



Supplement of

Analyses of floristic composition of the abandoned Cu-dump field Piesky (Staré Hory Mountains, Slovakia)

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Analyses of floristic composition of the abandoned Cu-dump field Piesky (Starohorské vrchy Mts, Slovakia) - Supplement

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Phytocenological relevés and indexes of diversity, metallophytisation, anthropophytisation (synthetic tables and graphs)

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Section S1 Summary representation of indexes and ecological numbers determined

Table S1. List of the indexes of diversity, metallophytisation, anthropophytisation and naturalness for individual sites and habitat types

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA
Phytocenological relevés / sites	1	2	3	4	5	6	7	8	9	10	11	
Date	26.6.11	26.6.11	13.9.13	13.9.13	26.6.11	26.6.11	26.6.11	26.6.11	13.9.13	13.9.13	13.9.13	
Slope (°)	2	35	30	30	30	40	5	5	20	10	0	
Exposition	W	NE	NW	NW	SW	SW	NW	N	NNW	NW	0	
Exposition (in degrees)	270	45	315	315	225	225	315	0	337,5	315	0	
Altitude (above sea level)	759	762	844	858	761	763	738	770	850	860	835	
Latitude (from GPS)	N 48° 49.064'	N 48° 49.057'	N 48° 49.940'	N 48° 49.499'	N 48° 49.081'	N 48° 49.074'	N 48° 49.104'	N 48° 49.081'	N 48° 49.671'	N 48° 49.324'	N 48° 49.052'	
Longitude (from GPS)	E 19° 07.687'	E 19° 07.691'	E 19° 07.480'	E 19° 07.564'	E 19° 07.676'	E 19° 07.687'	E 19° 07.601'	E 19° 07.653'	E 19° 07.546'	E 19° 07.795'	E 19° 07.932'	
Area of the relevé (m x m)	16	16	10	16	4	4	16	16	400	400	16	
Abundance (%) Etotal	100	70	60	50	55	70	99	100	75	85	70	
E3	0	0	0	0	0	0	0	0	60	50	0	
E2	0	0	0	3	0	0	0	0	7	35	0	
E1	100	70	50	40	55	70	99	100	40	20	70	
E0	40	50	50	50	5	10	15	10	60	70	0	
Total abundance in relevés	159,2	94,0	50,0	30,5	46,1	98,4	133,2	156,3	86,1	96,2	71,0	Total
Total number of all taxa	37	20	5	11	14	20	41	33	22	25	11	114
Alpha species richness (all taxa)	37,00		14,00				37,00		23,50		11,00	21,73
Gamma species richness (all taxa)	37		36				55		32		11	114
Beta species richness (all taxa)	1,00		2,57				1,49		1,36		1,00	5,25
Number of bryophytes	7	9	3	4	4	6	5	6	8	8	0	21
Alpha species richness (bryophytes)	7,00		5,20				5,50		8,00		0,00	5,45
Gamma species richness (bryophytes)	7		11				8		10		0	21
Beta species richness (bryophytes)	1,00		2,12				1,45		1,25		0,00	3,85
Number of vascular plants	30	11	2	7	10	14	36	27	14	17	11	93

Very simple site statistics

Aver	Min	Max	StDev
18,8	0,0	40,0	14,8
214,8	0,0	337,5	134,0
800,0	738,0	860,0	48,4

Aver	Min	Max	StDev
10,0	0,0	60,0	22,36
4,0	0,0	35,0	10,49
64,9	20,0	100,0	26,98
32,7	0,0	70,0	25,04

Aver	Min	Max	StDev
92,8	30,5	159,2	43,05

Alpha species richness (vascular plants)	30,00	8,80					31,50		15,50		11,00	16,27				
Gamma species richness (vascular plants)	30	25					47		22		11	93				
Beta species richness (vascular plants)	1,00	2,84					1,49	1,42		1,00	5,72	Aver	Min	Max	StDev	
Number of metallophytes	6	1	1	2	1	3	7	5	1	3	1	12	2,82	1,0	7,0	2,23
Average number of metallophytes (per habitat)	6,00	1,60					6,00		2,00		1,00	Total	Aver	Min	Max	StDev
Number of all invasive alien taxa	0	0	0	0	0	0	0	1	0	0	4	5	0,45	0,0	4,0	1,21
Average number of all invasive alien taxa (per habitat)	0,00	0,00					0,50		0,00		4,00					
Obligatory invasive taxa	0	0	0	0	0	0	0	1	0	0	2	3	0,27	0,0	2,0	0,65
Casually invasive taxa	0	0	0	0	0	0	0	0	0	0	2	2	0,18	0,0	2,0	0,60
Naturalized alien taxa	0	0	0	0	0	1	5	0	0	0	3	8	0,82	0,0	5,0	1,66
Average number of naturalized alien taxa (per habitat)	0,00	0,20					2,50		0,00		3,00	Total	Aver	Min	Max	StDev
Number of synanthrophites	20	5	2	5	8	8	27	18	2	6	8	54	12,02	4,0	22,5	8,59
Average number of synanthrophites (per habitat)	20,00	5,60					22,50		4,00		8,00					
Obligatory synanthrophites	4	1	0	0	1	1	9	5	0	0	6	20	3,91	0,0	11,0	4,13
Locally strong facultative synanthrophites	11	1	0	1	5	4	11	7	0	2	1	22	3,55	1,0	7,0	1,86
Locally weak facultative synanthrophites	5	3	2	4	2	3	7	6	2	4	1	12	10,09	2,0	27,0	8,09
Number of alien taxa or synanthrophites	20	5	2	5	8	8	27	18	2	6	10	56	12,42	4,0	22,5	8,40
Average number of alien taxa or synanthrophites (per habitat)	20,00	5,60					22,50		4,00		10,00	Total	Aver	Min	Max	StDev
Number of native non-apophytes	10	6	0	2	2	5	8	9	12	11	1	36	6,80	1,0	11,5	4,56
Average number of native non-apophytes (per habitat)	10,00	3,00					8,50		11,50		1,00					
Number of taxa occurring naturally	26	10	2	7	9	13	27	22	14	17	5	73	15,84	5,0	26,0	9,41
Average number of naturally occurring taxa (per habitat)	26,00	8,20					24,50		15,50		5,00					
Shannon-Wiener diversity index (all taxa)	2,85	1,70	1,08	2,09	2,14	2,09	2,87	2,64	2,32	2,39	1,47		2,25	1,5	2,8	0,60
Average SW index (Alpha diversity)	2,85	1,82					2,76		2,36		1,47					
Pielou's evenness index (all taxa)	0,79	0,57	0,67	0,87	0,81	0,70	0,77	0,76	0,75	0,74	0,00		0,60	0,0	0,8	0,34
Average evenness index (all taxa)	0,79	0,72					0,76		0,75		0,00					
1st True diversity index (all taxa)	17,22	5,48	2,93	8,12	8,50	8,07	17,64	14,03	10,20	10,96	4,34		10,92	4,34	17,22	5,61
Average 1st True diversity index (all taxa)	17,22	6,62					15,84		10,58		4,34					
2nd True diversity index (all taxa)	3,21	1,64	1,50	2,58	2,32	2,21	2,95	2,97	2,40	2,62	1,66		2,48	1,66	3,21	0,64
Average True diversity index (all taxa)	3,21	2,05					2,96		2,51		1,66					
Shannon-Wiener diversity index (bryophytes)	0,78	0,73	1,15	0,93	0,86	0,76	0,80	0,76	0,74	0,76	0,00		0,64	0,0	0,9	0,36

Average SW index (bryophytes)	0,78	0,89					0,78		0,75		0,00					
Pielou´s evenness index (bryophytes)	0,40	0,33	1,05	0,67	0,62	0,42	0,49	0,42	0,36	0,37	0,00		0,37	0,0	0,6	0,23
Average evenness index (bryophytes)	0,40	0,62					0,46		0,36		0,00					
1st True diversity index (bryophytes)	2,18	2,09	3,16	2,54	2,37	2,14	2,22	2,14	2,11	2,14	1,00		1,99	1,00	2,46	0,57
Average 1st True diversity index (bryophytes)	2,18	2,46					2,18		2,12		1,00					
2nd True diversity index (bryophytes)	1,98	2,29	1,32	1,61	1,94	2,31	2,18	2,31	2,21	2,00	0,00		1,64	0,00	2,24	0,93
Average 2nd True diversity index (bryophytes)	1,98	1,89					2,24		2,10		0,00					
Shannon-Wiener diversity index (vascular plants)	2,59	0,75	0,50	1,60	1,77	1,76	2,68	2,45	1,70	1,95	1,47		1,94	1,3	2,6	0,61
Average SW index (vascular plants)	2,59	1,28					2,56		1,83		1,47					
Pielou´s evenness index (vascular plants)	0,76	0,31	0,72	0,82	0,77	0,67	0,75	0,74	0,64	0,69	0,61		0,69	0,6	0,8	0,06
Average evenness index (vascular plants)	0,76	0,66					0,75		0,67		0,61					
1st True diversity index (vascular plants)	13,30	2,12	1,65	4,96	5,86	5,83	14,63	11,53	5,46	7,06	4,34		8,21	4,09	13,30	4,62
Average 1st True diversity index (vascular plants)	13,30	4,09					13,08		6,26		4,34					
2nd True diversity index (vascular plants)	2,87	1,17	1,21	2,02	1,99	1,99	2,74	2,79	1,81	2,19	1,66		2,20	1,66	2,87	0,58
Average 2nd True diversity index (vascular plants)	2,87	1,68					2,76		2,00		1,66					
Relative weighted abundance of metallophytes	0,216	0,426	0,400	0,205	0,217	0,318	0,187	0,268	0,015	0,019	0,008		0,21	0,01	0,43	0,15
Average relative weighted abundance of metallophytes (per habitat)	0,216	0,313					0,227		0,017		0,008					
Metallophytisation index	0,158	0,235	0,325	0,174	0,133	0,212	0,142	0,180	0,025	0,053	0,027		0,15	0,03	0,33	0,09
Average metallophytisation index (per habitat)	0,158	0,216					0,161		0,039		0,027					
Relative weighted abundance of invasive alien taxa	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,008	0,000	0,000	0,079		0,01	0,00	0,08	0,02
Average relative weighted abundance of invasive alien taxa (per habitat)	0,000	0,000					0,004		0,000		0,079					
Invasive alien taxa index	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,022	0,000	0,000	0,176		0,04	0,00	0,18	0,08
Average invasive alien taxa index	0,000	0,000					0,011		0,000		0,176		Aver	Min	Max	StDev
Relative weighted abundance of synanthrophites	0,580	0,147	0,125	0,137	0,441	0,298	0,440	0,470	0,007	0,028	0,810		0,32	0,01	0,81	0,25
Average relative weighted abundance of synanthrophites (per habitat)	0,580	0,230					0,455		0,018		0,810					
Synanthropisation index	0,528	0,176	0,125	0,167	0,502	0,323	0,491	0,455	0,013	0,080	0,723		0,33	0,01	0,72	0,23

Average synanthropisation index (per habitat)	0,528	0,258					0,473		0,046		0,723					
Relative weighted abundance of alien taxa or synanthrophites	0,580	0,147	0,125	0,137	0,441	0,298	0,440	0,470	0,007	0,028	0,818		0,32	0,01	0,82	0,26
Average relative weighted abundance of alien taxa or synanthrophites (per habitat)	0,580	0,230					0,455		0,018		0,818					
Aggregated index of invasive alien taxa and synanthropisation	0,528	0,176	0,125	0,167	0,502	0,323	0,491	0,455	0,013	0,080	0,727		0,33	0,01	0,73	0,23
Average synthetic index of invasive alien taxa and synanthropisation	0,528	0,258					0,473		0,046		0,727					
Relative weighted abundance of native non-apophyte species	0,210	0,084	0,000	0,141	0,108	0,482	0,082	0,170	0,942	0,925	0,141		0,30	0,00	0,94	0,34
Average relative weighted abundance of native non-apophyte species (per habitat)	0,210	0,163					0,126		0,934		0,141					
Native non-apophytes index	0,272	0,315	0,000	0,213	0,154	0,419	0,152	0,252	0,900	0,786	0,116		0,33	0,00	0,90	0,28
Average native non-apophytes index (per habitat)	0,272	0,220					0,202		0,843		0,116					
Relative weighted abundance of natural taxa	0,420	0,853	0,875	0,863	0,559	0,702	0,560	0,530	0,993	0,972	0,182		0,68	0,18	0,99	0,26
Average relative weighted abundance of natural taxa (per habitat)	0,420	0,770					0,545		0,982		0,182					
Naturalness index	0,472	0,824	0,875	0,833	0,498	0,677	0,509	0,545	0,987	0,920	0,250		0,67	0,25	0,99	0,23
Average naturalness index (per habitat)	0,472	0,742					0,527		0,954		0,250					

Notes to Table S1.

- 1) Transformation of vegetation survey data into numerical values was done acc. to van der Maaler (2007), alternative 2 (steeper increase)
- 2) As metallophytes we consider taxa acc. to Zarzycki et al. (2002) to which presence of metals is obligatory (weight 1) and those that are metal tolerant (weight 1/2)
- 3) Invasive alien taxa are acc. to Medvecká et al. (2012), who distinguish invasive taxa (always weight 1) and casually invasive (weight 1/4)
- 4) Synanthropic taxa acc. to Jurko (1990), obligatory synanthropic (always weight 1) and native in certain communities, facultatively synanthropic in others
Facultatively synanthropic taxa contributing locally either strongly to synanthropisation (weight 7/8) or weakly (weight 1/8)

A note: The weights allocated to individual categories of taxa reflect their significance concerning the impact of a given taxa on the community specific character

Table S2. Ellenberg indicator values

Habitats	Wetland	Initial successional stages					Grasslands		Forest stands		PWA	Aver	Min	Max	StDev
Phytocenological relevés / sites	1	2	3	4	5	6	7	8	9	10	11				
EIV - Light	6,79	6,90	7,20	7,24	6,86	7,78	7,39	7,46	4,23	4,83	7,68	6,76	4,23	7,78	1,15
EIV - Temperature	4,87	5,00	XXX	5,00	5,73	5,95	5,66	5,86	4,89	3,88	6,31	5,31	3,88	6,31	0,72
EIV - Continentality	3,53	3,07	3,00	4,23	3,08	3,67	3,60	3,68	4,27	4,88	5,01	3,82	3,00	5,01	0,70
EIV - Moisture	6,80	5,00	XXX	5,47	5,42	4,81	4,69	5,47	4,25	5,49	4,11	5,15	4,11	6,80	0,77
EIV - Soil reaction	6,57	3,96	3,40	3,37	4,23	5,41	5,47	5,87	2,24	2,56	7,04	4,56	2,24	7,04	1,61
EIV - Nutrients	5,12	4,20	3,60	5,55	5,42	4,45	5,18	5,28	2,83	3,58	7,18	4,76	2,83	7,18	1,20

Section S2 Basic dataset - phytocenological relevés

Table S3. Abundance of taxa in E0 (Braun-Blanquet extended 9 degrees scale)

Number of the taxa determined	0	0	0	0	0	0	0	0	0	0	0	0	0
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Table S4. Abundance of taxa in E1 (Braun-Blanquet extended 9 degrees scale)

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA	Met.-phy.	Antropophytes	
Phytocenological relevés /sites	1	2	3	4	5	6	7	8	9	10	11	Met	Ali	Syn	
Vegetation layers E1															
<i>Equisetum arvense</i>	3											1		*+ab df	
<i>Juncus inflexus</i>	2a														
<i>Eupatorium cannabinum</i>	2b													*+eh	
<i>Carex vesicaria</i>	2a														
<i>Mentha longifolia</i>	2b													e	
<i>Epilobium collinum</i>	1														
<i>Carex hirta</i>	1											1		*+f	
<i>Salix caprea</i>	1														
<i>Lysimachia vulgaris</i>	+														
<i>Juncus articulatus</i>	+													*+gK	
<i>Juncus effusus</i>	+													*g	
<i>Carex muricata</i> agg.	+														
<i>Euphrasia rostkoviana</i>	+														
<i>Cirsium arvense</i>	+													A - Eh	
<i>Calamagrostis epigejos</i>	+											1		*+de	
<i>Rumex obtusifolius</i>	+													n	
<i>Acer pseudoplatanus</i>	+	+					1	1	+						
<i>Cerastium holosteoides</i>		1												abc	
<i>Corylus avellana</i>			r												
<i>Arabidopsis arenosa</i>							3	+	+			1			
<i>Artemisia vulgaris</i>					2a	2b	2a	2a						bc-F	
<i>Festuca pratensis</i>	1						1	1	2b			1		*+ab d	
<i>Arrhenatherum elatius</i>							1	1				1		*de	
<i>Achillea millefolium</i>							2b	1						*DEF	
<i>Galium mollugo</i>							+	2a						*e	
<i>Festuca rubra</i>							+	2b				1			
<i>Tanacetum vulgare</i>							+	2b						de	

															abefg
															JK
<i>Ranunculus repens</i>	+							+	r						J+*
<i>Carduus personata</i>								r	r						cDe
<i>Melilotus albus</i>							2a							nat arch	*a - f
<i>Trifolium pratense</i>							1								Abc
<i>Mentha arvensis</i>							1								
<i>Senecio ovatus</i>							+								
<i>Lotus corniculatus</i>							+						1		*+df
<i>Stellaria nemorum</i>							+								*+EJ
<i>Calystegia sepium</i>							+								ceH
<i>Medicago sativa</i>							+							nat neo	*+de
<i>Cichorium intybus</i>							+						1	nat nec	*+bc
<i>Trifolium flexuosum</i>							+								DEF
<i>Plantago major</i>							+								a - kF
<i>Geranium pratense</i>							2a								*+h
<i>Scrophularia scopolii</i>							1								*+j
<i>Hypericum perforatum</i>							1								*de
<i>Hylotelephium maximum</i>							+								
<i>Solidago canadensis</i>							+							inv	cde
<i>Trifolium repens</i>							+					r			*+A - J
<i>Alchemilla</i> sp.							r								
<i>Trifolium aureum</i>							r								
<i>Abies alba</i>	+			+				1	1						
<i>Vaccinium myrtillus</i>								2b	2b						
<i>Picea abies</i>	1	+								+					
<i>Avenella flexuosa</i>										1	1				
<i>Melampyrum sylvaticum</i>										1	1				
<i>Sorbus aucuparia</i>										1	+				
<i>Rubus idaeus</i>										+			1		*+j
<i>Athyrium filix-femina</i>										r					
<i>Fagus sylvatica</i>															
<i>Pinus sylvestris</i>										r					
<i>Polypodium vulgare</i>									1						
<i>Viscum album</i> subsp. <i>abietis</i>															
<i>Maianthemum bifolium</i>										+					
<i>Tilia platyphyllos</i>										r					

<i>Chenopodium album</i>										3			A - Ef
<i>Datura stramonium</i>										2a		nat neo	cdg
<i>Chenopodium sp.</i>										2a			
<i>Echinochloa crus-galli</i>										1		inv	aBcf
<i>Amaranthus retroflexus</i>										1		inv	Bcde
<i>Solanum nigrum</i>										+		nat arch	bcd
<i>Cannabis sativa</i>										+		cas arch	
<i>Zea mays</i>										+		cas neo	
<i>Hibiscus trionum</i>										r		nat arch	b
Species typical for the whole body heap													
<i>Agrostis capillaris</i>	2b	4	3	1	2b	2b	3	3	1	+		1	*abdf
<i>Acetosella vulgaris</i>		+	2a	1	1		+	+	1	+			*abf
<i>Agrostis stolonifera</i>	1			2a						+	+	1	*jk
<i>Silene dioica</i>		+		2a			+			+			*hJ
<i>Betula pendula</i>		r				1	+	r		+			
Other species													
<i>Acetosa pratensis</i>		+	1				+						
<i>Urtica dioica</i>		+			+	+	1	1					*+HJ
<i>Daucus carota</i>		+			+	+	+	+	+				*+CD
<i>Fallopia dumetorum</i>	1	+					+	+	+				E
<i>Phleum pratense</i>	1					+							*+h
<i>Poa pratensis</i>	+					+							*ab
<i>Symphytum officinale</i>		+						+					*df
<i>Rubus fruticosus</i>		+								+			*+ab
<i>Epilobium lamyi</i>		+			1	+	1	+					eh
<i>Medicago lupulina</i>						1		2a					*+a - f
<i>Veronica chamaedrys</i>						1			1				*+de
<i>Taraxacum sect. Ruderalia</i>						+	+	+					h
<i>Tripleurospermum perforatum</i>						+		r					*+aj
<i>Galeopsis pubescens</i>						+		r					nat arch
<i>Carpinus betulus</i>						+		r					
<i>Rosa canina</i>									r				
<i>Silene latifolia</i> subsp. <i>alba</i>								r					nat arch a - e

Table S5. Abundance of taxa in E2 (Braun-Blanquet extended 9 degrees scale)

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA	Met.-phy.	Antropophytes	
Phytocenological relevés / sites	1	2	3	4	5	6	7	8	9	10	11	Met	Ali	Syn	
Layer E2															
<i>Salix caprea</i>											+				
<i>Abies alba</i>				1					2b	2a					
<i>Picea abies</i>										2a					
<i>Sorbus aucuparia</i>										+					
<i>Fagus sylvatica</i>										r					

Table S6. Abundance of taxa in E3 (Braun-Blanquet extended 9 degrees scale)

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA	Met.-phy.	Antropophytes	
Phytocenological relevés / sites	1	2	3	4	5	6	7	8	9	10	11	Met	Ali	Syn	
Layer E3															
<i>Salix caprea</i>										+					
<i>Abies alba</i>									2b	2a					
<i>Picea abies</i>									1	2b					
<i>Pinus sylvestris</i>									1						
<i>Viscum album</i> subsp. <i>abietis</i>									+						
<i>Betula pendula</i>										1					

Table S7. Vegetation cover in layers E0, E1, E2, E3 after Van der Maaler (2007) transformation of the cover abundance values into a numerical form

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA		
Phytocenological relevés / sites	1	2	3	4	5	6	7	8	9	10	11			
E0 vegetation cover	22,40	41,10	13,70	17,50	8,70	11,10	11,20	11,10	33,70	22,30	0,00			
E1 vegetation cover	159,2	94,0	50,0	28,0	46,1	98,4	133,2	156,3	39,9	39,5	71,0			
E2 vegetation cover	0,0	0,0	0,0	2,5	0,0	0,0	0,0	0,0	20,0	23,0	0,0			
E3 vegetation cover	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	26,2	33,7	0,0			
Subtotal E1+E2+E3	159,2	94,0	50,0	30,5	46,1	98,4	133,2	156,3	86,1	96,2	71,0			
Total E0+E1+E2+E3	181,6	135,1	63,7	48,0	54,8	109,5	144,4	167,4	119,8	118,5	71,0			

Section S3 Indexes of diversity, metallophytisation, invasive alien taxa and non-apophytes proportions, synanthropisation, naturalness

Table S8. Alpha, gamma and beta species richness related to individual relevés and habitats

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA	Total
Phytocenological relevés / sites	1	2	3	4	5	6	7	8	9	10	11		
Total number of taxa	37	20	5	11	14	20	41	33	22	25	11	114	
Alpha species richness (all taxa)	37,00			14,00				37,00		23,50		11,00	21,73
Gamma species richness (all taxa)	37			36				55		32		11	114
Beta species richness (all taxa)	1,00			2,57				1,49		1,36		1,00	5,25
Number of bryophytes	7	9	3	4	4	6	5	6	8	8	0	21	
Alpha species richness (bryophytes)	7,00			5,20				5,50		8,00		0,00	5,45
Gamma species richness (bryophytes)	7			11				8		10		0	21
Beta species richness (bryophytes)	1,00			2,12				1,45		1,25		0,00	3,85
Number of vascular plants	30	11	2	7	10	14	36	27	14	17	11	93	
Alpha species richness (vascular plants)	30,00			8,80				31,50		15,50		11,00	16,27
Gamma species richness (vascular plants)	30			25				47		22		11	93
Beta species richness (vascular plants)	1,00			2,84				1,49		1,42		1,00	5,72

Table S9. Indexes of diversity concerning individual relevés and habitats

Habitats	Wet-land	Initial successional stages						Grasslands		Forest stands		PWA
Phytocenological relevés /sites	1	2	3	4	5	6	7	8	9	10	11	
Shannon-Wiener diversity index (all taxa)	2,85	1,70	1,08	2,09	2,14	2,09	2,87	2,64	2,32	2,39	1,47	
Average SW index (Alpha diversity)	2,85			1,82			2,76		2,36		1,47	
Pielou's evenness index (all taxa)	0,79	0,57	0,67	0,87	0,81	0,70	0,77	0,76	0,75	0,74	0,00	
Average evenness index (all taxa)	0,79			0,72			0,76		0,75		0,00	
1st True diversity index (all taxa)	17,22	5,48	2,93	8,12	8,50	8,07	17,64	14,03	10,20	10,96	4,34	
Average 1st True diversity index (all taxa)	17,22			6,62			15,84		10,58		4,34	
2nd True diversity index (all taxa)	3,21	1,64	1,50	2,58	2,32	2,21	2,95	2,97	2,40	2,62	1,66	
Average True diversity index (all taxa)	3,21			1,64			2,95		2,40		1,66	
(bryophytes)	0,78	0,73	1,15	0,93	0,86	0,76	0,80	0,76	0,74	0,76	0,00	
Average SW index (bryophytes)	0,78			0,89			0,78		0,75		0,00	
Pielou's evenness index (bryophytes)	0,40	0,33	1,05	0,67	0,62	0,42	0,49	0,42	0,36	0,37	0,00	
Average evenness index (bryophytes)	0,40			0,62			0,46		0,36		0,00	
1st True diversity index (bryophytes)	2,18	2,09	3,16	2,54	2,37	2,14	2,22	2,14	2,11	2,14	1,00	
Average 1st True diversity index (bryophytes)	2,18			2,46			2,18		2,12		1,00	
2nd True diversity index (bryophytes)	1,98	2,29	1,32	1,61	1,94	2,31	2,18	2,31	2,21	2,00	0,00	
Average 2nd True diversity index (bryophytes)	1,98			2,29			2,18		2,21		0,00	
plants)	2,59	0,75	0,50	1,60	1,77	1,76	2,68	2,45	1,70	1,95	1,47	
Average SW index (vascular plants)	2,59			1,28			2,56		1,83		1,47	
Pielou's evenness index (vascular plants)	0,76	0,31	0,72	0,82	0,77	0,67	0,75	0,74	0,64	0,69	0,01	
Average evenness index (vascular plants)	0,76			0,31			0,75		0,64		0,01	
1st True diversity index (vascular plants)	13,30	2,12	1,65	4,96	5,86	5,83	14,63	11,53	5,46	7,06	4,34	
plants)	13,30			2,12			14,63		5,46		4,34	
2nd True diversity index (vascular plants)	2,87	1,17	1,21	2,02	1,99	1,99	2,74	2,79	1,81	2,19	1,66	
plants)	2,87			1,17			2,74		1,81		1,66	



Table S10. Number of taxa in the individual sites, as well as numbers of the specific types of taxa

Habitats	Wet-land	Initial succession stages					Grasslands		Forest stands		PWA
Phytocenological relevés / sites	site 1	2	3	4	5	6	7	8	9	10	11
Number of metallophytes	6	1	1	2	1	3	7	5	1	3	1
Number of invasive alien taxa	0	0	0	0	0	0	0	1	0	0	4
Number of synanthrophites	20	5	2	5	7	7	26	17	2	6	8
Number of native non-apophytes	17	15	3	6	7	12	14	16	20	19	1
Number of vascular plants	30	11	2	7	10	14	36	27	14	17	11
Species richness (all taxa)	37	20	5	11	14	20	41	33	22	25	11

Fig. S1. Numbers of the several types of taxa determined in the sites 1 - 11.

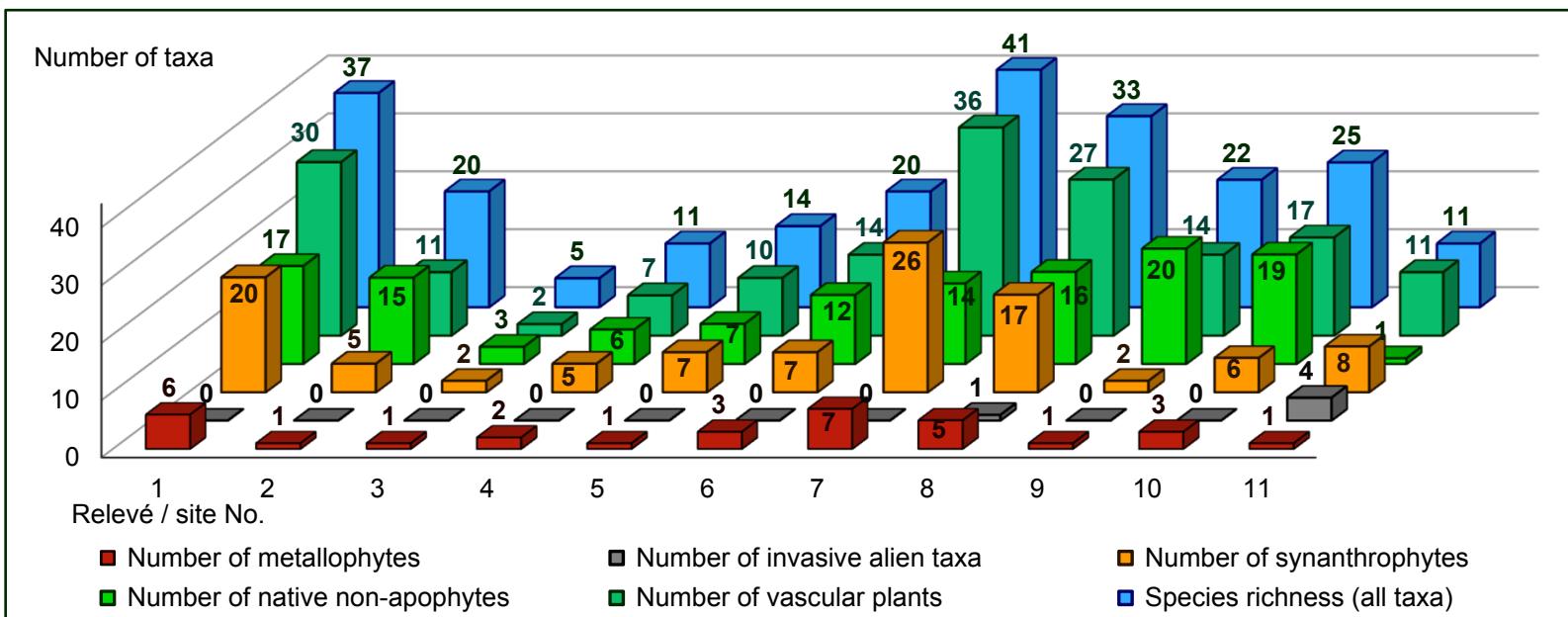


Table S11. Average numbers of various taxa groups per individual types of habitats

Habitats	Wetland	Initial successional stages	Grasslands	Forest stands	PWA
Alpha species richness of all taxa	37,00	14,00	37,00	23,50	11,00
Alpha species richness of bryophytes	7,00	5,20	5,50	8,00	0,00
Alpha species richness of vascular plants	30,00	8,80	31,50	15,50	11,00
Average number of metallophytes	6,00	1,60	6,00	2,00	1,00
Average number of invasive alien taxa	0,00	0,00	0,50	0,00	4,00
Average number of synanthrophites	20,00	5,60	22,50	4,00	10,00
Average number of native non-apophytes	10,00	3,00	8,50	11,50	1,00

Fig. S2. Average numbers of various taxa groups per individual types of habitats

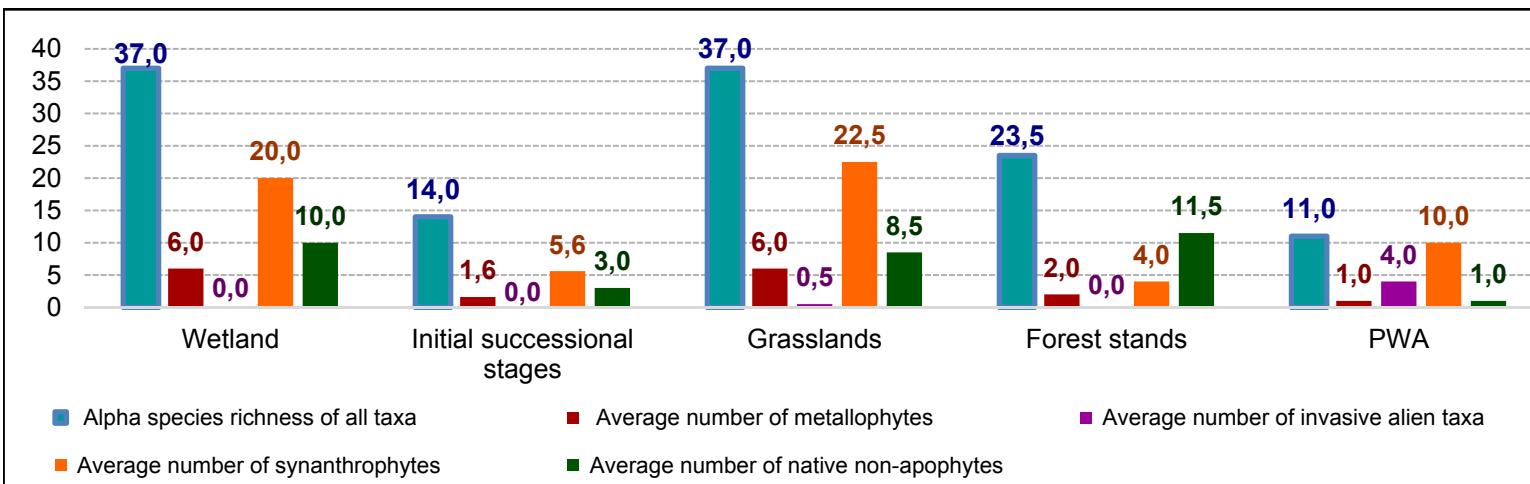


Table S12. Diversity indexes of the communities in the individual sites (an indexes of their subgroups)

Habitats	Wetland	Initial successional stages						Grasslands		Forest stands		PWA
Phytocenological relevés	1	2	3	4	5	6	7	8	9	10	11	
Shannon-Wiener diversity index (all taxa)	2,85	1,70	1,08	2,09	2,14	2,09	2,87	2,64	2,32	2,39	1,47	
2nd True diversity index (all taxa)	3,21	1,64	1,50	2,58	2,32	2,21	2,95	2,97	2,40	2,62	1,66	
Shannon-Wiener diversity index (vascular plants)	2,59	0,75	0,50	1,60	1,77	1,76	2,68	2,45	1,70	1,95	1,47	
2nd True diversity index for vascular plants	2,87	1,17	1,21	2,02	1,99	1,99	2,74	2,79	1,81	2,19	1,66	
Shannon-Wiener diversity index (bryophytes)	0,78	0,73	1,15	0,93	0,86	0,76	0,80	0,76	0,74	0,76	0,00	
2nd True diversity index for bryophytes	1,98	2,29	1,32	1,61	1,94	2,31	2,18	2,31	2,21	2,00	0,00	

Fig. S3. Diversity indexes of the communities in the individual sites (an indexes of their subgroups)

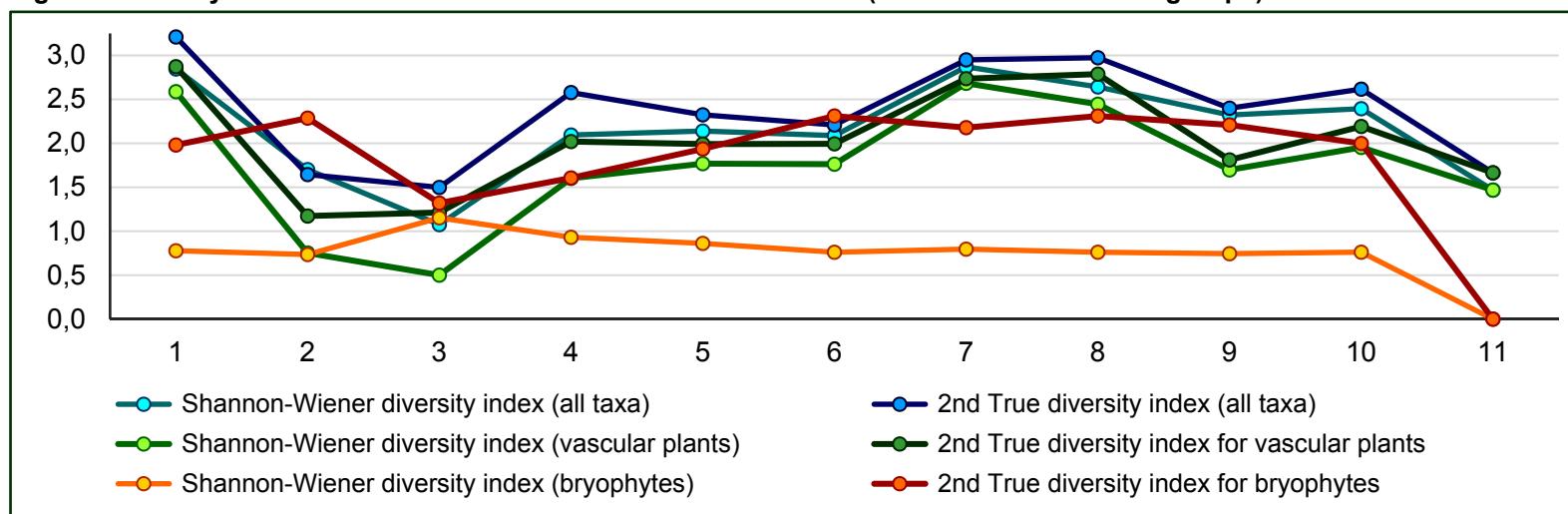
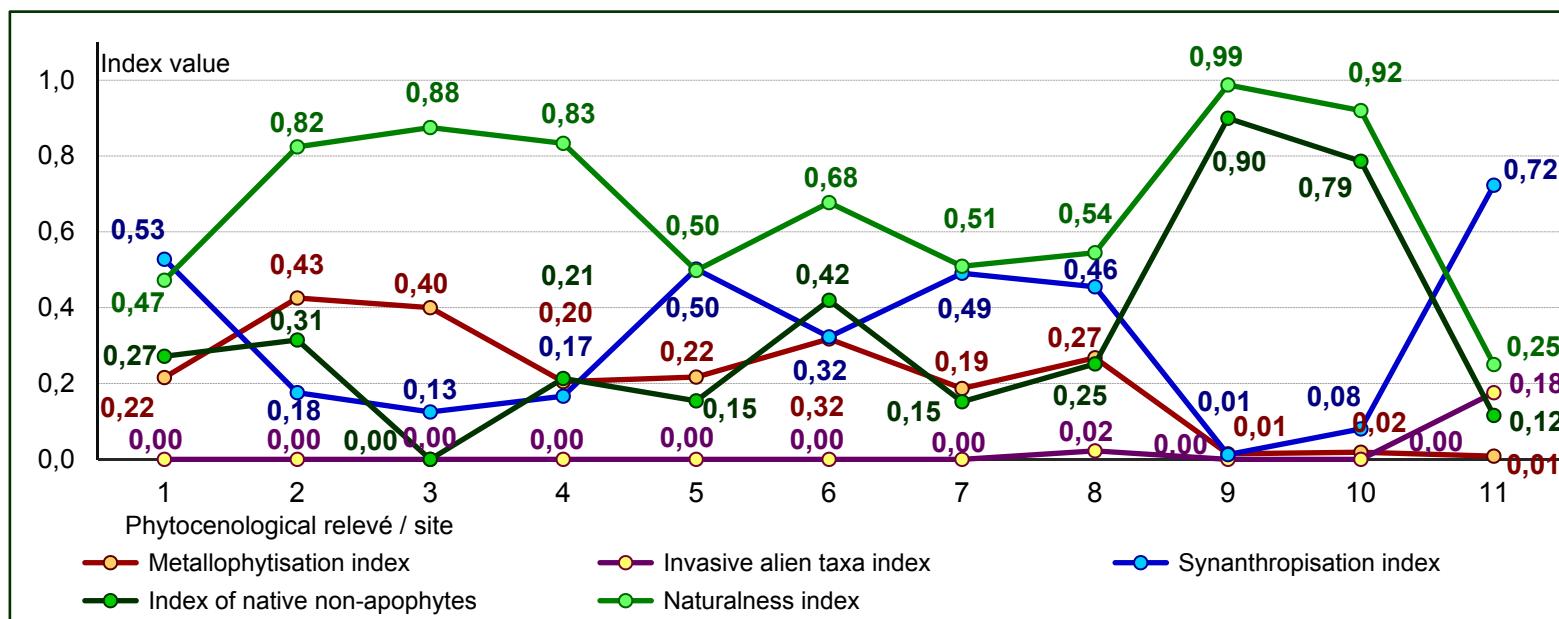


Table S13. Indexes of metallophytisation, invasive alien taxa proportion, synanthropisation, native non-apophytes and naturalness

Habitats	Wetland	Initial successional stages					Grasslands		Forest stands		PWA
Phytocenological relevés / sites	site 1	2	3	4	5	6	7	8	9	10	11
Metallophytisation index	0,216	0,426	0,400	0,205	0,217	0,318	0,187	0,268	0,015	0,019	0,008
Invasive alien taxa index	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,022	0,000	0,000	0,176
Synanthropisation index	0,528	0,176	0,125	0,167	0,502	0,323	0,491	0,455	0,013	0,080	0,723
Index of native non-apophytes	0,272	0,315	0,000	0,213	0,154	0,419	0,152	0,252	0,900	0,786	0,116
Naturalness index	0,472	0,824	0,875	0,833	0,498	0,677	0,509	0,545	0,987	0,920	0,250

Fig. S4. Indexes of metallophytisation, invasive alien taxa proportion, synanthropisation, native non-apophytes and naturalness



Tabel S14. Average relative weighted various taxa groups per individual types of habitats

Habitats	Wetland	Initial successional stages	Grasslands	Forest stands	PWA
Average metallophytisation index	0,158	0,216	0,161	0,039	0,027
Average invasive alien taxa index	0,000	0,000	0,011	0,000	0,176
Average synanthropisation index	0,528	0,258	0,473	0,046	0,723
Average index of native non-apophytes	0,272	0,220	0,202	0,843	0,116
Average index of naturalness	0,472	0,742	0,527	0,954	0,250

Fig. S5. Average relative weighted various taxa groups per individual types of habitats

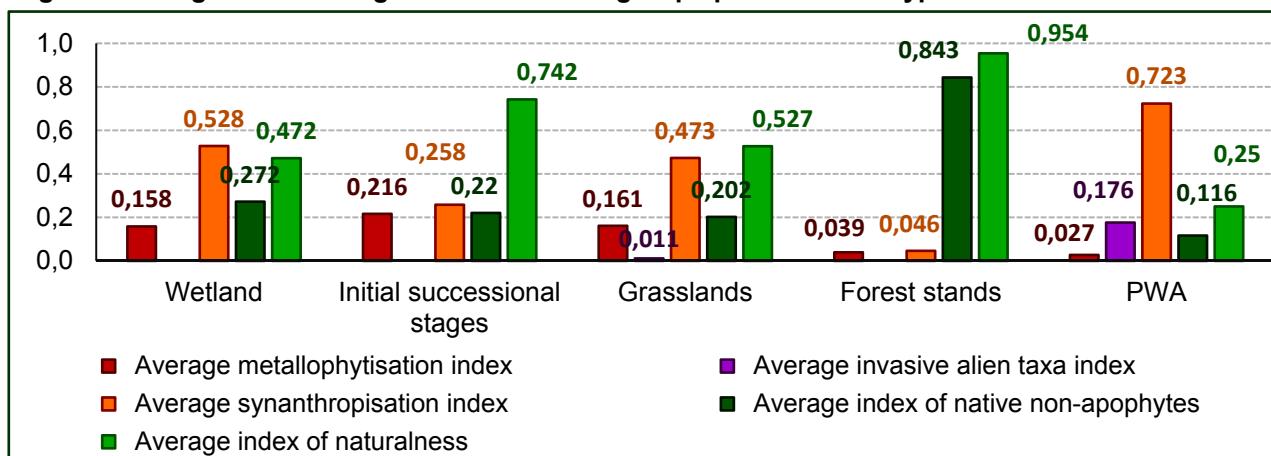
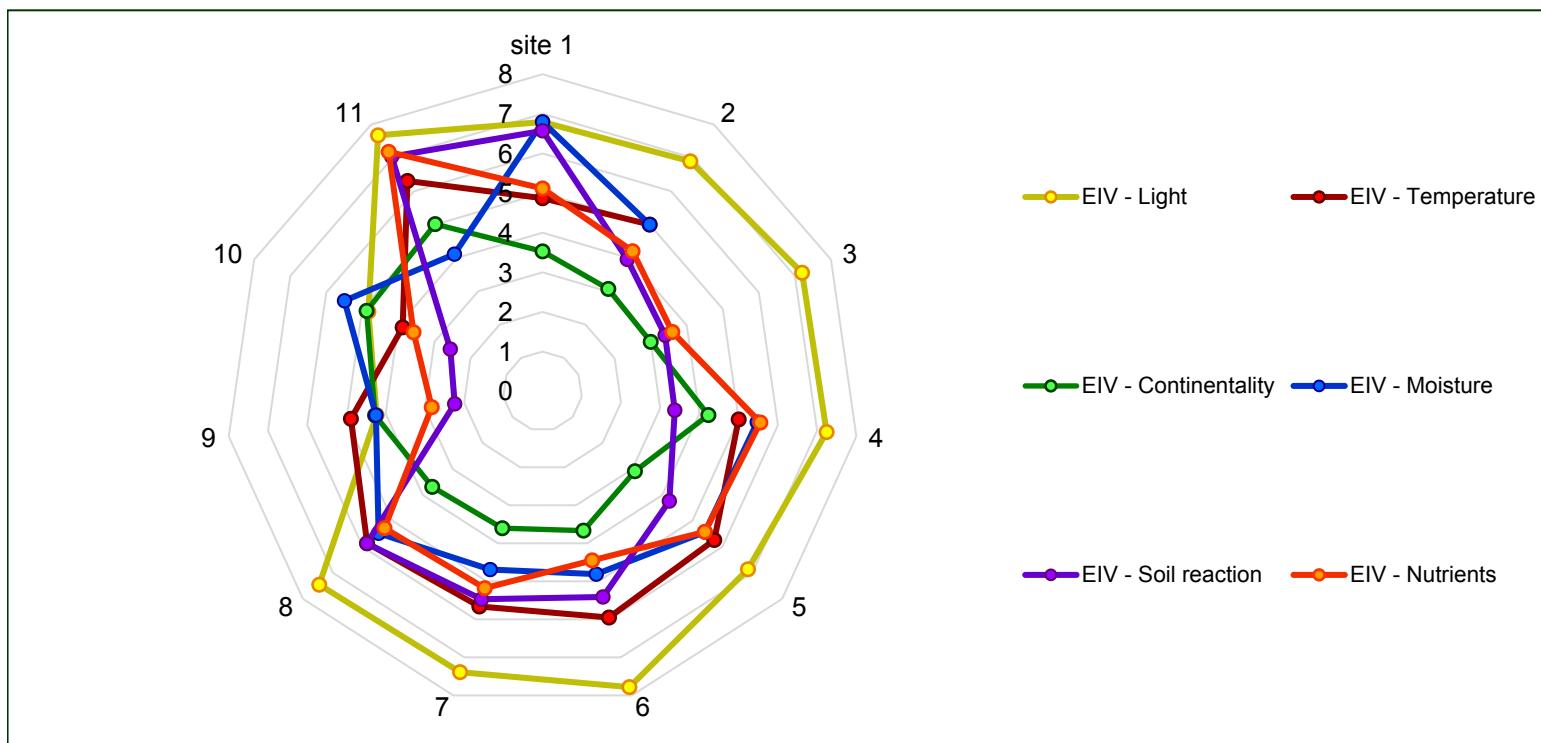


Table S15. Ellenberg indicator values (repeating Table S2. without XX data as a base for the graph below)

Habitats	Wet-land	Initial successional stages					Grasslands		Forest stands		PWA
Phytocenological relevés / sites	site 1	2	3	4	5	6	7	8	9	10	11
EIV - Light	6,79	6,90	7,20	7,24	6,86	7,78	7,39	7,46	4,23	4,83	7,68
EIV - Temperature	4,87	5,00		5,00	5,73	5,95	5,66	5,86	4,89	3,88	6,31
EIV - Continentality	3,53	3,07	3,00	4,23	3,08	3,67	3,60	3,68	4,27	4,88	5,01
EIV - Moisture	6,80	5,00		5,47	5,42	4,81	4,69	5,47	4,25	5,49	4,11
EIV - Soil reaction	6,57	3,96	3,40	3,37	4,23	5,41	5,47	5,87	2,24	2,56	7,04
EIV - Nutrients	5,12	4,20	3,60	5,55	5,42	4,45	5,18	5,28	2,83	3,58	7,18

Fig. S6. Ellenberg indicator values



Section S4 Photos from the mine heap

Fig. S7. The wetland in the foreground (site 1)



Fig. S8. Non-recultivated part of mine heap with initial successional stages of vegetation (site 4) with higher abundance of lichens



Fig. S9 Non-recultivated part of mine heap with initial successional stages of vegetation (site 5) with higher abundance of *Agrostis capillaris*



Fig. S10. Recultivated part of mine heap (site 8)



Fig. S11. The place intended for feeding of wild animals (PWA; site 11)

