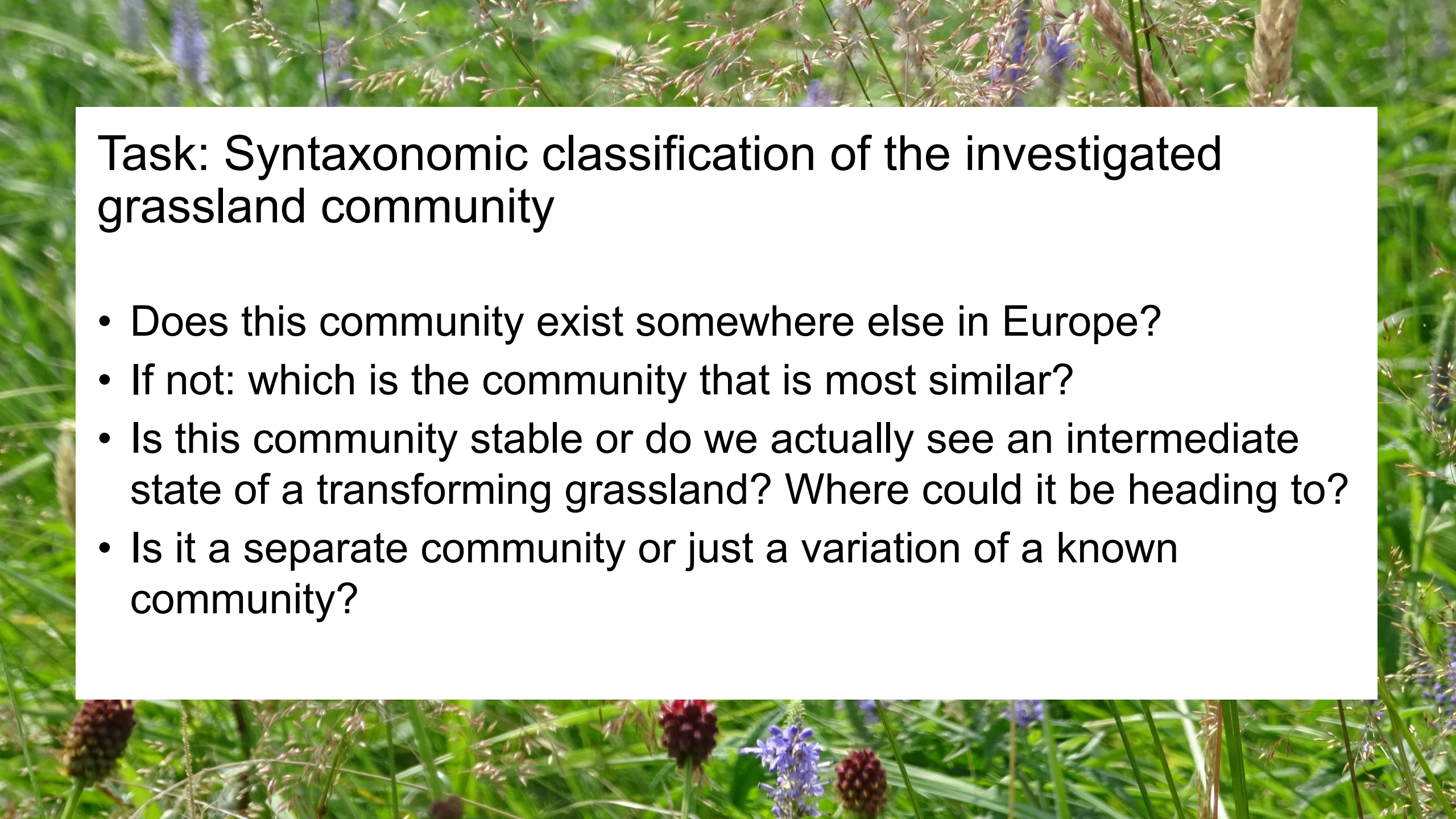
Niedersächsischer Landesbetrieb für Wasserwirtschaft, Küsten- und Naturschutz

Syntaxonomic revision of extensively managed, mesic alluvial grasslands along the Wümme river (Lower Saxony, Germany)

Nina Fahs



Task: Syntaxonomic classification of the investigated grassland community

- Does this community exist somewhere else in Europe?
- If not: which is the community that is most similar?
- Is this community stable or do we actually see an intermediate state of a transforming grassland? Where could it be heading to?
- Is it a separate community or just a variation of a known community?

197 vegetation plots, 4x4m, percent cover

			1	2	3	4	5	6	7	8	9	10	…	186	187	188	189	190	191	192	193	194	195	196	197	occurrence	frequency
		total cover	90	95	98	100	98	95	98	85	98	98		98	99	100	90	100	98	95	98	95	98	90	95		
		Mosses	20	20	30	20	20	5	30	0	0.5	30		0.5	0.5	10	5	0	15	3	3	0.5	0	0	0		
		Vascular plants	80	85	85	99	90	95	97	85	98	95		98	99	100	90	100	95	95	98	95	98	90	95		
		Achillea millefolium		1		0.5					0.5															84	0.43
		Achillea ptarmica																								19	0.10
		Agrostis capillaris												5	10											139	0.71
		Agrostis stolonifera																				0.2			2	14	0.07
		Alopecurus pratensis			7	10	15	40	10	60	8	3		20	25	2	7.5	20	0.5	7.5	12.5	12.5	20	7.5	2	176	0.89
		Anthoxanthum odoratum	15	8		1	25	20	5	15	5	1		1	3						2		0.2			166	0.84
		Arabidopsis thaliana																0.1								7	0.04
		Ajuga reptans					0.5																0.2			26	0.13
		…																									
		Ranunculus repens	0.5	1						0.5																52	0.26
		Rumex acetosa	0.5	2	1	1	1		0.5		0.5	0.2		1	2	4	0.2	0.2	4	2	0.2	0.5	0.2	0.2	0.2	180	0.91
		Rumex crispus														0.5								0.1		23	0.12
		Sanguisorba officinalis	3	5								0.3		4	1											51	0.26
		Silene dioica																0.1								2	0.01
		Taraxacum sect. Ruderalia	0.5	1	5	3	0.2	5	0.5	0.5	0.5	0.2		2	2	0.5							0.2	0.2		163	0.83
		Trifolium pratense	0.5	1		0.1	0.1							0.5	1											59	0.30
		Trifolium repens		1		0.1	0.5		2		0.5															58	0.29
		Trifolium dubium																								1	0.01
		Veronica chamaedrys									0.5					0.5	0.2	2								43	0.22
		Veronica longifolia		0.5						0.5					8				2							77	0.39
		Veronica serpyllifolia														0.5	0.1									53	0.27
		Vicia cracca	0.5		0.5	0.1										2	0.2		0.2	0.5	4					78	0.40
		Vicia sativa																								1	0.01
		Viola canina																								4	0.02
		Rhytidiadelphus squarrosus	20	1	30	20	20	3	30			30					7.5									109	0.55
		Brachythecium rutabulum	0.5	20	1			3			0.5			0.5	0.5	10			12.5	4	2	0.2				121	0.61
		Ceratodon purpureus						1																		14	0.07
		Total number vascular plants	18	18	16	16	17	10	15	14	16	16		20	19	20	17	18	13	9	10	11	12	11	10		
		Total number mosses	2	2	2	1	1	3	1	0	1	1		1	1	1	1	0	1	1	1	1	0	0	0		
		total species number	**20**	**20**	**18**	**17**	**18**	**13**	**16**	**14**	**17**	**17**		**21**	**20**	**21**	**18**	**18**	**14**	**10**	**11**	**12**	**12**	**11**	**10**		

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
NR	ORIG_NR	LONG	LAT	DAT	ALTITUDE	COV TOT	COV MOSS	COV HERB	ELL_Light	ELL_Temp	ELL_Cont	ELL_Moist	ELL_SoilReac	ELL_Nutrient	W_ELL_Light	W_ELL_Temp	W_ELL_Cont	W_ELL_Mois	W_ELL_SoilR	W_ELL_Nutri
1	1	524465.00	5883806.00	01.05.2020	17.47	90	20	80	6.67	4.83	4	5.77	4.4	5.46	6.65	4.27	4.53	5.92	5.37	5.14
2	2	524446.00	5883717.00	01.05.2020	17.51	95	20	85	6.67	5	4.27	5.65	5.43	5.5	6.25	5.2	4.36	5.51	5.69	5.29
3	3	524459.00	5883693.00	01.05.2020	17.54	98	30	85	6.59	5	3.75	5.44	4.57	5.18	6.72	3.53	4.88	5.8	5.5	5.75
4	4	524499.00	5883684.00	01.05.2020	17.56	100	20	99	6.67	4.67	3.88	5.36	5.17	5.89	6.55	3.17	4.75	5.72	5.48	5.62
5	5	524644.00	5883738.00	01.05.2020	17.57	98	20	90	6.69	4.75	3.6	5.6	5.13	5.46	6.38	3.99	4.82	5.96	5.61	6.06
6	6	524702.00	5883772.00	01.05.2020	17.42	95	5	95	6.46	4.67	4	5.46	4.8	6.5	6.17	5.15	4.33	5.98	5.61	6.68
7	7	524987.00	5883771.00	01.05.2020	17.68	98	30	97	6.64	4.5	3.88	5.5	5.38	5.67	6.73	3.31	5.11	5.88	5.65	6.01
8	8	524995.00	5883778.00	01.05.2020	17.52	85	0	85	6.33	5.5	4.71	6.58	6	6	6.18	5.92	4.21	6.06	5.81	6.47
9	9	525050.00	5883777.00	01.05.2020	17.89	98	0.5	98	6.67	5.5	3.75	5.13	5.29	5.4	6.64	5.86	4.6	5.69	5.73	5.39
10	10	524377.00	5883769.00	01.05.2020	17.45	98	30	95	6.53	4.75	4.38	6.07	5.5	5.6	6.74	3.76	5.07	6.1	5.69	5.18
11	11	524388.00	5883772.00	01.05.2020	17.23	98	40	95	6.55	4.75	4.57	6.09	5.5	6.13	6.92	3.54	5.34	6	5.66	5.71
12	12	524493.00	5883798.00	02.05.2020	17.53	99	40	95	6.65	5	3.92	5.9	5.5	5.69	6.74	3.81	4.73	5.85	5.38	5.16
13	13	524552.00	5883769.00	02.05.2020	17.36	80	1	80	6.44	5.33	3.6	5.81	5.4	5.67	6.89	5.98	3.65	5.97	5.51	5.47
14	14	524604.00	5883649.00	02.05.2020	17.59	98	5	95	6.5	5	3.69	5.58	5.17	5.92	6.67	5	4.23	5.39	5.62	6.14
15	15	524584.00	5883653.00	02.05.2020	17.41	80	1	80	6.39	5.33	4.14	6.4	5.6	5.78	6.53	5.9	3.69	5.89	4.96	5.53
16	16	524311.00	5883565.00	02.05.2020	17.53	85	10	80	6.44	5	3.85	5.33	4.83	5.42	6.25	4.2	4.56	5.64	5.48	6.25
17	17	524402.00	5883680.00	02.05.2020	17.44	100	35	97	6.71	4.67	4.22	5.83	5.33	5.89	6.67	3.85	4.51	5.79	5.07	5.3
18	18	524404.00	5883677.00	02.05.2020	17.44	97	30	95	6.63	5	4	6.21	5.5	6	6.7	4.32	4.56	6.02	5.27	5.36
19	19	524407.00	5883674.00	02.05.2020	17.52	99	15	95	6.47	5	4	6	5.5	6	6.58	4.69	4.34	5.88	5.49	5.52
20	20	524445.00	5883726.00	02.05.2020	17.53	99	45	95	6.78	4.75	3.83	5.5	5.11	5.29	6.87	3.54	4.89	5.79	5.54	5.5
21	21	524487.00	5883741.00	02.05.2020	17.48	95	25	90	6.56	5	4.33	6.12	5.83	5.83	6.61	4.29	4.58	5.95	5.66	6.05
22	22	524510.00	5883786.00	02.05.2020	17.54	100	60	85	6.85	5.14	3.59	5.71	5.14	5.06	6.87	3.79	4.9	5.98	5.4	5.26
23	23	524292.00	5883584.00	02.05.2020	17.4	95	20	90	6.25	5	4	6	5.8	6.5	6.19	5.35	4.25	5.77	5.77	6.31
24	24	524265.00	5883605.00	02.05.2020	17.32	80	3	79	6.44	4.67	3.9	5.93	5.5	6.18	6.46	5.48	3.72	6.06	5.3	5.78
25	25	524655.00	5883740.00	06.05.2020	17.57	99	25	97	6.82	4.8	3.5	5.3	4.67	5.13	6.78	4.1	4.53	5.71	5.25	5.19
26	26	524649.00	5883735.00	06.05.2020	17.56	100	20	97	6.65	4.75	3.75	5.39	4.63	5.58	6.67	3.94	4.71	5.75	5.46	5.51
27	27	524500.00	5883746.00	06.05.2020	17.53	99	50	97	6.68	5.5	3.39	5.35	5.22	5.15	5.92	5.53	4.59	5.18	5.72	5.2

All records of mesic and wet grasslands from the European Vegetation Archive-database [154,028];
vegetation plot data with species identity and cover (or presence/absence)

		Relevé.num	PlotID	Country	Cover.abundance.scale	Date.of.recording	Relevé.area.	Altitude	Cover.total	Name.alliance	EUNIS..ES.	DEG_LON	DEG_LAT	Dataset
1	43	43	30474	Austria	Braun-Blanquet (new)	08.06.2013	25	314	99	Cirsio-Brachypodion pinnati	R22	15.99	46,807	Austria_VINCA
2	44	44	30478	Austria	Braun-Blanquet (new)	09.06.2013	25	316	70	Cirsio-Brachypodion pinnati	R22	15.99	46,807	Austria_VINCA
3	45	45	30489	Austria	Braun-Blanquet (old)	01.01.1987	10	185		Filipendulion	R35	164,417	480,083	Austria_VINCA
4	46	46	30494	Austria	Braun-Blanquet (old)	01.01.1987	10	185		Molinion	R37	164,417	480,083	Austria_VINCA
5	47	47	30496	Austria	Braun-Blanquet (old)	01.01.1987	10	185		Caricion davallianae	Q51	164,417	480,083	Austria_VINCA
6	48	48	30513	Austria	Braun-Blanquet (old)	24.05.1994	20	249		Molinion	R37	162,417	479,583	Austria_VINCA
7	49	49	30515	Austria	Braun-Blanquet (old)	19.05.1994	200	249		Molinion	R	162,417	479,583	Austria_VINCA
8	55	55	30524	Austria	Braun-Blanquet (old)	19.05.1994	20	249		Bromion erecti	R22	162,417	479,583	Austria_VINCA
9	58	58	30531	Austria	Braun-Blanquet (old)	01.01.1946	100		100	Molinion	R37	164,417	480,083	Austria_VINCA
10	59	59	30532	Austria	Braun-Blanquet (old)	01.01.1942	100	175	95	Molinion	R37	165,083	480,417	Austria_VINCA
11	60	60	30533	Austria	Braun-Blanquet (old)	01.01.1942	100	185	90	Molinion	R37	164,583	480,083	Austria_VINCA
12	61	61	30536	Austria	Braun-Blanquet (old)	01.01.1946	100	180	90	Molinion	R37	165,083	480,083	Austria_VINCA
13	62	62	30540	Austria	Braun-Blanquet (old)	01.01.1943	100	179	90	Molinion	R37	163,917	480,583	Austria_VINCA
14	63	63	30541	Austria	Braun-Blanquet (old)	01.01.1946	100	174	95	Molinion	R37	16,525	48,025	Austria_VINCA
15	64	64	30542	Austria	Braun-Blanquet (old)	01.01.1946	100	166	100	Molinion	R37	16,575	480,583	Austria_VINCA
16	65	65	30543	Austria	Braun-Blanquet (old)	01.01.1946	100	196	90	Molinion	R37	163,917	479,917	Austria_VINCA
17	66	66	30547	Austria	Braun-Blanquet (old)	01.01.1946	100	174	90	Molinion	R37	16,525	481,917	Austria_VINCA
18	67	67	30548	Austria	Braun-Blanquet (old)	01.01.1942	50	185	90	Molinion	R22	164,583	480,083	Austria_VINCA
19	68	68	30549	Austria	Braun-Blanquet (old)	01.01.1942	100	185	90	Molinion	R22	164,583	480,083	Austria_VINCA
20	69	69	30551	Austria	Braun-Blanquet (old)	01.01.1942	100	178	100	Molinion	R22	164,583	480,583	Austria_VINCA
21	70	70	30556	Austria	Braun-Blanquet (old)	01.01.1942	100	160	95	Molinion	R22	166,083	480,583	Austria_VINCA
22	71	71	30557	Austria	Braun-Blanquet (old)	01.01.1942	200	176	100	Molinion	R22	16,375	48,075	Austria_VINCA
23	72	72	30558	Austria	Braun-Blanquet (old)	01.01.1942	200	176	100	Molinion	R22	16,375	48,075	Austria_VINCA
24	73	73	30559	Austria	Braun-Blanquet (old)	01.01.1943	100	176	100	Molinion	R22	163,917	48,075	Austria_VINCA
…														
154028														

Finding the relevés most similar to the investigated community:

Vegetation plot data from the EVA-database [154 028]

↓

Selection of relevant vegetation plots e.g. including at least ten of the most characterising species of the investigated community?

↓

Calculation of a **dissimilarity matrix** of these data together with those from the investigated community (presence/absence data?)

↓

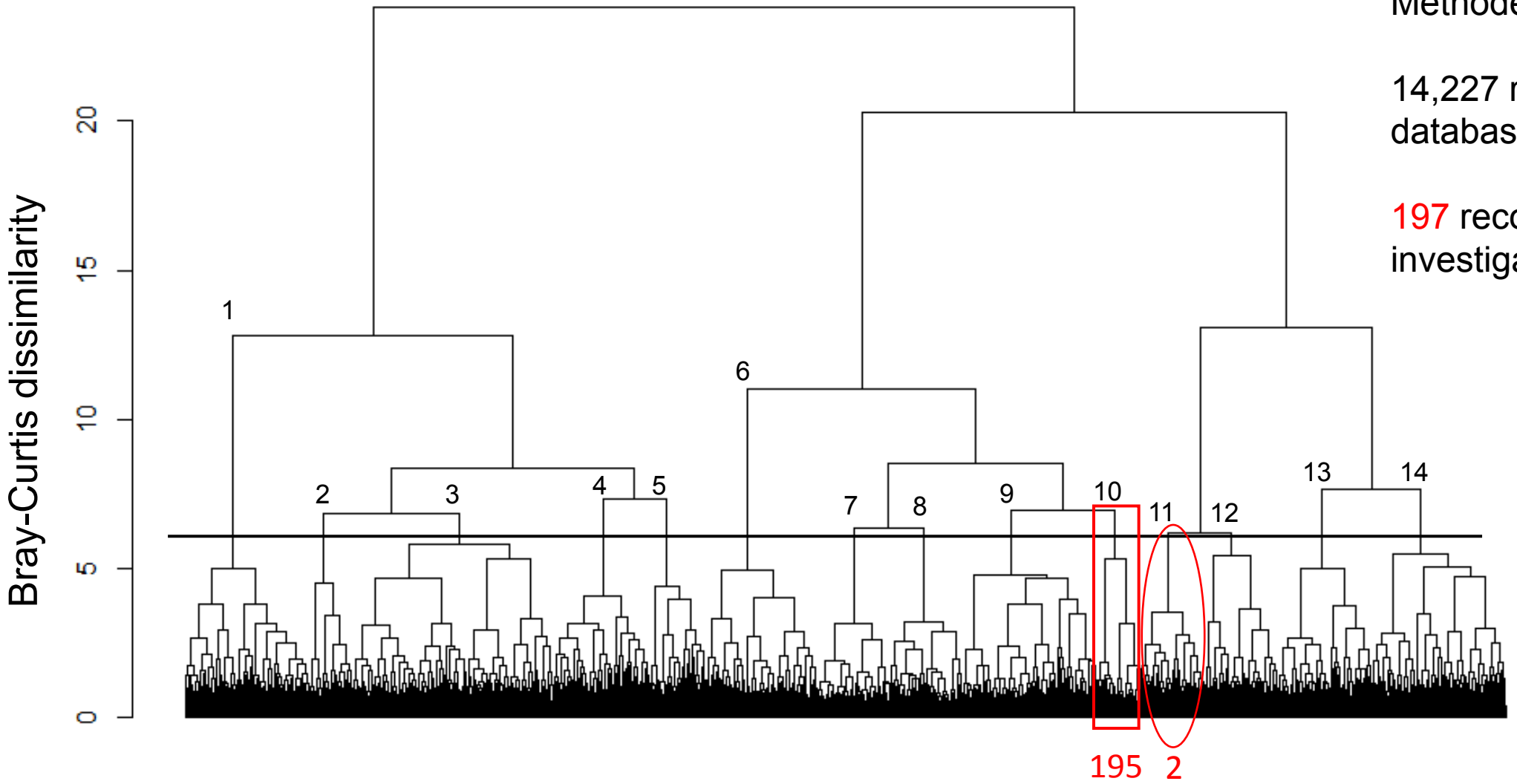
Clustering and further investigation of the calculated groups

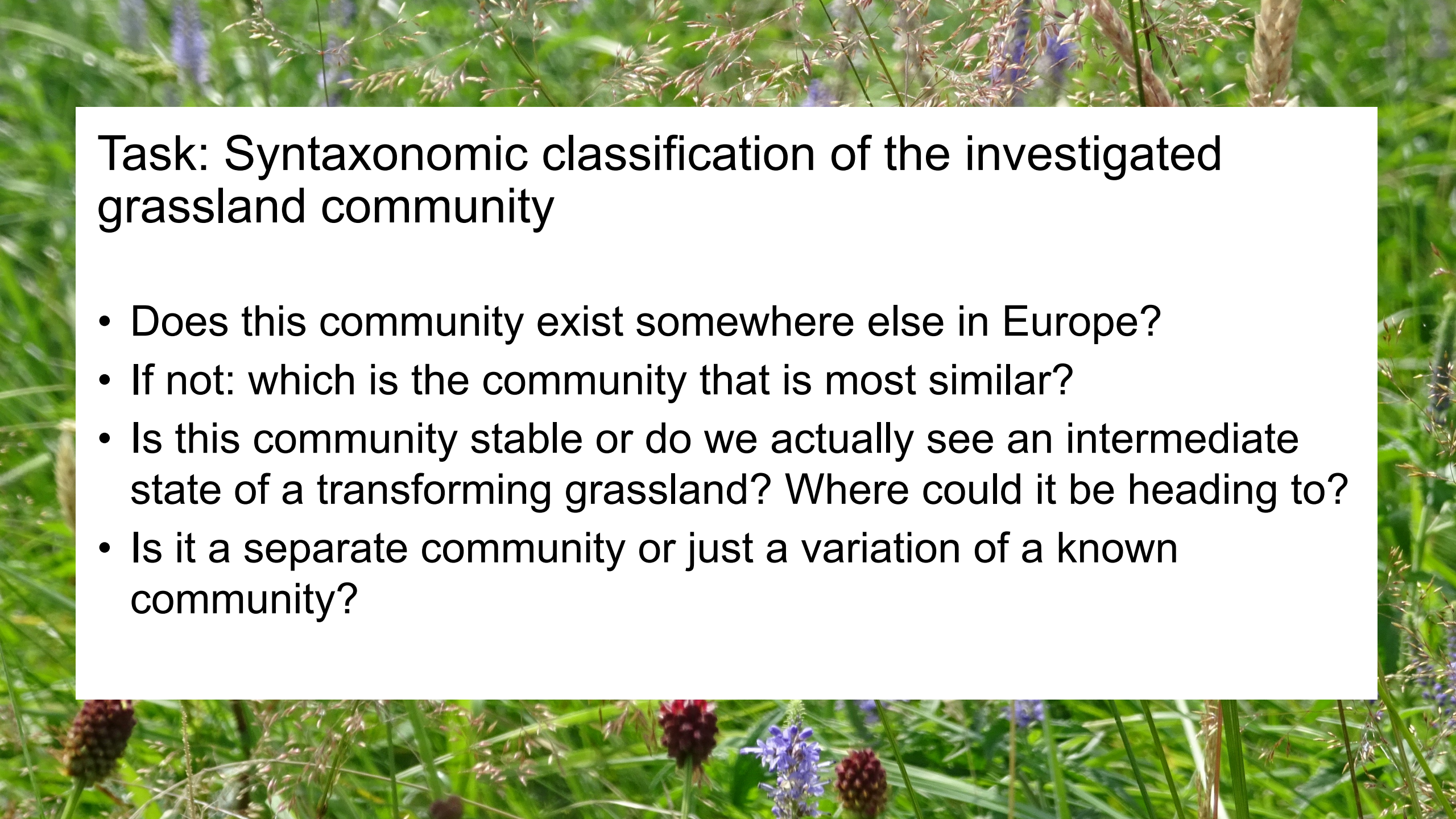
Dendrogramm of the clustering of the records including at least ten of the most characterising species of the investigated community

Ward‘s minimum variance Methode

14,227 records from the database

197 records from the investigated community





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