

Electronic supplementary material, Table 1. The abiotic characteristics of investigated localities and their diversity and disparity characteristics

No.	Region and Locality	Description	Coordinates	Altitude m a.s.l.	Area m <sup>2</sup>	Depth cm	pH	Conduct μS.cm <sup>-1</sup>	TN mg.l <sup>-1</sup>	TP	NO <sub>3</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	DRP	S-W	R	PD1	PD2	ID	C
1	Rhön, “Schwarzes Moor” peat bog	<i>Sphagnum</i> tussocks from a peat bog pool	50°34'54.66"N 10°04'04.15"E	775	30	3 - 5	4.3	41	11.8	0.23	0.03	0.02	0.09	1.34	5	2596	499	282	683424
2	Rhön, “Schwarzes Moor” peat bog	<i>Sphagnum</i> tussocks and epipelon from a peat bog pool	50°30'58.19"N 10°04'04.70"E	775	1	30	4.2	65	14.0	0.73	0.1	0.02	0.14	1.11	4	1511	348	162	706315
3	western Krušné Hory Mts., “Lícha” peat bog	epipelon and submerged mosses from littoral of a peat bog pool	50°23'30.045"N 12°37'46.84"E	895	40	3-5	4.3	52	3.6	0.24	0.3	0.03	0.22	1.52	9	1846	678	246	598623
4	western Krušné Hory Mts., “Velký Močál” peat bog	epipelon from a peat bog pool	50°23'41.386"N 12°38'16.618"E	880	2	2-3	4.0	40	0.3	0.13	0.3	0.02	0.16	0.85	6	3253	491	157	727451
5	Šumava Mts., “Mlynářská slat” peat bog	<i>Sphagnum</i> tussocks and epipelon from a peat bog pool	49°1'20.277"N 13°27'30.229"E	995	0.7	7-9	3.9	37	10.0	0.15	0.3	0.01	0.12	0.67	6	3262	467	79	728463
6	Šumava Mts., close to Modrava village	<i>Sphagnum</i> tussocks and epipelon from a meadow peaty pool	49°1'28.133"N 13°29'16.899"E	940	6	2-3	4.8	9	18.5	0.74	0.1	0.08	0.03	0.90	6	1268	305	95	757795
7	“Rybníčky u Podbořánek” mire	epipelon, submerged mosses and <i>Sphagnum</i> from littoral of a peaty pond	50°2'33.32"N 13°26'26.813"E	480	10 000	10-15	6.8	130	5.5	0.22	0.33	0.03	0.03	1.82	13	3776	894	299	690860
8	eastern Krušné Hory Mts., “Novodomské rašeliniště” peat bog	epipelon and submerged mosses from littoral of a peaty pond	50°32'33.314"N 13°17'4.31"E	805	26400	2-7	4.2	30	3.4	0.51	0.5	0.05	0.16	0.79	3	3160	663	68	650415
9	eastern Krušné Hory Mts.	epipelon from a peaty pond	50°32'37.798"N 13°17'58.313"E	800	5	2-3	5.6	61	2.1	0.19	0.4	0	0.03	0.76	13	3674	744	364	588015
10	Labské Pískovce	epipelon from	50°50'13.952"N	260	15	15	6.8	191	8.4	0.32	1.3	0.01	0.06	1.27	8	3590	701	189	570640

	Mts.	a peaty pond	14°11'46.273"E																
11	České Středohoří Mts., "Březina" mire	epipelon and submerged mosses from a pool	50°32'54.637"N 13°54'14.32"E	580	50	10	7.0	102	6.0	0.24	0	0.03	0.02	2.55	19	3395	865	330	645795
12	Central Bohemia, "V Bahnách" mire	epipelon and submerged mosses from a pool	50°10'27.95"N 13°51'31.09"E	418	5	4-6	6.2	210	0.25	0.19	0.25	0.08	0.08	1.55	14	2386	502	139	543828
13	Doksy region, "Swamp" mire	epipelon, submerged mosses and plants from a pool	50°34'41.546"N 14°39'39.396"E	266	5	2-4	6.6	246	2.1	0.24	0.3	0.02	0.35	2.47	21	3965	668	390	675395
14	Doksy region, "Staré Splavy" mire	epipelon, submerged mosses and plants from a pool	50°35'44.334"N 14°38'43.631"E	272	6	1-3	4.8	110	6.7	0.23	0.43	0.07	0.06	1.70	10	2104	508	256	575385
15	Doksy region, "Swamp" mire	epipelon and decaying organic matter from a pool	50°34'33.701"N 14°40'15.474"E	265	20	5	5.2	62	1.3	0.14	0.25	0.03	0.22	1.51	10	1220	741	127	559360
16	Doksy region, "Břehyně" mire	epipelon and submerged plants from a pool	50°35'1.241"N 14°42'11.807"E	275	7	10	6.1	137	2.8	0.21	0.08	0.02	0.25	2.87	32	2419	397	296	608963
17	Doksy region, "Břehyně" mire	decaying organic matter and submerged plants from a pool	50°35'2.645"N 14°43'1.988"E	275	50	6-10	5.9	88	4.0	0.16	0	0.003	0.08	2.53	18	3131	581	296	592547
18	Doksy region, "Břehyně" mire	epipelon and submerged plants from a pool	50°35'1.347"N 14°43'0.775"E	275	50	20	5.9	82	0	0.14	0.2	0.008	0.08	2.27	19	3345	778	273	583260
19	Třeboňsko region, "Borkovická Blata" mire	epipelon, submerged mosses and plants from a pool	49°14'8.213"N 14°37'26.553"E	420	8	15	6.1	65	0.5	0.3	0.5	0.04	0.05	1.81	12	5033	1100	383	570146
20	Třeboňsko region, "Borkovická	epipelon, submerged mosses and	49°14'11.27"N 14°37'20.571"E	420	10	10-13	5.8	56	1.5	0.27	0.4	0.04	0.09	1.85	13	2276	757	294	685199

	Blata” mire	plants from a pool																	
21	Třeboňsko region, “Hliníř” peat bog	epipelon, submerged mosses and plants from a pool	49°8'9.249"N 14°40'46.635"E	425	25	2-3	5.4	90	0.4	0.32	0.02	0.003	0.18	1.92	11	2601	625	291	584036
22	Novohradské Hory Mts., “Hut’ský rybník” pond	epipelon and submerged plants from littoral of a peaty pond	48°39'18.781"N 14°40'59.132"E	813	50 000	30	6.1	69	8.8	0.30	0.25	0.20	0.06	2.62	26	3276	521	320	635490
23	Novohradské Hory Mts., “Uhlišt’ský rybník” pond	decaying <i>Sphagnum</i> biomass from littoral of a peaty pond	48°38'47.242"N 14°39'19.406"E	818	5000	12-15	5.5	43	7.8	0.69	0.3	0.06	0.02	2.26	19	2032	555	270	668833
24	Pohorje Mts., “Falski rybnik” peat bog	epipelon and submerged mosses from a pool	46°29'00.99"N 15°24'53.94"E	1270	4	2-5	5.8	51	8.0	0.21	0.2	0.39	0.11	1.63	11	2491	482	257	573266
25	Pohorje Mts., “Falski rybnik” peat bog	epipelon and submerged mosses from a pool	46°28'51.06"N 15°24'56.14"E	1250	25	1-2	5.5	30	10.7	0.31	0.1	0.12	0.15	1.82	10	1932	467	238	689144
26	Pohorje Mts., “Črno jezero” peat bog	epipelon, submerged mosses from a pool	46°26'57.09"N 15°25'52.37"E	1197	5000	6-9	4.6	32	7.7	0.45	0	0.13	0.14	1.19	6	5569	776	328	595361
27	Pohorje Mts., “Črno jezero” peat bog	epipelon from a pool	46°27'04.59"N 15°25'55.15"E	1190	1	2	4.8	35	12.9	0.22	0.1	0.13	0.20	0.90	9	3066	880	180	618188
28	Vihorlat Mts., “Podstavka” peat bog	epipelon from a pool	48°55'19.61"N 22°09'30.86"E	755	2	6	6.2	45	7.7	0.18	0.1	0.0025	0.06	1.67	10	3113	704	308	648518
29	Vihorlat Mts., “Podstavka” peat bog	epipelon from a pool	48°55'18.52"N 22°09'28.29"E	755	1	4-6	6.0	36	7.1	0.14	0.18	0.005	0.13	2.31	17	4319	564	427	551266
30	Vihorlat Mts., “Hybkaňa” peat bog	epipelon from a pool	48°54'47.29"N 22°09'48.60"E	860	5	6-8	4.1	30	9.6	0.18	0.3	0.02	0.13	0.76	3	1587	455	49	635624

TN – total nitrogen, TP – total phosphorus, DRP – dissolved reactive phosphorus, S-W – Shannon-Wiener index of species diversity, R – species richness, PD1 – partial morphological disparity of samples based on the cell counts, PD2 - partial morphological disparity of samples based on the species presence/absence data, ID – sample disparity, C – average cell complexity



<i>Cl. striolatum</i>	CLST		7			39	3				6	79
<i>Cl. turgidum</i>	CLTU									4		
<i>Cosmarium amoenum</i>	COAM									2	1	
<i>Cm. angulosum</i>	COAN						3				1	
<i>Cm. blyttii</i>	COBL						2					
<i>Cm. blyttii</i> var. <i>novae-sylvae</i>	COBN								3			
<i>Cm. caelatum</i>	COCA										4	1
<i>Cm. contractum</i>	COCO					1						
<i>Cm. contractum</i> var. <i>minutum</i>	COCM										1	
<i>Cm. debaryi</i>	CODB				4							
<i>Cm. depressum</i>	CODE		7									
<i>Cm. difficile</i>	CODI					11	1			2	1	4
<i>Cm. formosulum</i>	COFO				3							
<i>Cm. granatum</i>	COGR							1				
<i>Cm. humile</i>	COHU			5		3	7			1		
<i>Cm. limnophilum</i>	COLI							1				
<i>Cm. margaritifera</i>	COMA								1	1		
<i>Cm. medioretusum</i>	COME								1			
<i>Cm. obliquum</i>	COOB		2									2
<i>Cm. obtusatum</i>	COOT				4							
<i>Cm. ochthodes</i>	COOC				4							
<i>Cm. ovale</i>	COOV								7	2		
<i>Cm. pachydermum</i>	COPA				1							
<i>Cm. paraganatoides</i>	COPR					2		1				
<i>Cm. phaseolus</i> var. <i>elevatum</i>	COPH					1						
<i>Cm. polygonum</i> var. <i>depressum</i>	COPD			1								
<i>Cm. pseudoornatum</i>	COPO					1		1				
<i>Cm. pseudopyramidatum</i>	COPP						2					1
<i>Cm. pseudoretusum</i>	COPT					21						
<i>Cm. punctulatum</i> var. <i>subpunctulatum</i>	COPU								1		5	
<i>Cm. pygmaeum</i>	COPY	41		78	83							
<i>Cm. pygmaeum</i> var. <i>heimerlii</i>	COPI											35
<i>Cm. pyramidatum</i>	COPM								8	2		
<i>Cm. quadratulum</i>	COQA										8	1
<i>Cm. quadratum</i>	COQU								3			3
<i>Cm. rectangulare</i>	CORC								1			
<i>Cm. regnellii</i>	CORE			5	5		7			1	1	5
<i>Cm. reniforme</i>	CORN					1					1	
<i>Cm. sinostegos</i>	COSI										1	
<i>Cm. sphagnicolum</i>	COSP			10								
<i>Cm. sphyrelatum</i>	COSY								4			





Electronic supplementary material, Table 3. Partial morphological disparity (PD) and cell complexity (C) values of individual species.

		PD	C
<i>Actinotaenium cucurbita</i>	ACCU	12.2	5558
<i>Ac. inconspicuum</i>	ACIN	16.1	7201
<i>Ac. kriegeri</i>	ACKR	11.2	5338
<i>Ac. perminutum</i>	ACPM	14.4	5580
<i>Ac. silvae-nigrae</i> var. <i>silvae-nigrae</i>	ACSN	11.9	5416
<i>Ac. silvae-nigrae</i> var. <i>parallellum</i>	ACSP	13.6	5504
<i>Ac. turgidum</i>	ACTG	14.1	5751
<i>Bambusina brebisoni</i>	BABR	12.3	5577
<i>Closterium acutum</i>	CLAC	29.7	5255
<i>Cl. archerianum</i> var. <i>pseudocynthia</i>	CLAR	39.6	5502
<i>Cl. bailyanum</i> var. <i>bailyanum</i>	CLBY	24.6	5307
<i>Cl. bailyanum</i> var. <i>alpinum</i>	CLBA	25.3	5304
<i>Cl. calosporum</i> var. <i>brasiliense</i>	CLCA	26.9	5327
<i>Cl. closterioides</i>	CLCO	21.1	5443
<i>Cl. cornu</i>	CLCR	25.2	5224
<i>Cl. costatum</i>	CLCT	24.8	5340
<i>Cl. cynthia</i>	CLCY	34.5	5582
<i>Cl. diana</i> var. <i>diana</i>	CLDI	32.8	5509
<i>Cl. diana</i> var. <i>minus</i>	CLDM	29.0	5381
<i>Cl. diana</i> var. <i>pseudodiana</i>	CLDP	29.1	5346
<i>Cl. directum</i>	CLDR	26.2	5216
<i>Cl. ehrenbergii</i>	CLEH	26.1	5469
<i>Cl. gracile</i>	CLGR	26.0	5105
<i>Cl. incurvum</i>	CLIN	42.8	5821
<i>Cl. intermedium</i>	CLIT	23.1	5140
<i>Cl. juncidum</i>	CLJU	25.5	5295
<i>Cl. kützingii</i>	CLKU	25.3	5133
<i>Cl. lineatum</i> var. <i>lineatum</i>	CLLI	24.0	5115
<i>Cl. lineatum</i> var. <i>elongatum</i>	CLLE	24.6	4999
<i>Cl. lunula</i>	CLLU	19.5	5218
<i>Cl. moniliferum</i>	CLMO	31.4	5596
<i>Cl. navicula</i>	CLNA	17.8	5554
<i>Cl. parvulum</i>	CLPA	27.1	5389
<i>Cl. praelongum</i>	CLPR	25.0	5056
<i>Cl. ralfsii</i> var. <i>hybridum</i>	CLRH	24.4	5217
<i>Cl. rostratum</i>	CLRO	22.4	5225
<i>Cl. setaceum</i>	CLSE	24.9	4936
<i>Cl. striolatum</i>	CLST	22.0	5306
<i>Cl. turgidum</i>	CLTU	23.6	5172
<i>Cosmarium amoenum</i>	COAM	6.8	6132
<i>Cm. angulosum</i>	COAN	8.1	6286
<i>Cm. blytii</i>	COBL	13.3	7629
<i>Cm. blytii</i> var. <i>novae-sylvae</i>	COBN	11.7	7238
<i>Cm. caelatum</i>	COCA	20.7	7249
<i>Cm. contractum</i>	COCO	10.6	6693
<i>Cm. contractum</i> var. <i>minutum</i>	COCM	11.8	7036
<i>Cm. debaryi</i>	CODB	9.1	5801
<i>Cm. depressum</i>	CODE	26.3	7529
<i>Cm. difficile</i>	CODI	8.6	7037
<i>Cm. formosulum</i>	COFO	20.0	6999
<i>Cm. granatum</i>	COGR	15.6	7064
<i>Cm. humile</i>	COHU	16.3	7085
<i>Cm. limnophilum</i>	COLI	14.1	7130
<i>Cm. margaritifera</i>	COMA	13.6	7460
<i>Cm. medioretusum</i>	COME	17.6	7148



<i>Cm. obliquum</i>	COOB	10.2	6005
<i>Cm. obtusatum</i>	COOT	22.5	7094
<i>Cm. ochthodes</i>	COOC	13.8	7276
<i>Cm. ovale</i>	COOV	9.0	6964
<i>Cm. pachydermum</i>	COPA	9.0	6755
<i>Cm. paraganatoides</i>	COPR	17.1	7318
<i>Cm. phaseolus</i> var. <i>elevatum</i>	COPH	22.3	6778
<i>Cm. polygonum</i> var. <i>depressum</i>	COPD	21.2	7039
<i>Cm. pseudoornatum</i>	COPO	16.3	7280
<i>Cm. pseudopyramidatum</i>	COPP	11.2	7081
<i>Cm. pseudoretusum</i>	COPT	23.0	7047
<i>Cm. punctulatum</i> var. <i>subpunctulatum</i>	COPU	13.2	6939
<i>Cm. pygmaeum</i>	COPY	35.2	7544
<i>Cm. pygmaeum</i> var. <i>heimerlii</i>	COPI	62.6	7021
<i>Cm. pyramidatum</i>	COPM	10.4	7263
<i>Cm. quadratulum</i>	COQA	10.4	7199
<i>Cm. quadratum</i>	COQU	9.0	6532
<i>Cm. rectangulare</i>	CORC	15.3	7214
<i>Cm. regnellii</i>	CORE	18.5	7246
<i>Cm. reniforme</i>	CORN	18.3	6939
<i>Cm. sinostegos</i>	COSI	32.4	7230
<i>Cm. sphagnicolum</i>	COSP	24.0	6275
<i>Cm. sphyrelatum</i>	COSY	11.1	7504
<i>Cm. subcostatum</i>	COSU	14.7	7194
<i>Cm. subcostatum</i> var. <i>minus</i>	COSM	13.8	7437
<i>Cm. subgranatum</i>	COSG	17.0	7191
<i>Cm. subtumidum</i> var. <i>groenvaldii</i>	COST	10.7	7142
<i>Cm. tetraophtalmum</i>	COTR	10.0	7090
<i>Cm. tinctum</i>	COTI	11.6	5906
<i>Cm. tinctum</i> var. <i>subretusum</i>	COTS	24.5	6111
<i>Cm. variolatum</i>	COVA	12.3	7193
<i>Cm. venustum</i> var. <i>excavatum</i>	COVE	18.2	7393
<i>Desmidium aptogonum</i>	DEAP	70.6	5001
<i>Ds. grevillei</i>	DEGR	53.7	4773
<i>Ds. swartzii</i>	DESW	89.5	4476
<i>Euastrum ansatum</i>	EUAN	8.3	7452
<i>Eu. bidentatum</i>	EUBI	14.2	7787
<i>Eu. binale</i> var. <i>gutwinskii</i>	EUBG	12.3	7442
<i>Eu. denticulatum</i>	EUDE	26.6	8162
<i>Eu. dubium</i>	EU DU	29.7	7786
<i>Eu. gayanum</i>	EUGA	34.7	7533
<i>Eu. humerosum</i>	EUHU	8.0	7552
<i>Eu. montanum</i>	EUMO	10.0	7267
<i>Eu. oblongum</i>	EUOB	11.9	8979
<i>Eu. pectinatum</i>	EUPE	10.8	8223
<i>Eu. subalpinum</i> var. <i>subalpinum</i>	EUSU	10.0	7654
<i>Eu. subalpinum</i> var. <i>crassum</i>	EUSC	11.4	7898
<i>Eu. verrucosum</i>	EUVE	27.1	8485
<i>Haplotaenium minutum</i>	HPMI	22.6	5452
<i>Hp. rectum</i>	HPRE	27.5	5423
<i>Hyalotheca dissiliens</i>	HYDI	62.4	4849
<i>Micrasterias americana</i>	MIAM	106.9	11079
<i>Mc. crux-melitensis</i>	MICM	145.5	10838
<i>Mc. jenneri</i>	MIJN	98.4	9958
<i>Mc. pinnatifida</i>	MIPI	96.3	10014
<i>Mc. rotata</i>	MIRO	178.6	15543
<i>Mc. thomasi</i> var. <i>notata</i>	MITH	169.8	15981
<i>Mc. truncata</i>	MITR	68.4	9787
<i>Penium cylindrus</i>	PECY	13.5	5680

<i>Pn. spirostriolatum</i>	PESS	23.7	5409
<i>Pl. archeri</i>	PLAR	27.8	5494
<i>Pl. crenulatum</i>	PLCR	25.3	5453
<i>Pl. ehrenbergii</i>	PLEH	26.2	5480
<i>Pl. trabecula</i>	PLTR	31.0	5627
<i>Sphaerozosma aubertianum</i>	SPAU	67.8	6919
<i>Spondylosium pulchellum</i>	SDPU	12.5	7315
<i>Staurastrum aculeatum</i>	STAC	61.8	7373
<i>St. alternans</i>	STAL	45.9	6625
<i>St. controversum</i>	STCO	28.3	7195
<i>St. cristatum</i>	STCR	57.0	7142
<i>St. eurycerum</i>	STEU	61.6	7140
<i>St. furcatum</i> var. <i>aciculiferum</i>	STFA	46.7	7297
<i>St. hirsutum</i>	STHI	29.7	6808
<i>St. inflexum</i>	STIF	49.2	6967
<i>St. laponicum</i>	STLA	36.9	6445
<i>St. margaritaceum</i>	STMA	18.4	6895
<i>St. micronoides</i>	STMI	90.7	7397
<i>St. minimum</i>	STMN	92.2	7411
<i>St. orbiculare</i> var. <i>ralfsii</i>	STOR	40.6	7094
<i>St. polymorphum</i> var. <i>polymorphum</i>	STPM	61.7	7594
<i>St. polymorphum</i> var. <i>pygmeum</i>	STPP	46.5	6822
<i>St. pseudotetracerum</i>	STPT	106.6	7118
<i>St. punctulatum</i>	STPU	31.7	6336
<i>St. scabrum</i>	STSC	38.2	6886
<i>St. simonyi</i>	STSI	36.7	6696
<i>St. spongiosum</i>	STSP	32.8	6649
<i>St. teliferum</i>	STTE	25.5	6325
<i>Staurodesmus convergens</i>	SDCO	34.7	7143
<i>Sd. dejectus</i>	SDDE	41.7	7051
<i>Sd. extensus</i> var. <i>extensus</i>	SDEX	12.2	6438
<i>Sd. extensus</i> var. <i>isthmosus</i>	SDEI	17.1	6151
<i>Sd. glaber</i>	SDGL	36.1	6270
<i>Sd. spencerianus</i>	SDSP	40.6	6617
<i>Teilingia granulata</i>	TEGR	46.2	6478
<i>Tetmemorus brebissonii</i>	TTBR	9.8	5505
<i>Tm. granulatus</i>	TTGR	10.6	5276
<i>Tm. laevis</i>	TTLA	6.8	5542
<i>Xanthidium antilopaeum</i> var. <i>laeve</i>	XAAL	13.2	6815
<i>Xn. concinnum</i>	XACO	24.1	6838
<i>Xn. fasciculare</i>	XAFA	15.3	7081