

Electronic Appendix 1. - Frequency change and *frequency\*cover change* for extended list of species (including less frequent species) and median biomass concentrations for individual species used in the analyses (taken from Hájek et al. 2014).

species name	Abbrev.	subset of poor-fens (pH ≤ 5)						subset of rich-fens (pH > 5)						nutrient concentrations in biomass		
		absolute frequency		large data set		precise data set		absolute frequency		large data set		precise data set				
		n <sub>0</sub>	n <sub>1</sub>	freq. change (%)	freq.*c change (phi)	freq. change (%)	freq.*c change (phi)	n <sub>0</sub>	n <sub>1</sub>	freq. change (%)	freq.*c change (phi)	freq. change (%)	freq.*c change (phi)	N (mg/g)	P (mg/g)	K (mg/g)
<i>Aneura pinguis</i>	<i>Ane.pin</i>	-	-	n. a.	n. a.	n. a.	n. a.	19 (8)	30 (2)	-14.09 *	-0.067	-12.91 *	-0.134	n. a.	n. a.	n. a.
<i>Aulacomnium palustre</i>	<i>Aul.pal</i>	6 (3)	36 (2)	9.70	0.007	-4.14	-0.023	24 (6)	95 (11)	11.27	0.046	-4.35	0.023	9.41	0.92	8.50
<i>Bryum pseudotriquetrum</i>	<i>Bry.pse</i>	5 (4)	1 (-)	-8.21 ***	-0.132	-7.02	-0.156	15 (7)	50 (7)	1.77	0.030	-8.35	0.000	13.43	1.51	12.66
<i>Calliergonella cuspidata</i>	<i>Cal.cus</i>	-	8 (3)	4.49	0.068	1.69	0.161	11 (2)	92 (12)	32.39 ***	0.169	3.23 **	0.226	12.42	1.17	12.72
<i>Campylium stellatum</i> agg.	<i>Cam.ste</i>	5 (3)	2 (-)	-7.65 ***	-0.162	-5.26	-0.178	24 (11)	53 (12)	-12.33	-0.172	-12.56	-0.201	11.45	0.49	6.73
<i>Climacium dendroides</i>	<i>Cli.den</i>	-	3 (1)	1.69	0.040	0.56	0.089	13 (4)	38 (3)	-1.46	-0.007	-5.33	0.002	12.47	0.93	10.94
<i>Hamatocaulis vernicosus</i>	<i>Ham.ver</i>	3 (1)	2 (-)	-4.14	-0.089	-1.75	-0.080	11 (6)	21 (3)	-7.50	-0.047	-8.84	-0.111	9.34	1.18	11.69
<i>Plagiomnium affine</i> agg.	<i>Pla.aff</i>	-	-	n. a.	n. a.	n. a.	n. a.	6 (3)	67 (7)	27.11 ***	0.120	-1.33	0.087	17.84	1.46	27.32
<i>Polytrichum commune</i>	<i>Pol.com</i>	4 (4)	74 (4)	34.56 **	0.157	-4.77	0.091	1 (-)	27 (3)	13.41 **	0.116	1.69	0.144	16.77	1.31	12.13
<i>Polytrichum strictum</i>	<i>Pol.str</i>	7 (2)	12 (-)	-5.54	-0.095	-3.51	-0.114	23 (7)	14 (1)	-32.49 ***	-0.157	-11.72 *	-0.204	9.36	0.85	7.23
<i>Sarmentypnum exannulatum</i>	<i>Sar.exa</i>	4 (2)	20 (2)	4.22	0.005	-2.39	0.065	7 (1)	31 (1)	5.14	0.060	-1.19	-0.004	18.04	1.48	10.36
<i>Scorpidium revolvens</i> agg.	<i>Sco.rev</i>	-	-	n. a.	n. a.	n. a.	n. a.	22 (12)	20 (3)	-27.36 ***	-0.120	-19.37 **	-0.168	10.52	0.39	7.26
<i>Sphagnum contortum</i>	<i>Sph.con</i>	4 (2)	4 (-)	-4.77 **	-0.204	-3.51	-0.279	28 (12)	36 (10)	-28.90 ***	-0.093	-15.43	0.017	7.98	0.55	8.05
<i>Sphagnum fallax</i>	<i>Sph.fal</i>	3 (3)	72 (4)	35.19 **	0.372	-3.02	0.230	2 (2)	25 (3)	10.54 *	0.081	-1.82	-0.011	10.69	0.44	6.72
<i>Sphagnum flexuosum</i>	<i>Sph.fle</i>	1 (1)	41 (2)	21.28 *	0.245	-0.63	0.183	26 (9)	66 (6)	-8.54	-0.055	-12.42	0.017	8.18	0.61	6.84
<i>Sphagnum palustre</i> agg.	<i>Sph.pal</i>	3 (2)	45 (1)	20.02	0.112	-2.95	-0.088	8 (4)	63 (8)	21.36 **	0.182	-2.52	0.143	9.80	0.60	11.98
<i>Sphagnum teres</i>	<i>Sph.ter</i>	5 (3)	14 (2)	-0.91	-0.047	-4.14	0.077	19 (5)	81 (10)	12.17	0.091	-3.15	0.191	11.69	0.82	11.40
<i>Sphagnum warnstorffii</i>	<i>Sph.war</i>	-	3 (1)	1.69	0.059	0.56	0.099	22 (7)	49 (8)	-11.07	-0.030	-7.79	-0.001	8.92	0.60	6.80
<i>Straminergon stramineum</i>	<i>Str.str</i>	3 (2)	71 (3)	34.62 **	0.134	-1.82	0.072	13 (2)	96 (11)	31.13 ***	0.101	2.67 **	0.145	12.93	1.51	16.32
<i>Tomentypnum nitens</i>	<i>Tom.nit</i>	-	1 (1)	0.56	0.025	0.56	0.099	22 (7)	41 (5)	-15.56 *	-0.059	-9.47	-0.046	10.59	0.77	6.74
<i>Brachythecium rivulare</i>		-	-	n. a.	n. a.	n. a.	n. a.	-	31 (3)	17.42 **	0.119	1.69	0.099	n. a.	n. a.	n. a.
<i>Breidleria pratensis</i>		-	-	n. a.	n. a.	n. a.	n. a.	4 (1)	31 (2)	10.40 *	0.067	-0.63	0.034	n. a.	n. a.	n. a.
<i>Meesia triquetra</i>		1 (1)	-	-1.75	-0.063	-1.75	-0.08	7 (-)	1 (1)	-11.72 ***	-0.096	0.56	0.057	n. a.	n. a.	n. a.
<i>Paludella squarrosa</i>		-	-	n. a.	n. a.	n. a.	n. a.	9 (3)	6 (-)	-12.42 **	-0.09	-5.26	-0.107	n. a.	n. a.	n. a.
<i>Rhytidiadelphus squarrosus</i>		-	6 (1)	3.37	0.057	0.56	0.089	-	19 (-)	10.67 **	0.095	n. a.	n. a.	18.68	1.14	11.57
<i>Sphagnum denticulatum</i>		-	18 (1)	10.11	0.26	0.56	0.126	-	18 (1)	10.11	0.128	0.56	0.057	9.67	0.56	9.79
<i>Sphagnum inundatum</i>		2 (2)	10 (-)	2.11	-0.079	-3.51	-0.262	1 (1)	17 (1)	7.80	0.073	-1.19	-0.045	10.22	0.64	7.79
<i>Sphagnum magellanicum</i>		4 (1)	1 (-)	-6.46 ***	-0.131	-1.75	-0.08	-	1 (-)	0.56	0.042	n. a.	n. a.	12.66	0.94	5.29
<i>Sphagnum papillosum</i>		5 (4)	19 (2)	1.90	-0.021	-5.89	0.169	1 (1)	6 (2)	1.62	0.056	-0.63	0.035	10.53	0.34	6.30
<i>Sphagnum subsecundum</i>		3 (2)	4 (2)	-3.02 *	-0.198	-2.39	-0.029	4 (2)	15 (-)	1.41	-0.013	-3.51	-0.145	9.06	0.52	8.14

Frequency change (freq. change) and *frequency\*cover change* (freq\*c change) in the two pH-classes. n = number of plots in which the species occurred in the historical (n<sub>0</sub>) and recent (n<sub>1</sub>) data set, either large (the first value) or precise (value in parenthesis). While freq. change refers simply to a change in percentage frequency tested by the Fisher's exact test (\*\*\* = p < 0.001; \*\* = p < 0.01; \* = p < 0.05), the freq\*c change refers to the frequency change weighted by square-root of species' percentage cover.

Biomass of *Sarmentypnum exannulatum*, *Hamatocaulis vernicosus* and *Straminergon stramineum* were not sampled in the study region by Hájek et al. (2014; Patterns in moss element concentrations in fens across species, habitats, and regions. Perspectives in Plant Ecology, Evolution and Systematics 16: 203–218.). The concentrations of nutrients comes from the Western Bohemian Springs (in the case of *Sarmentypnum exannulatum*) and from the Western Carpathians (in the cases of *Hamatocaulis vernicosus* and *Straminergon stramineum*).