

Appendix S5. Additional detailed results.

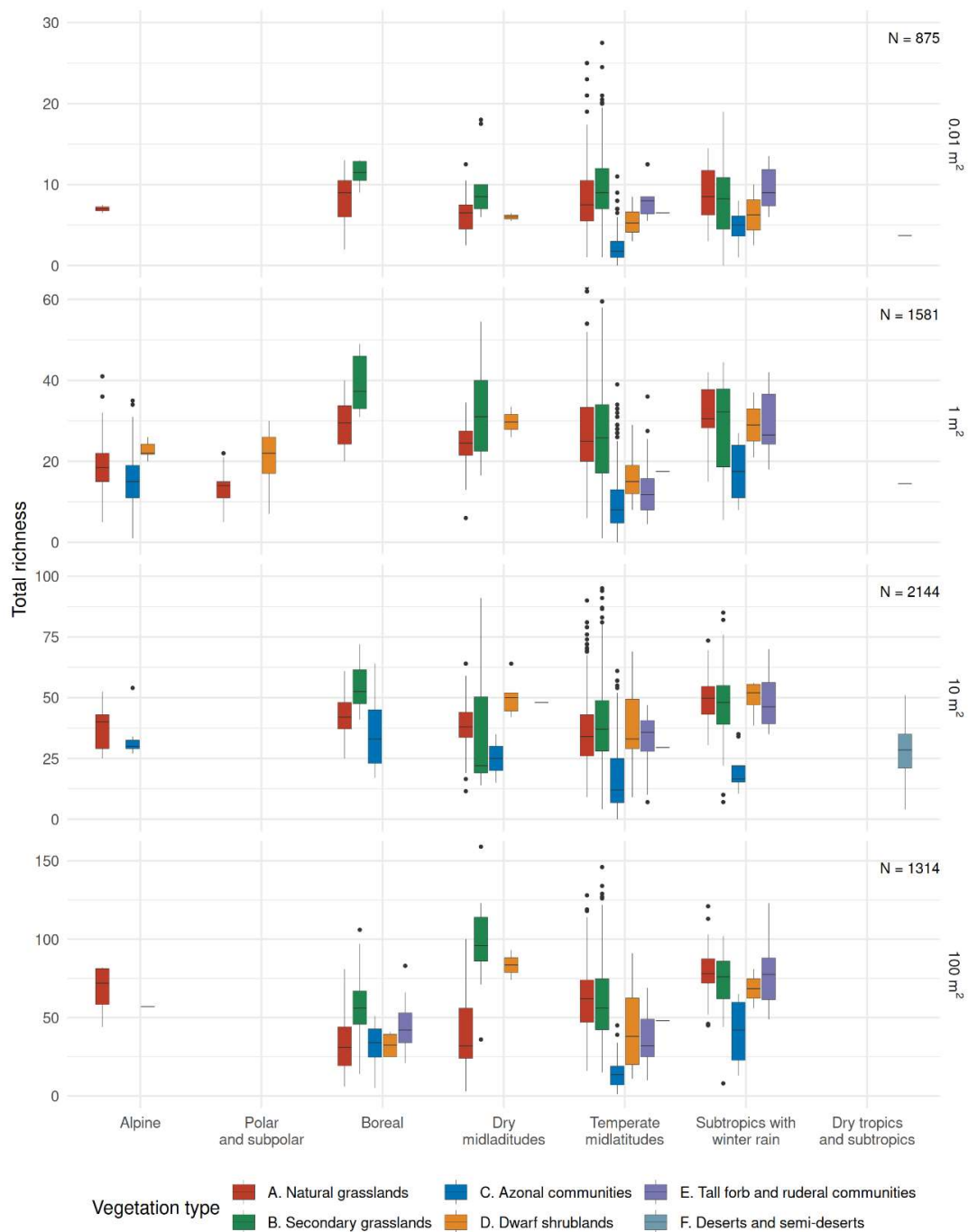


Figure S5.1. Richness of the complete vegetation across biomes and coarse-level vegetation types for the four most represented grain sizes (0.1 m², 1 m², 10 m², 100 m²). *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

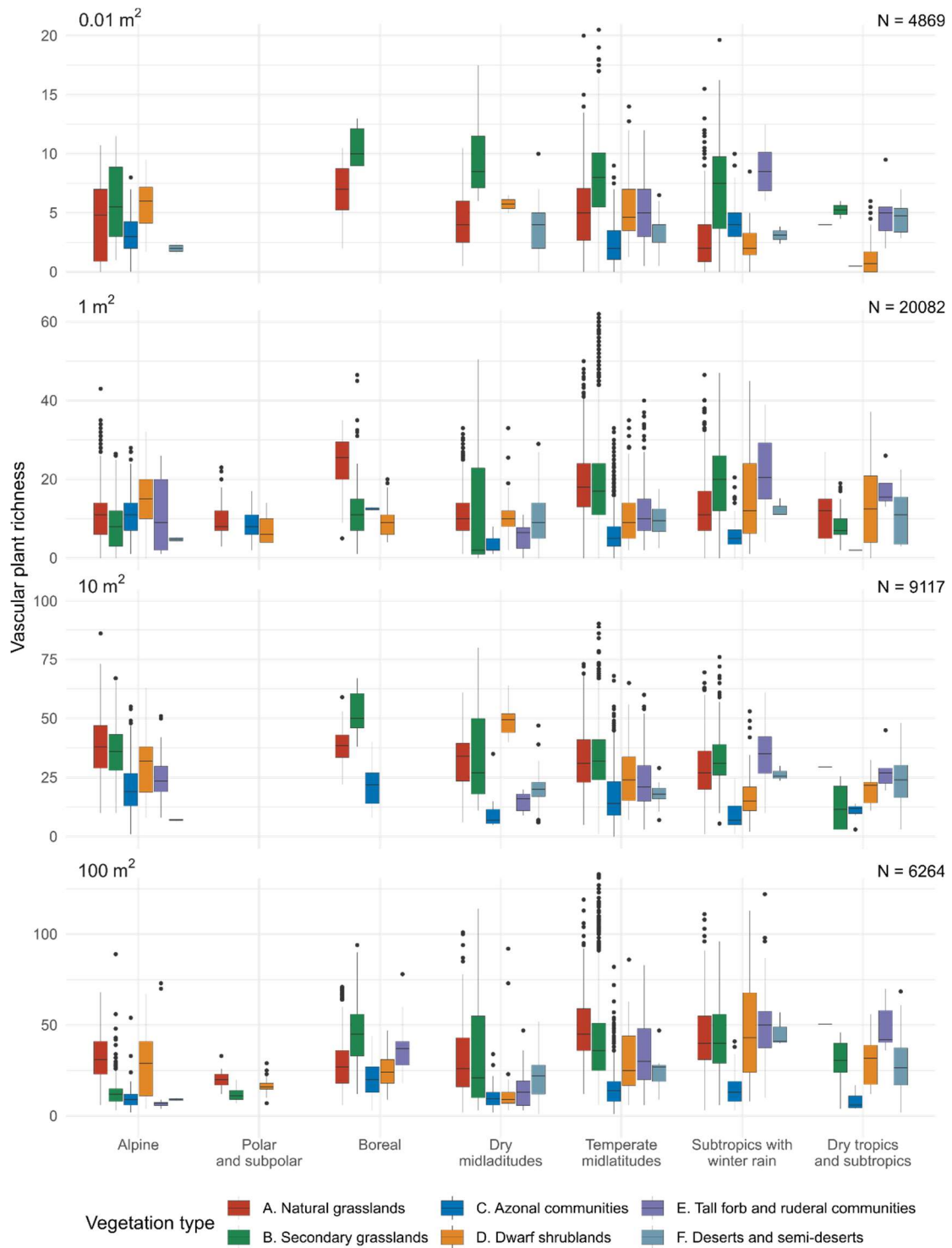


Figure S5.2. Richness of vascular plants across biomes and coarse-level vegetation types for the four most represented grain sizes (0.1 m², 1 m², 10 m², 100 m²). *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

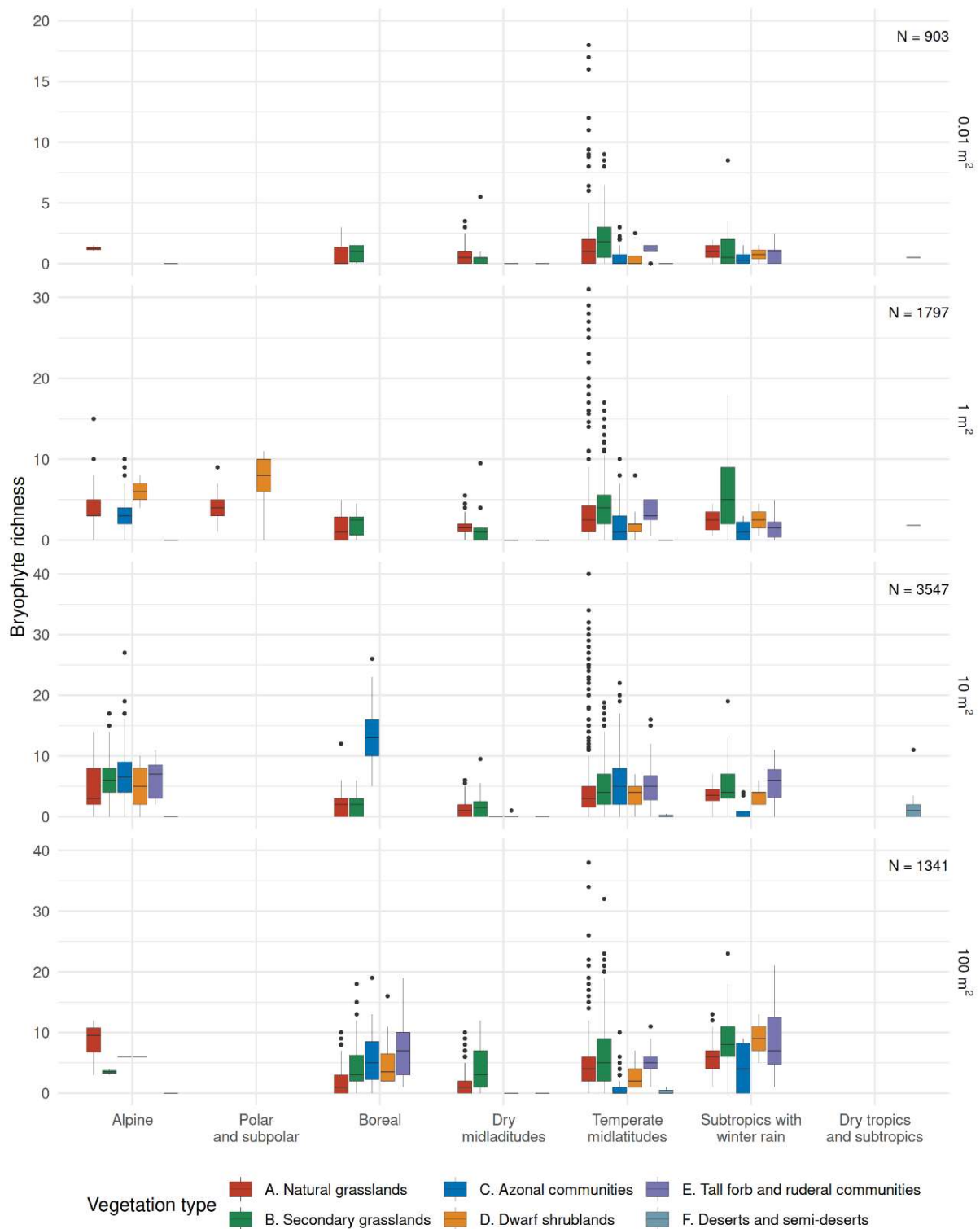


Figure S5.3. Richness of bryophytes across biomes and coarse-level vegetation types for the four most represented grain sizes (0.1 m^2 , 1 m^2 , 10 m^2 , 100 m^2). N is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

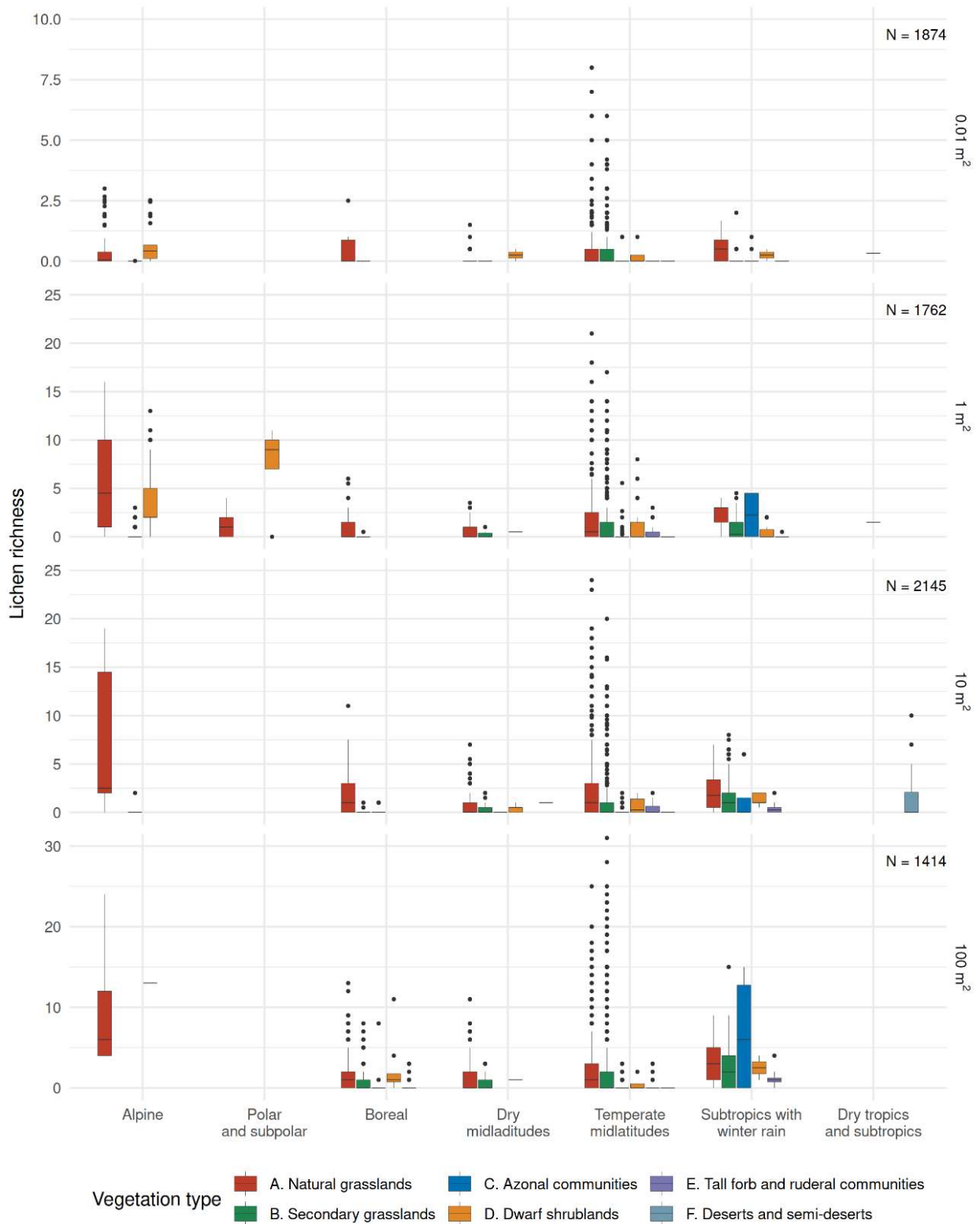


Figure S5.4. Richness of lichens across biomes and coarse-level vegetation types for the four most represented grain sizes (0.1 m², 1 m², 10 m², 100 m²). *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

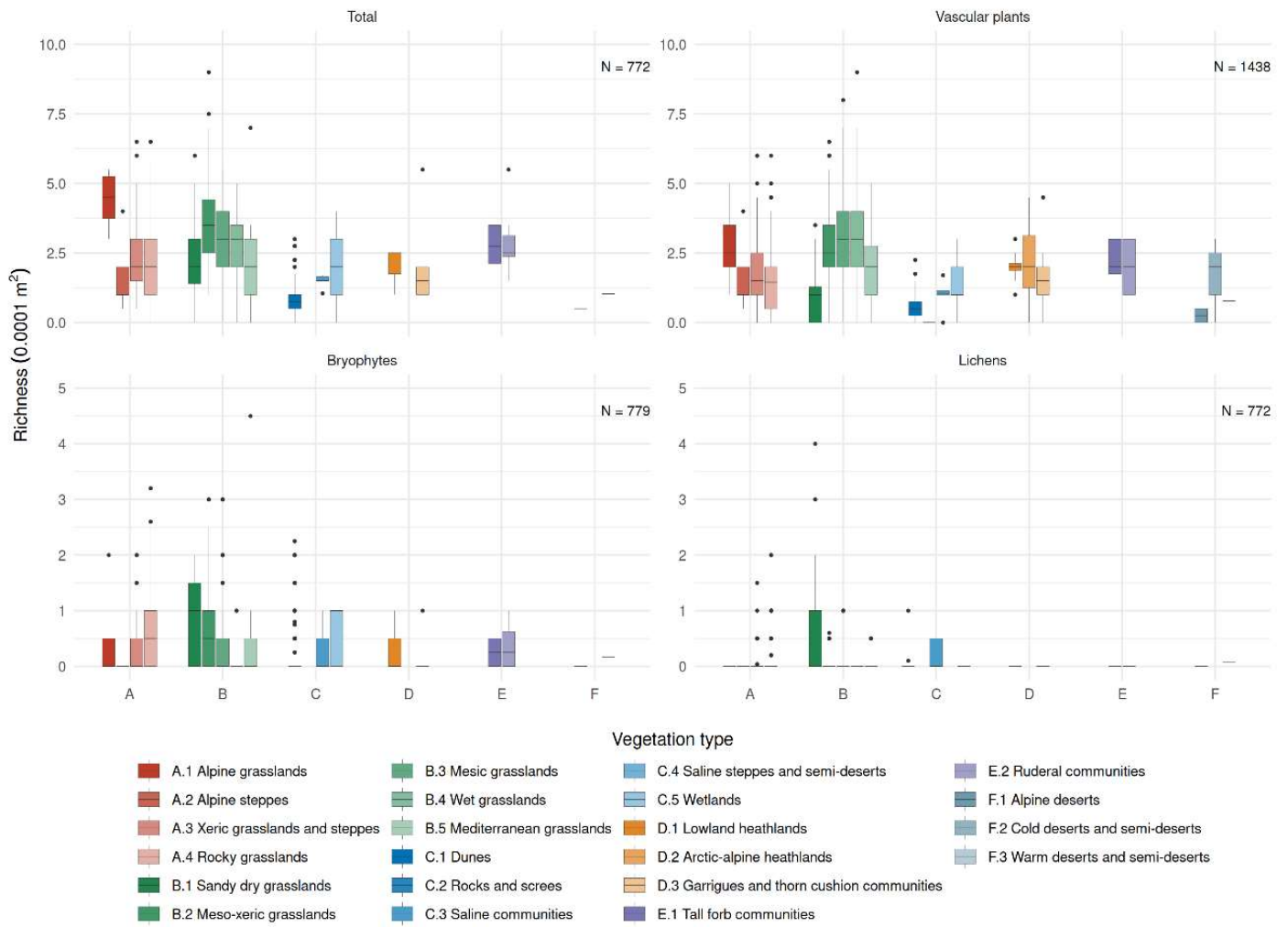


Figure S5.5. Richness at 0.0001 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

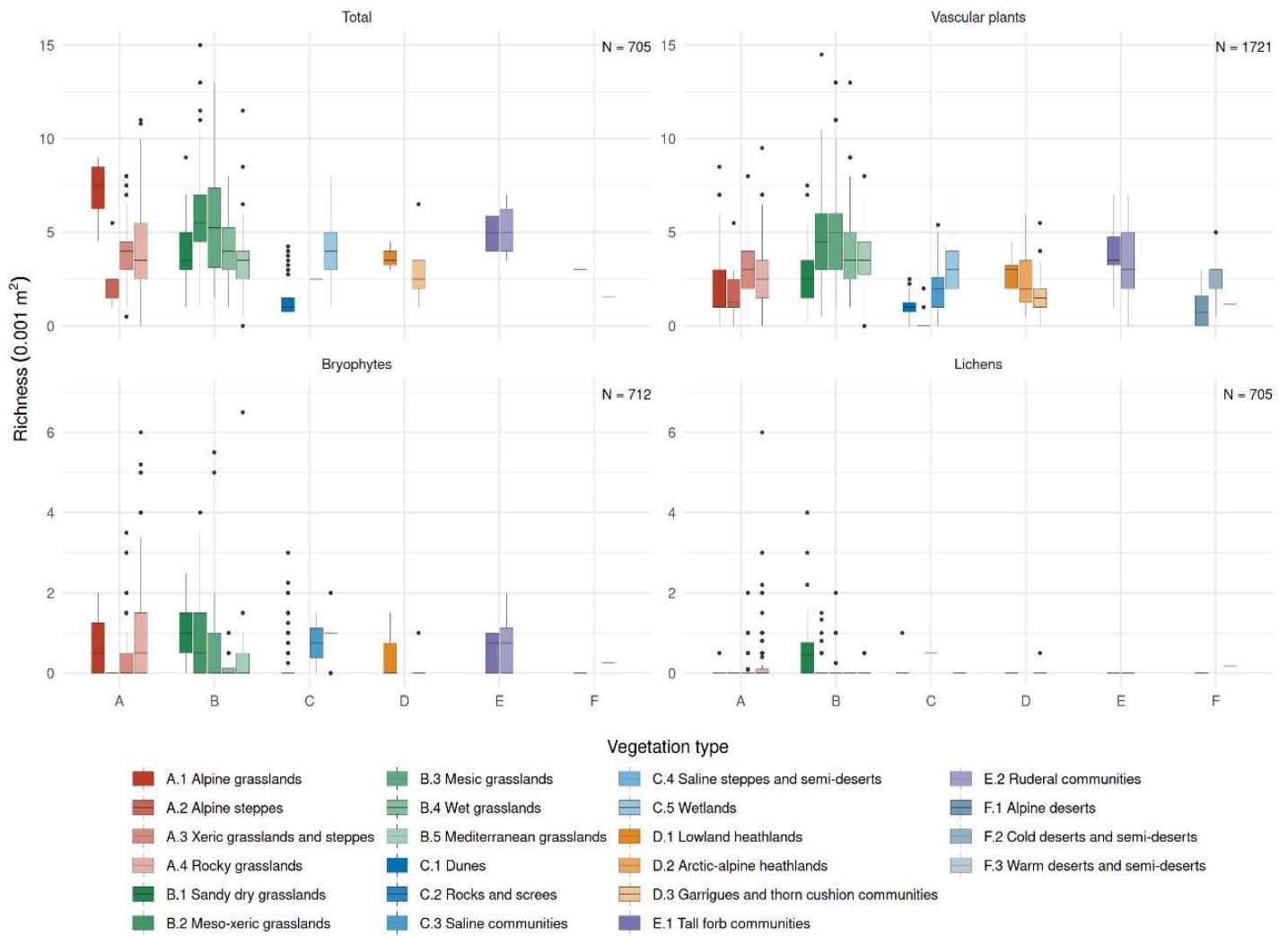


Figure S5.6. Richness at 0.001 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

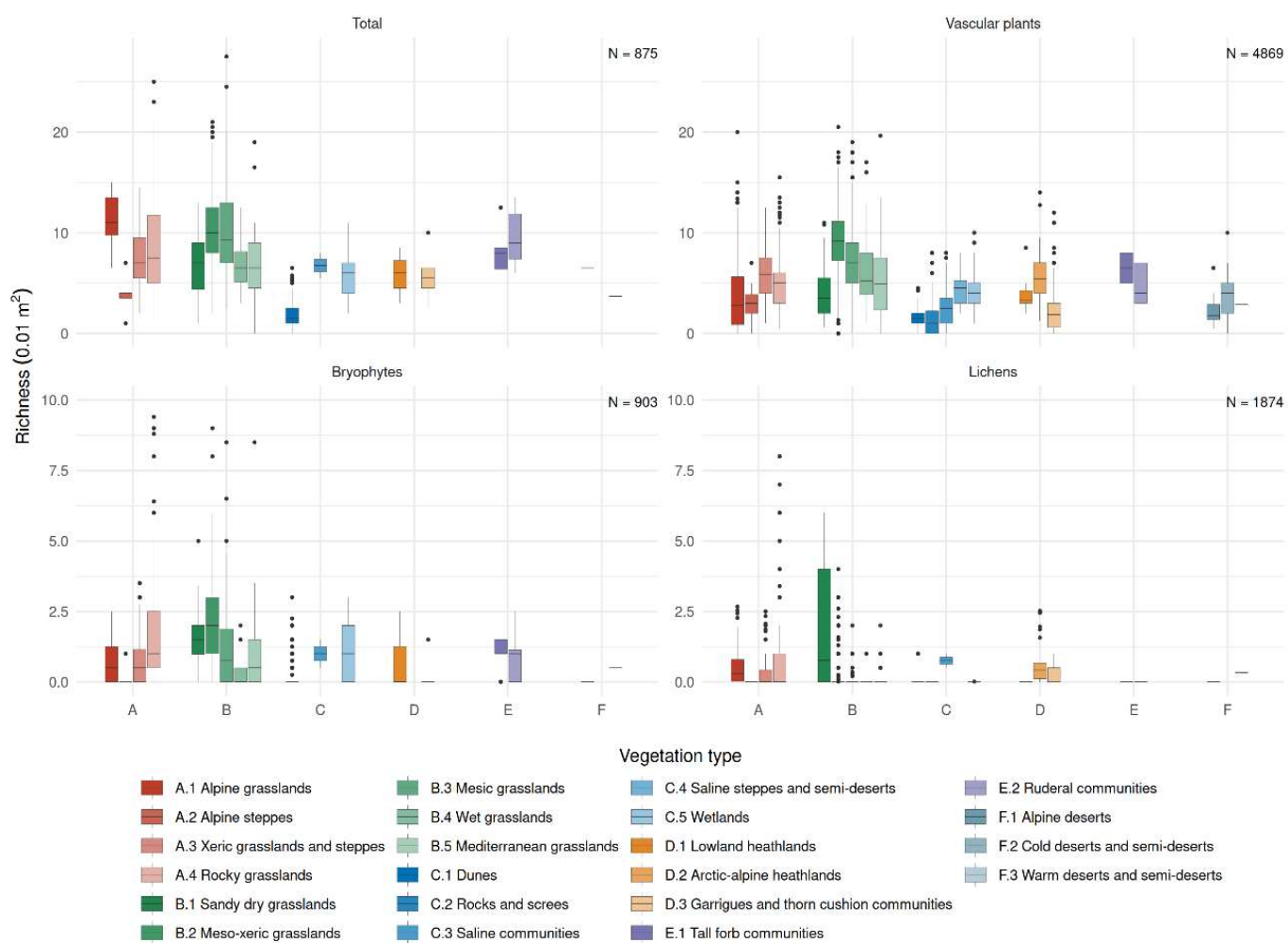


Figure S5.7. Richness at 0.01 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

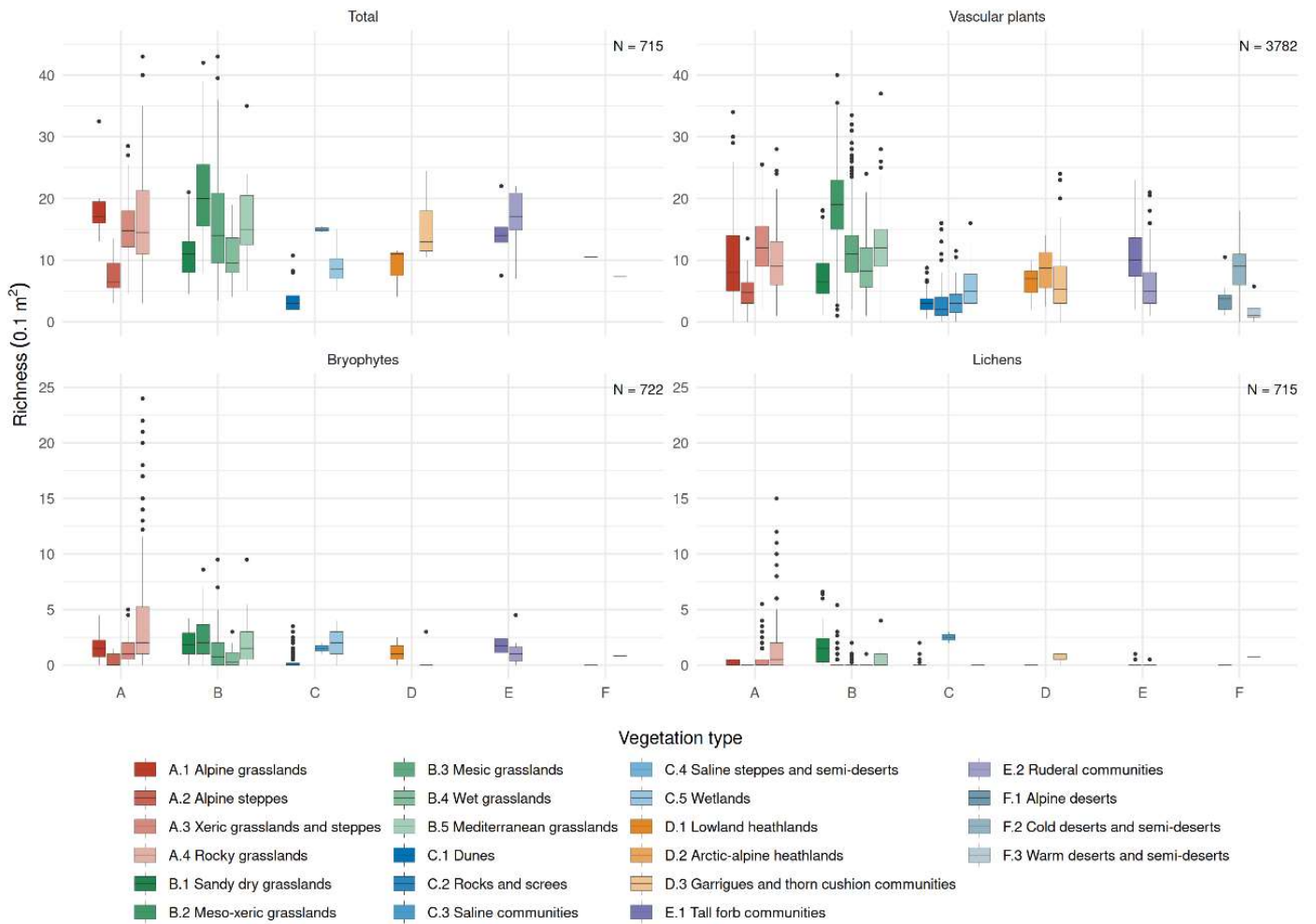


Figure S5.8. Richness at 0.1 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

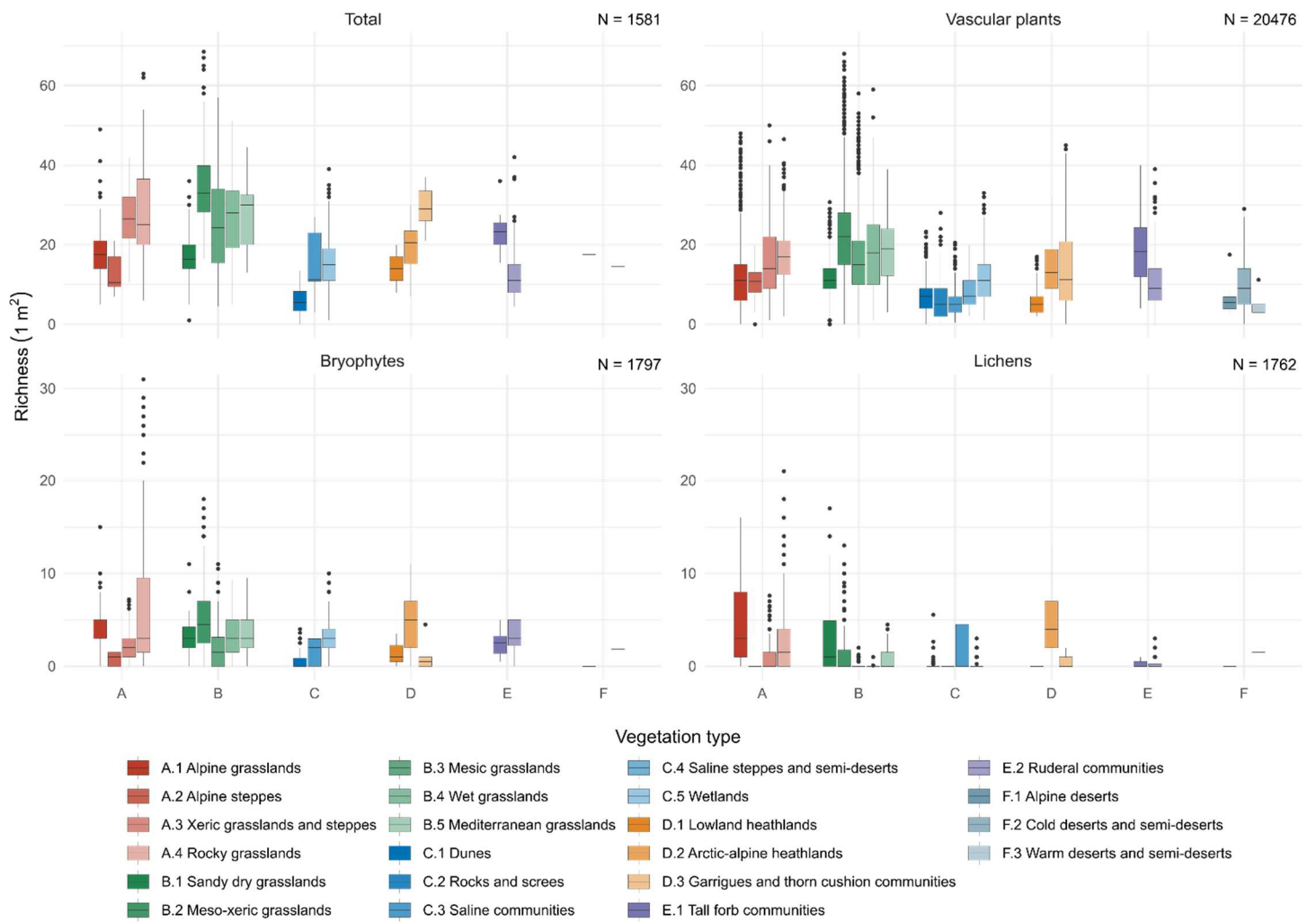


Figure S5.9. Richness at 1 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

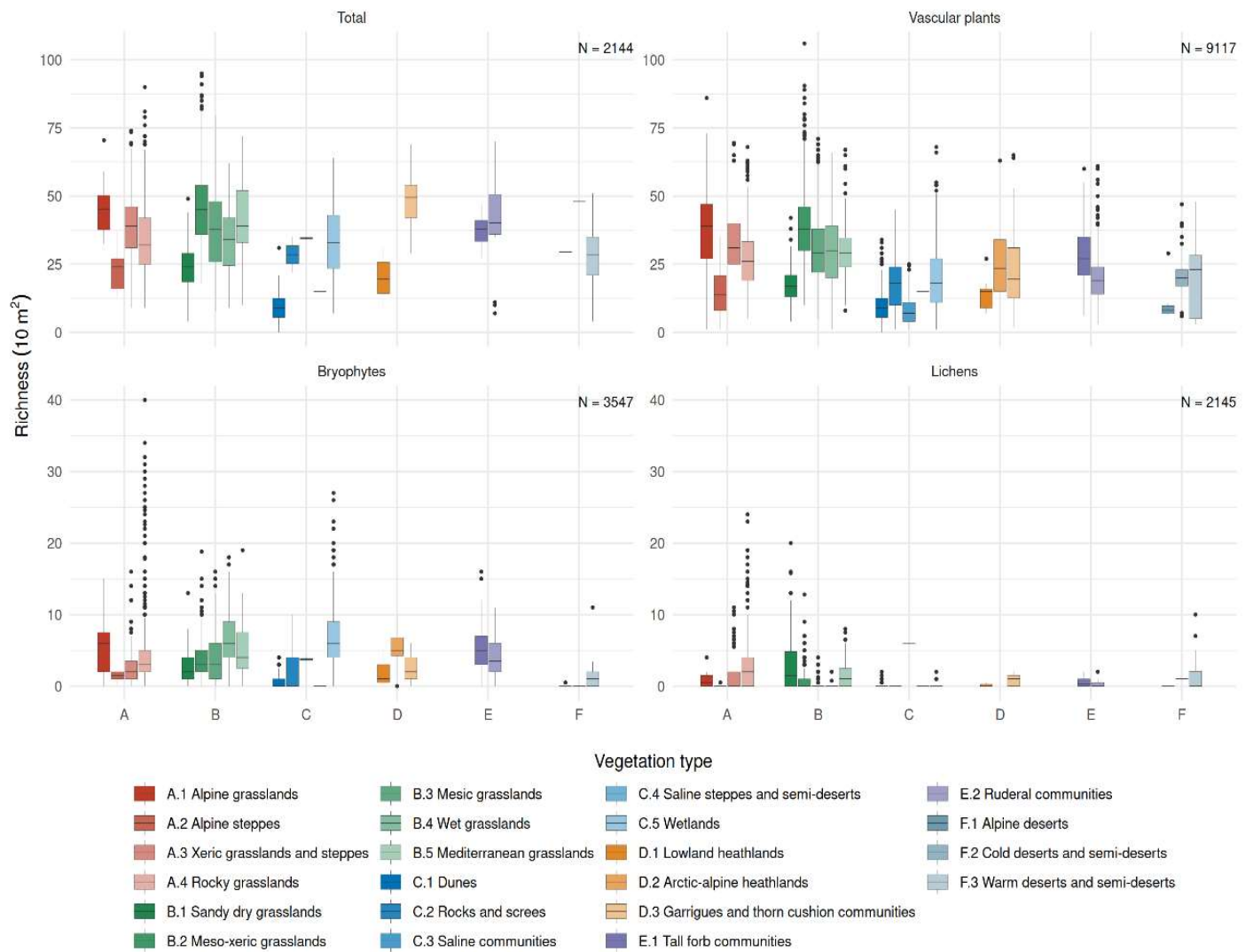


Figure S5.10. Richness at 10 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

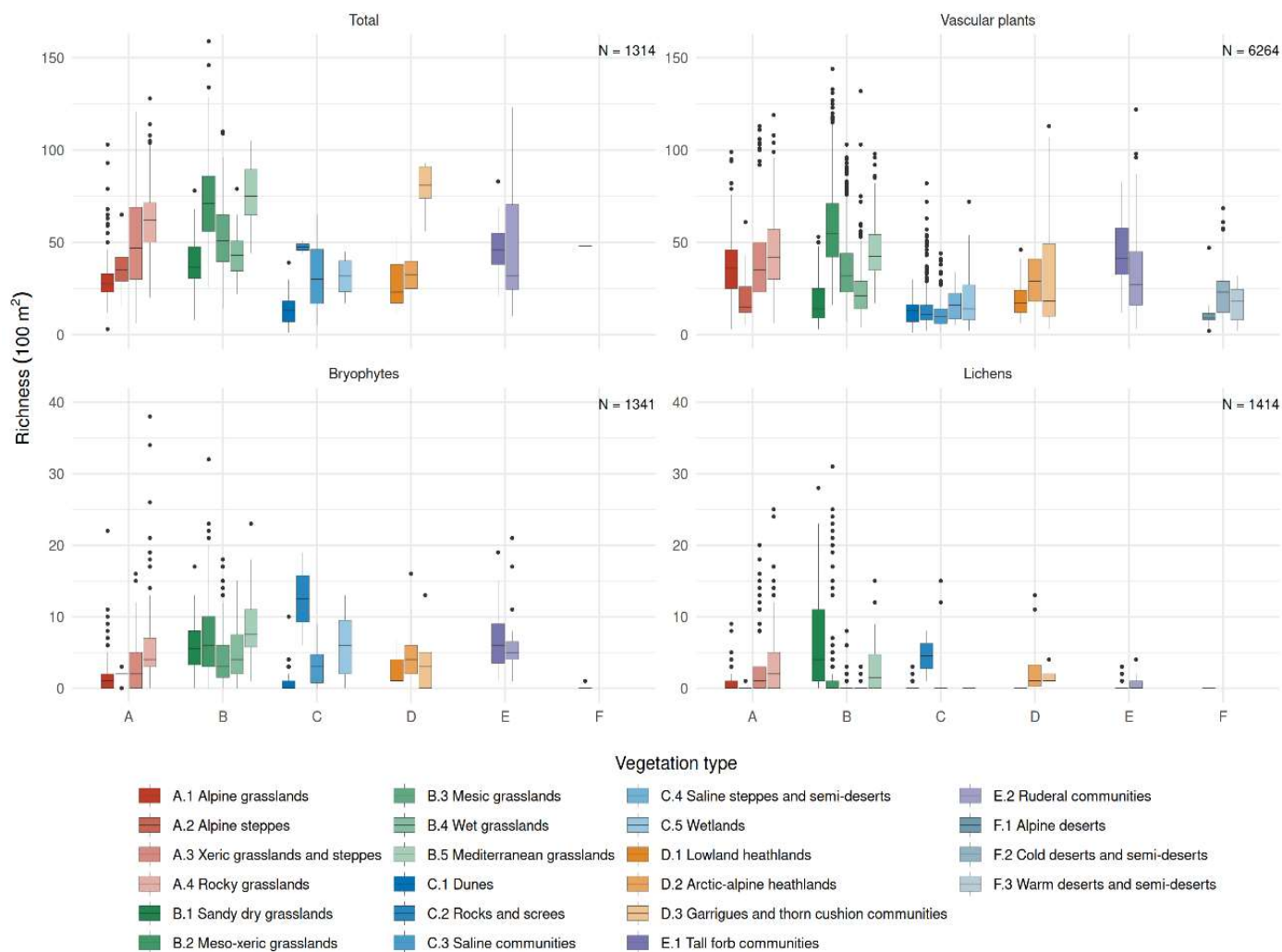


Figure S5.11. Richness at 100 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

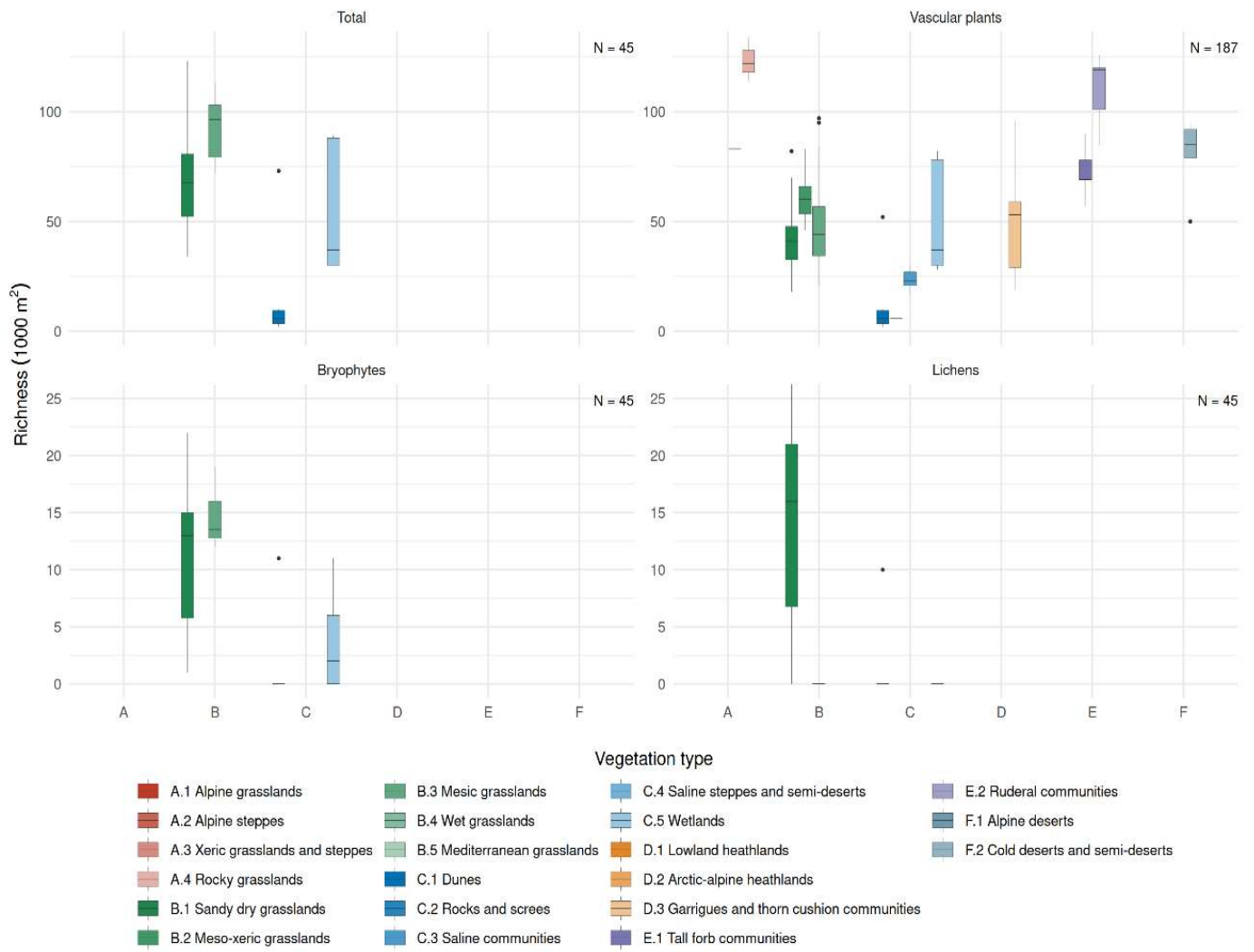


Figure S5.12. Richness at 1000 m² of the four plant groups across fine-level vegetation types. *N* is the number of plots. No filtering by sampling method (rooted vs. shoot) was applied.

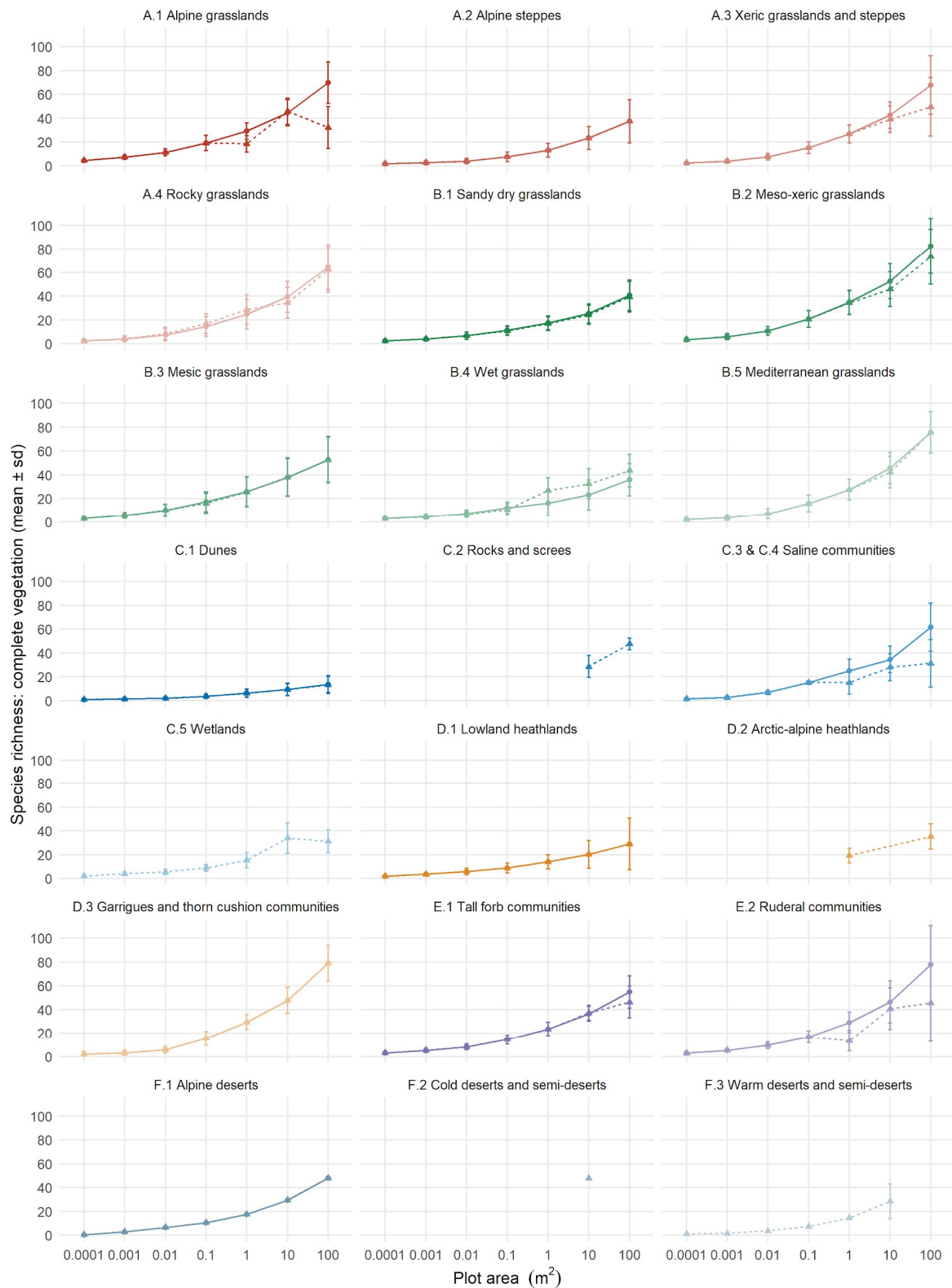


Figure S5.13. Species-area relationships for the complete vegetation and fine-level vegetation types. SARs for the complete dataset (dashed line) and for the subset including only plots from nested series with at least seven standard grain sizes (continuous line) are shown. C.3 & C.4 category includes saline communities and saline steppes and semi-deserts. No filtering by sampling method (rooted vs. shoot) was applied.

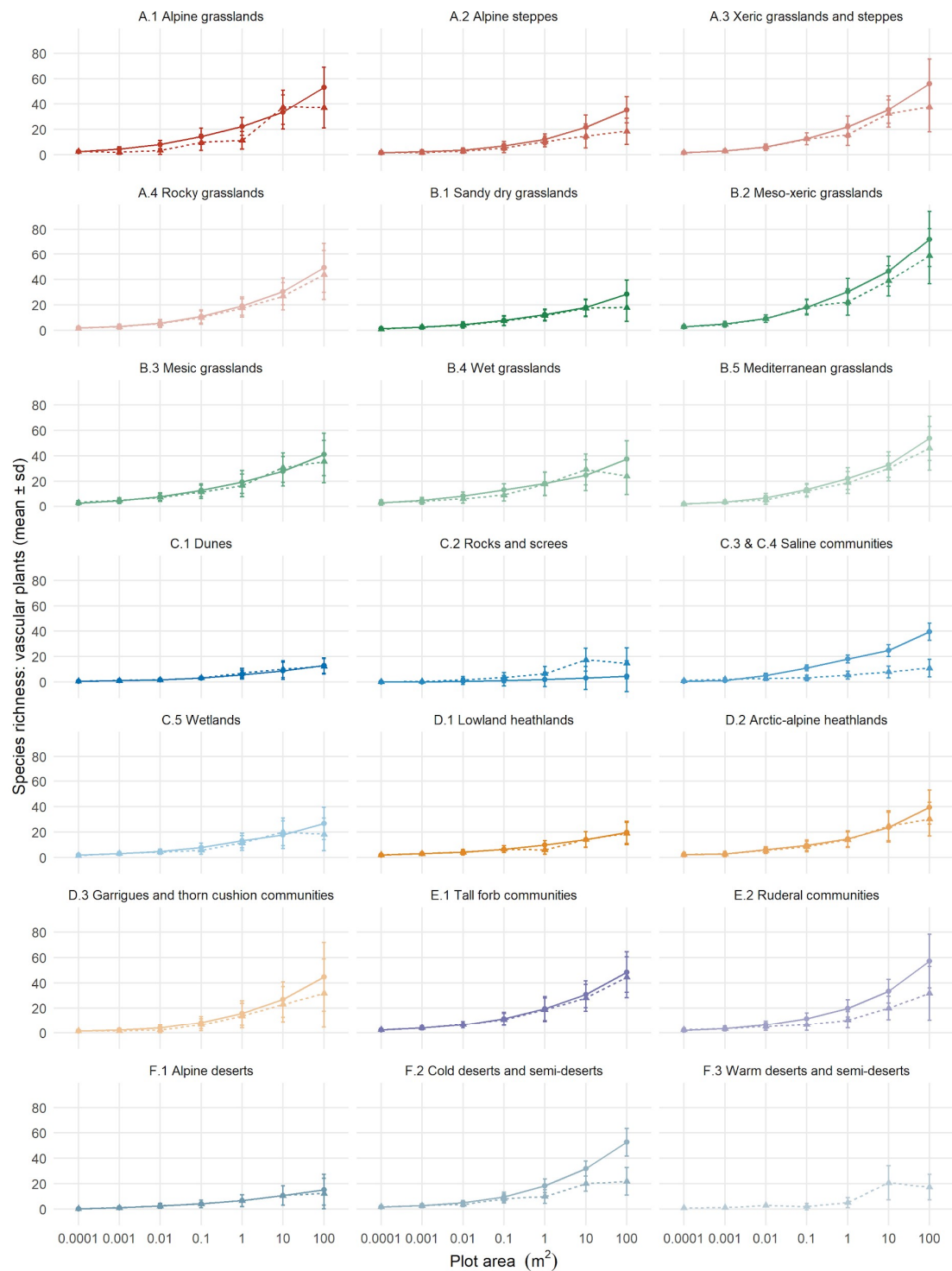


Figure S5.14. Species-area relationships for vascular plants and fine-level vegetation types. SARs for the complete dataset (dashed line) and for the subset including only plots from nested series with at least seven standard grain sizes (continuous line) are shown. C.3 & C.4 category includes saline communities and saline steppes and semi-deserts. No filtering by sampling method (rooted vs. shoot) was applied.

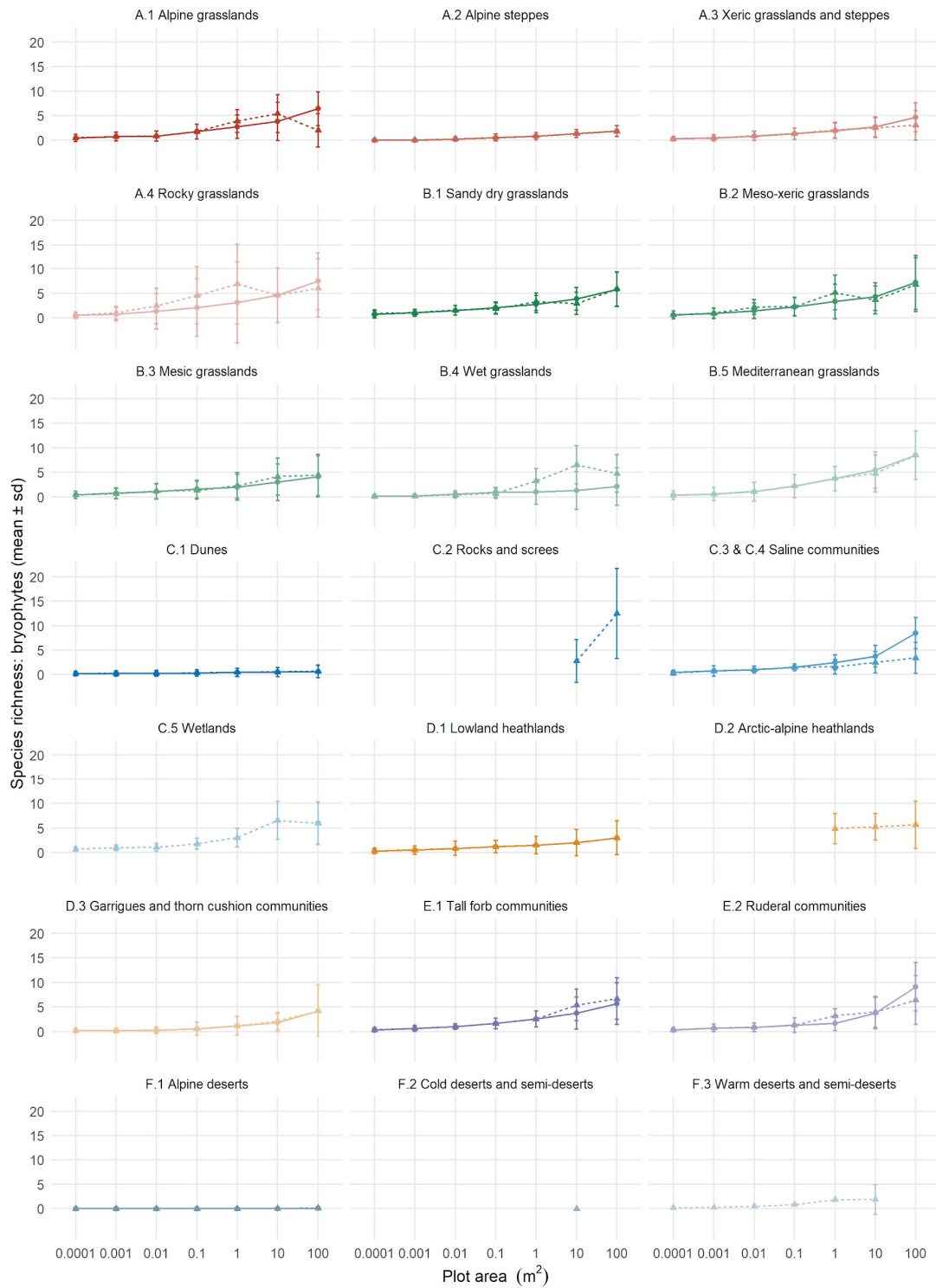


Figure S5.15. Species-area relationships for bryophytes and fine-level vegetation types. SARs for the complete dataset (dashed line) and for the subset including only plots from nested series with at least seven standard grain sizes (continuous line) are shown. C.3 & C.4 category includes saline communities and saline steppes and semi-deserts. No filtering by sampling method (rooted vs. shoot) was applied.

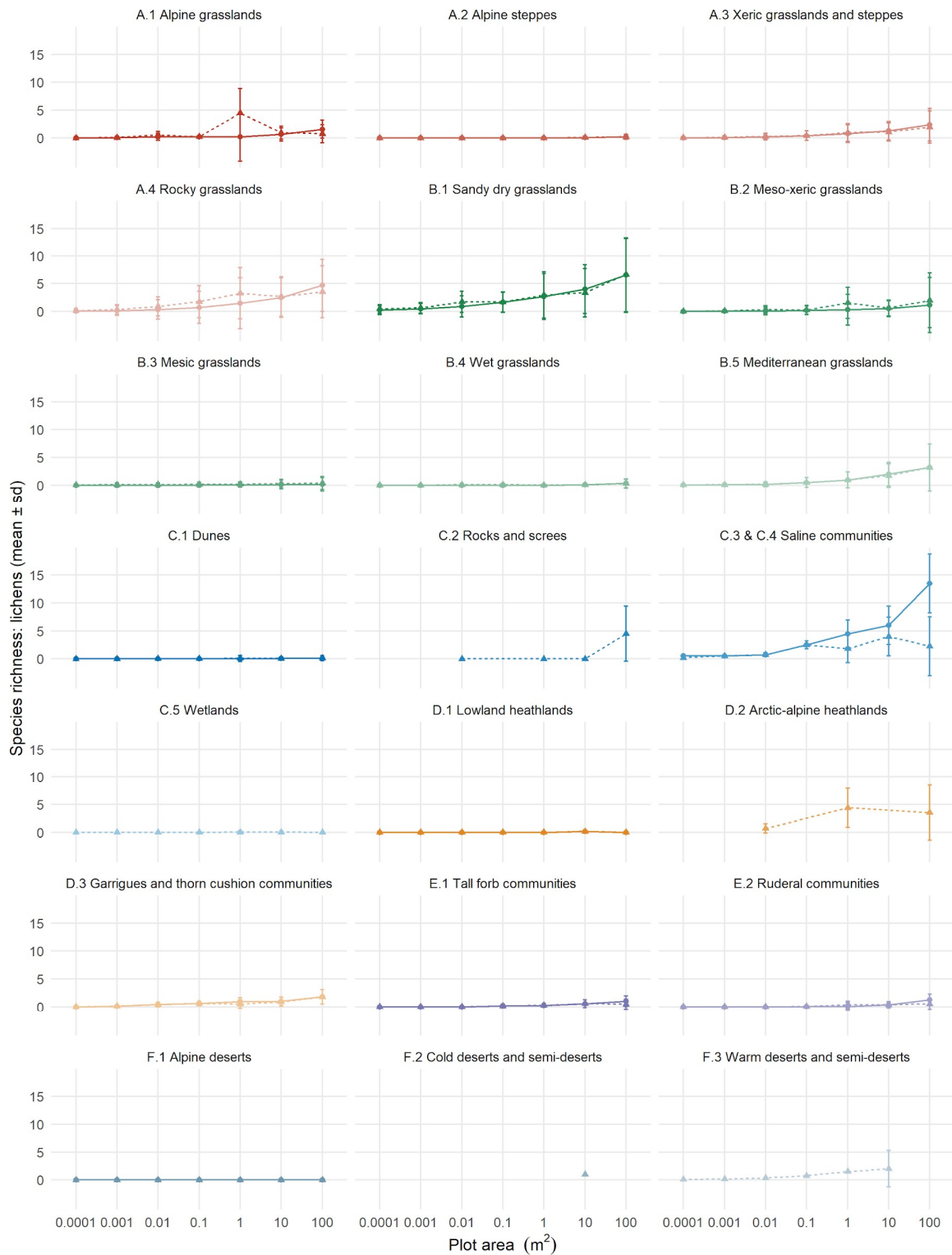


Figure S5.16. Species-area relationships for lichens and fine-level vegetation types. SARs for the complete dataset (dashed line) and for the subset including only plots from nested series with at least seven standard grain sizes (continuous line) are shown. C.3 & C.4 category includes saline communities and saline steppes and semi-deserts. No filtering by sampling method (rooted vs. shoot) was applied.

Table S5.1. Maximum richness values for each plant group and grain size across biomes. The richest values for each plant group are shown in blue. Alp: Alpine; Pol: Polar and subpolar; Bor: Boreal; Dmi: Dry midlatitudes; Tmi: Temperate midlatitudes; Syr: Subtropics with year-round rain; Swr: Subtropics with winter rain; Dtr: Dry tropics and subtropics. + or - before the maximum values indicate that they are derived from slightly smaller (+) or bigger (-) grain sizes than the standard ones, i.e., 0.0009, 0.09, 9, 10.89, 900 or 1024 m² respectively. Maximum richness for the exact grain size is indicated in brackets in upper case. No filtering by sampling method (rooted vs. shoot) applied.

Area [m ²]	Complete vegetation								Vascular plants							
	Alp	Pol	Bor	Dmi	Tmi	Syr	Swr	Dtr	Alp	Pol	Bor	Dmi	Tmi	Syr	Swr	Dtr
0.0001	3	-	5	7	10	-	9	2	5	-	5	7	11	-	8	4
0.001	7	-	9	9	19	-	15	3	9	-	9	8	19	-	12	6
0.01	13	-	16	24	29	-	22	7	12	-	14	22	23	-	24	11
0.1	22	-	31	35	46	-	35	14	23	-	28	35	43	-	37	15
1	41	30	54	56	82	-	50	28	43	23	52	51	79	58	50	49
10	59	-	80	91	101	-	85	51	86	-	72	80	-106⁽⁹⁸⁾	-	76	+48⁽⁴⁷⁾
100	82	-	106	159	146	-	123	-	89	33	94	144	133	-	122	71
1000	-	-	-	-	+123⁽⁵⁸⁾	-	-	-	-	-	-	-	+97⁽⁸³⁾	-	134	96

Area [m ²]	Bryophytes								Lichens							
	Alp	Pol	Bor	Dmi	Tmi	Syr	Swr	Dtr	Alp	Pol	Bor	Dmi	Tmi	Syr	Swr	Dtr
0.0001	1	-	2	4	5	-	5	1	0	-	2	1	4	-	1	1
0.001	2	-	2	6	+9⁽⁷⁾	-	8	+1⁽⁻⁾	0	-	2	1	6⁽³⁾	-	1	+1⁽⁻⁾
0.01	3	-	4	6	18	-	9	1	6	-	3	2	8	-	3	1
0.1	5	-	4	9	+24⁽¹⁰⁾	-	10	+2⁽⁻⁾	7	-	5	3	+15⁽⁸⁾	-	5	+2⁽⁻⁾
1	15	11	7	11	31	-	18	3	16	11	6	6	21	-	5	3
10	27	-	26	11	+40⁽²²⁾	-	19	+11⁽⁻⁾	23	-	11	9	+24⁽¹⁴⁾	-	9	+10⁽⁻⁾
100	12	-	19	12	38	-	23	-	24	-	13	11	31	-	15	-
1000	-	-	-	-	+22⁽²⁾	-	-	-	-	-	-	-	+35⁽⁵⁾	-	-	-

Table S5.2. Comparison of mean richness of vascular plants in plots recorded using the “rooted presence” and the “shoot presence” methods across the six coarse-level vegetation types. S = shoot presence; R = rooted presence; %S = percentage richness difference: blue and red colours indicate richness increase or decrease, respectively, in shoot method vs. rooted method. A = natural grasslands; B = secondary grasslands; C = azonal communities; D = dwarf shrublands; E = tall-forb and ruderal communities; F = deserts and semi-deserts.

Area [m ²]	A			B			C			D			E			F		
	R	S	%S	R	S	%S	R	S	%S	R	S	%S	R	S	%S	R	S	%S
0.0001	0.4	1.9	421	0.5	2.9	436	0.0	0.8	NA	-	1.8	NA	-	2.4	NA	-	0.8	NA
0.001	1.6	2.8	77	3.5	4.5	28	2.6	1.4	46	-	1.8	NA	-	3.5	NA	-	1.6	NA
0.01	5.8	4.2	28	5.8	8.1	38	3.8	3.7	4	5.1	3.0	42	-	5.6	NA	-	3.6	NA
0.1	7.5	11.3	51	12.0	15.1	26	3.0	3.8	27	3.3	7.0	111	5.8	9.9	71	2.1	8.3	294
1	14.8	12.6	15	19.7	17.8	10	5.5	8.9	63	13.9	11.3	18	10.8	13.6	26	5.4	10.6	97
10	25.8	33.2	29	29.9	33.4	12	16.6	18.1	10	17.7	23.8	34	20.6	24.2	18	16.9	19.9	17
100	35.9	39.2	9	28.9	45.0	56	12.5	14.5	16	15.3	33.9	122	34.0	38.7	14	12.6	24.3	93
1000	123.3	83.0	33	56.3	41.8	26	23.6	6.0	75	-	50.7	NA	93.0	91.0	2	-	80.2	NA