128	0.02	0.003	44.4	-	20	69	11	152	202	1366	646
Paunulanpuro	1	153.8	0.0	0	58.8	0.009	0.004	13.2	-	43	36	21	165	220	1283	606
Katajaluoma	1	1455.4	0.0	3.3	130	0.003	0.109	36.2	-	18	69	13	108	216	1287	667
Pakopirtti	1	801.1	0.0	0	140.2	0.002	0.011	67.3	-	29	56	15	66	186	1219	552
Surnui	1	70.7	0.0	0	139.4	0.036	0	36.5	-	21	62	17	108	223	1250	599
Kesselinpuro	1	1966.3	0.8	1	109.5	0.032	0.006	41.2	-	35	48	17	140	252	1275	665
Kohisevanpuro	1	1072.3	0.2	1.3	57.3	0.024	0	25.6	-	19	59	22	142	272	1261	626
Pahkaoja	1	2344	1.0	1.8	97.8	0.003	0.027	46.6	-	10	75	15	66	293	1128	587
Korpijoki	1	12148.8	0.2	11.6	132.1	0.022	0.002	35.3	-	22	50	28	104	339	1154	623
Liuhapuro	1	166.7	0.0	0	7.2	0.028	0.001	57.6	-	41	44	15	156	405	1118	674
Kivipuro	1	50.6	0.0	0	16.1	0.009	0	34.1	13.2	27	55	18	130	377	1118	674
Myllypuro	1	1053.3	0.6	0.4	80.6	0.02	0.005	31.8	3.8	18	62	20	96	455	1043	807
Vääräjoki	1	1782.7	1.1	0.1	26	0.01	0.006	43.1	-	20	65	15	56	317	863	687
Kotioja	1	1718.7	0.2	1.4	91.8	0.039	0.002	50.4	-	12	67	21	51	456	968	623
Vähä-Askanjoki	1	1560.4	0.1	0	29.2	0.019	0.001	26.2	-	10	81	9	61	452	942	600
Laanioja	1	1373.4	0.1	0.2	12.5	0.016	0.17	5.1	-	0	93	7	25	503	942	600
Hauklammenoja	0	136.6	6.0	0.1	19.1	0.004	0.002	4.5	-	37	38	25	174	386	1454	661
Susimäki	0	6.6	0.0	0	0	0.04	0	23.3	-	68	23	9	254	406	1202	630
Helvetinjärvi	0	12.1	0.0	0	0	0	0.018	38.5	-	15	77	8	84	339	1200	607
Mustospuro	0	324.8	1.0	0.3	6.2	0.013	0.005	44.3	-	22	71	7	128	249	1218	587
Kelopuro	0	74.1	4.7	0	2.6	0	0.021	47.7	-	6	88	6	88	366	1145	668
Porkkasalonpuro	0	71.6	0.0	0	18.4	0.019	0.009	18.6	-	35	52	13	166	439	1106	731
Syöte	0	74.9	0.0	0	2.9	0.004	0	30.9	-	29	48	23	62	339	898	731
Oijusluoma	0	48.6	0.0	0	9.5	0.009	0.001	37.0	-	26	60	14	74	289	878	697
Lompolojängänoja	0	514.2	0.0	0	20.4	0.035	0.002	21.1	-	30	52	18	294	276	716	686
Iittovuoma	0	1171.2	1.5	0	9.2	0	0	12.0	-	0	0	100	2	493	531	528

*cumulative % of catchment area

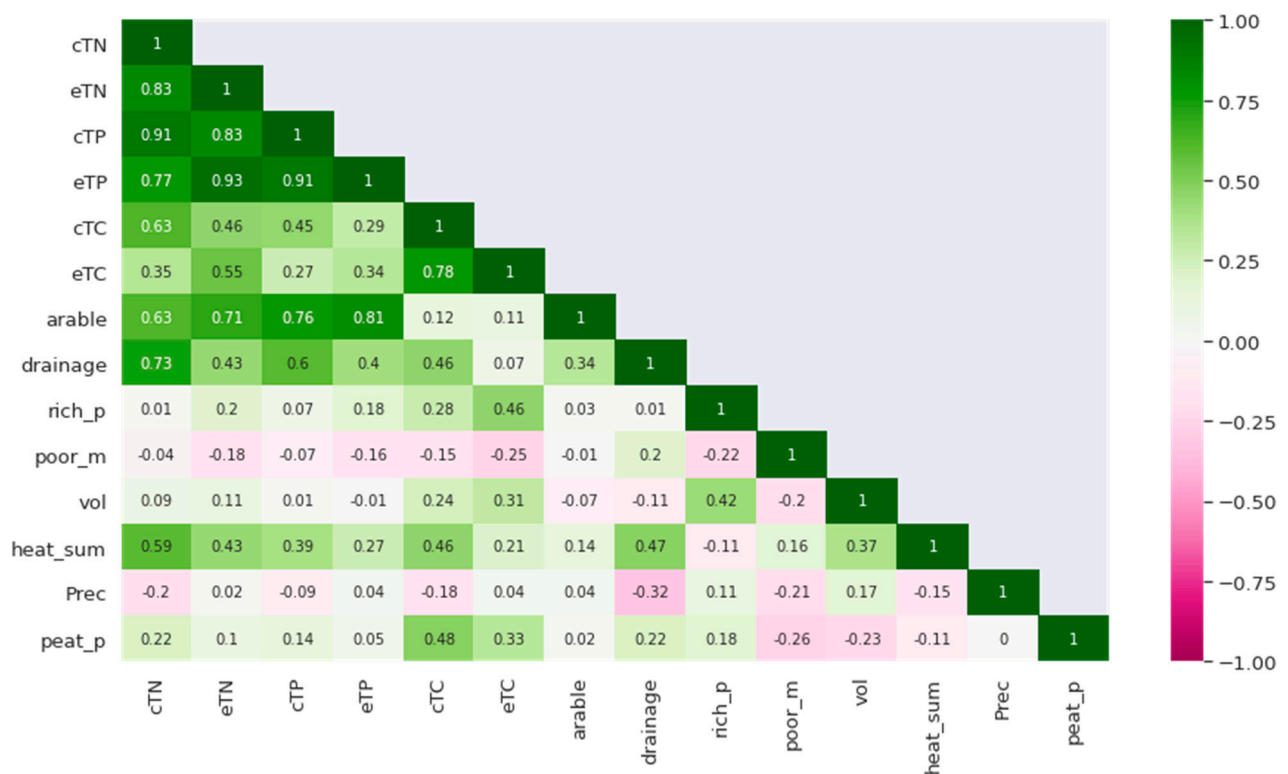


Figure S1 The correlations of fixed factors used in the models. Here e denotes export of the nutrient in question, c means the concentration, Prec is the precipitation, rich_p ratio of rich fertility pealands in catchment, poor_m ratio of poor mineral soils, vol is tree volume, drainage is drainage intensity and heat_sum is the long term temperature sum.

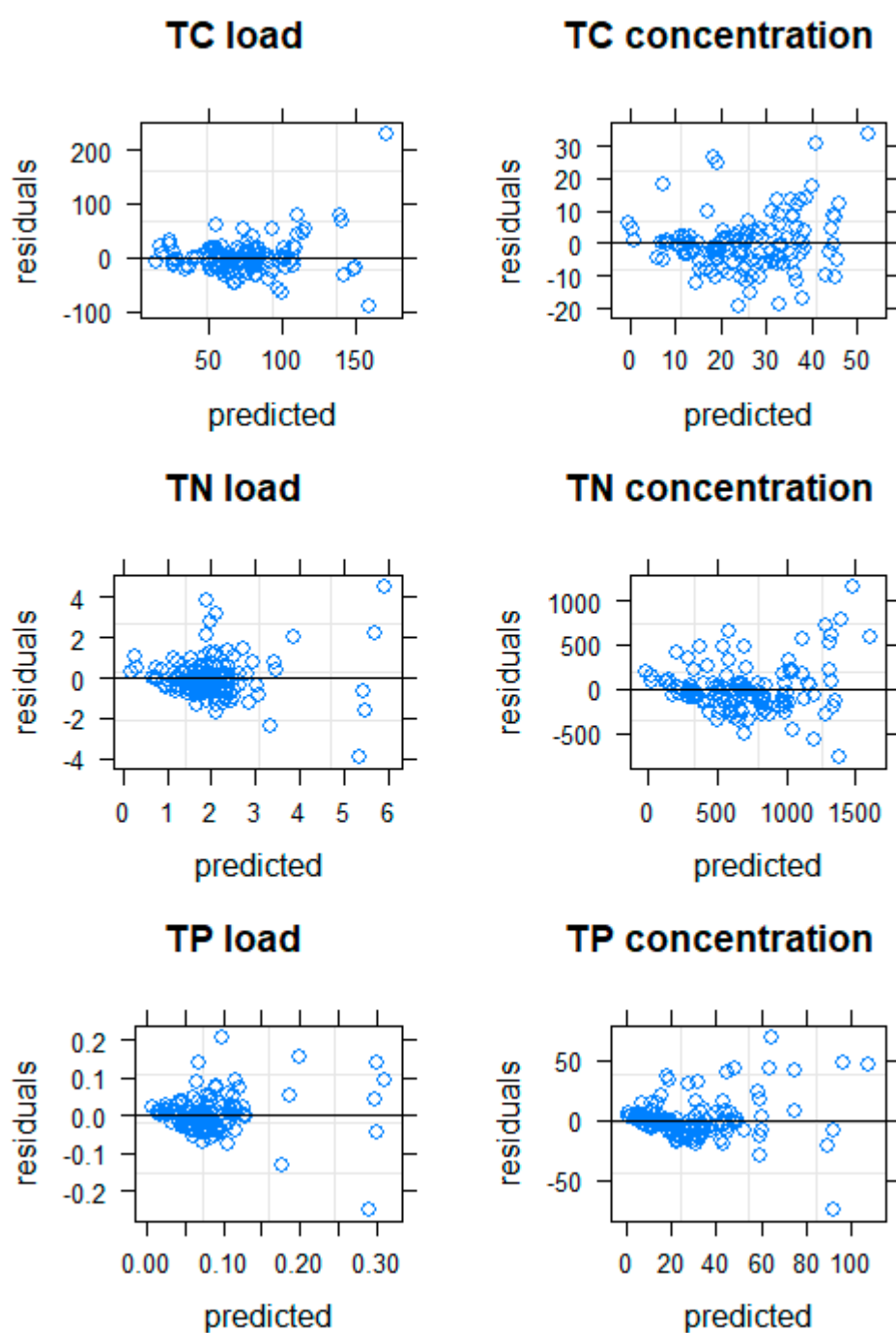


Figure S2: Residual plots of final models.