

1Electronic supplementary material to the article:

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3 **Do patterns of intra-specific variability and community weighted-means of leaf traits**  
4 **correspond? An example from alpine plants**

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21 Table S1 Leaf traits for alpine plants in studied communities

22 Abbreviations: ALH – alpine lichen heath, FVG – *Festuca varia* grassland, GHM – *Geranium-Hedysarum* meadow, SBC – snow bed community, SE -  
 23 standard error, N – number of samples

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Species	ALH			FVG			GHM			SBC		
	mean	SE	N	mean	SE	N	mean	SE	N	mean	SE	N
	<b>Leaf area, cm<sup>2</sup></b>											
<i>Agrostis vinealis</i>							3.60	0.35	12	3.93	0.37	12
<i>Campanula collina</i>	2.22	0.23	12	3.77	0.35	12						
<i>Campanula tridentata</i>	1.78	0.13	12				2.20	0.13	12			
<i>Carex atrata</i>				9.72	1.08	12	10.15	0.87	12			
<i>Catabrosella variegata</i>							4.76	0.38	12	3.38	0.28	12
<i>Festuca brunnescens</i>				1.57	0.09	12	1.12	0.07	12			
<i>Festuca varia</i>				4.88	0.25	12	4.97	0.35	12			
<i>Gentiana septemfida</i>	1.88	0.13	12	2.15	0.26	12						
<i>Leontodon hispidus</i>				11.61	1.00	12	15.40	1.51	12			
<i>Minuartia aizoides</i>							0.10	0.01	12	0.12	0.01	12
<i>Nardus stricta</i>				1.50	0.08	12	1.41	0.04	12	1.17	0.08	12
<i>Phleum alpinum</i>							8.72	0.78	12	5.71	0.29	12
<i>Polygonum bistorta</i>	18.77	1.79	12	47.79	6.23	12						
<i>Ranunculus oreophilus</i>	9.12	0.91	12	15.70	1.71	12						
<i>Scorzonera cana</i>	1.80	0.18	12	3.90	0.61	12						
<i>Sibbaldia procumbens</i>							5.33	0.41	12	2.93	0.38	12
<i>Veronica gentianoides</i>	3.80	0.40	12	5.68	0.46	12	8.93	0.59	12			
	<b>Dry mass, g</b>											
<i>Agrostis vinealis</i>							0.0149	0.000955	12	0.0176	0.001867	12
<i>Campanula collina</i>	0.011	0.002	12	0.013	0.001	12						
<i>Campanula tridentata</i>	0.012	0.001	12				0.010	0.001	12			
<i>Carex atrata</i>				0.055	0.007	12	0.060	0.005	12			
<i>Catabrosella variegata</i>							0.023	0.004	12	0.014	0.001	12
<i>Festuca brunnescens</i>				0.013	0.001	12	0.008	0.001	12			
<i>Festuca varia</i>				0.042	0.003	12	0.049	0.004	12			

	ALH			FVG			GHM			SBC		
<i>Gentiana septemfida</i>	0.008	0.001	12	0.008	0.001	12						
<i>Leontodon hispidus</i>				0.044	0.006	12	0.054	0.006	12			
<i>Minuartia aizoides</i>							0.001	0.000	12	0.001	0.000	12
<i>Nardus stricta</i>				0.012	0.001	12	0.012	0.001	12	0.009	0.001	12
<i>Phleum alpinum</i>							0.034	0.003	12	0.022	0.001	12
<i>Polygonum bistorta</i>	0.127	0.012	12	0.225	0.026	12						
<i>Ranunculus oreophilus</i>	0.056	0.006	12	0.079	0.009	12						
<i>Scorzonera cana</i>	0.012	0.001	12	0.022	0.003	12						
<i>Sibbaldia procumbens</i>							0.027	0.002	12	0.012	0.001	12
<i>Veronica gentianoides</i>	0.021	0.003	12	0.033	0.004	12	0.053	0.004	12			
				<b>SLA, cm<sup>2</sup>/g</b>								
<i>Agrostis vinealis</i>							240.8	16.5	12	228.4	9.2	12
<i>Campanula collina</i>	217.0	8.4	12	300.5	14.4	12						
<i>Campanula tridentata</i>	149.1	5.5	12				220.7	6.8	12			
<i>Carex atrata</i>				180.6	5.2	12	168.3	3.9	12			
<i>Catabrosella variegata</i>							249.8	24.2	12	248.6	10.4	12
<i>Festuca brunnescens</i>				125.0	7.0	12	134.1	2.5	12			
<i>Festuca varia</i>				121.6	9.8	12	104.3	3.9	12			
<i>Gentiana septemfida</i>	262.3	17.0	12	276.5	8.5	12						
<i>Leontodon hispidus</i>				276.7	13.8	12	290.1	15.3	12			
<i>Minuartia aizoides</i>							194.8	7.7	12	207.4	7.3	12
<i>Nardus stricta</i>				121.7	2.9	12	117.7	4.2	12	129.0	2.9	12
<i>Phleum alpinum</i>							265.3	10.7	12	256.6	7.2	12
<i>Polygonum bistorta</i>	150.8	6.7	12	213.9	9.1	12						
<i>Ranunculus oreophilus</i>	165.4	5.6	12	202.5	7.5	12						
<i>Scorzonera cana</i>	154.9	7.0	12	176.8	9.0	12						
<i>Sibbaldia procumbens</i>							195.2	4.6	12	233.0	6.8	12
<i>Veronica gentianoides</i>	190.3	8.2	12	182.7	8.6	12	170.8	6.0	12			
				<b>Thickness, mm</b>								

	ALH			FVG			GHM			SBC		
<i>Agrostis vinealis</i>							0.174	0.008	11	0.169	0.010	11
<i>Campanula collina</i>	0.28	0.01	12	0.241	0.007	12						
<i>Campanula tridentata</i>	0.30	0.01	11				0.276	0.009	11			
<i>Carex atrata</i>				0.251	0.007	11	0.263	0.007	11			
<i>Catabrosella variegata</i>							0.213	0.009	11	0.192	0.007	11
<i>Festuca brunnescens</i>				0.180	0.007	15	0.190	0.008	15			
<i>Festuca varia</i>				0.284	0.012	15	0.255	0.007	15			
<i>Gentiana septemfida</i>	0.26	0.01	11	0.205	0.011	11						
<i>Leontodon hispidus</i>				0.248	0.012	11	0.272	0.012	11			
<i>Minuartia aizoides</i>							0.289	0.009	11	0.266	0.006	11
<i>Nardus stricta</i>				0.170	0.004	15	0.188	0.006	15	0.174	0.003	15
<i>Phleum alpinum</i>							0.153	0.009	11	0.150	0.004	11
<i>Polygonum bistorta</i>	0.35	0.01	11	0.334	0.013	11						
<i>Ranunculus oreophilus</i>	0.45	0.02	11	0.423	0.010	11						
<i>Scorzonera cana</i>	0.30	0.01	11	0.327	0.022	11						
<i>Sibbaldia procumbens</i>							0.187	0.007	11	0.155	0.004	11
<i>Veronica gentianoides</i>	0.56	0.02	11	0.489	0.009	11	0.477	0.029	11			
<b>Water content, %</b>												
<i>Agrostis vinealis</i>							76.4	0.9	12	74.1	1.0	12
<i>Campanula collina</i>	82.3	0.5	12	84.1	0.4	12						
<i>Campanula tridentata</i>	76.4	0.5	12				81.9	0.4	12			
<i>Carex atrata</i>				68.0	3.0	12	70.5	1.7	12			
<i>Catabrosella variegata</i>							78.1	1.5	12	77.1	0.8	12
<i>Festuca brunnescens</i>				60.8	1.0	12	66.4	0.4	12			
<i>Festuca varia</i>				68.5	0.6	12	65.7	0.7	12			
<i>Gentiana septemfida</i>	80.5	0.5	12	80.8	0.5	12						
<i>Leontodon hispidus</i>				86.0	0.7	12	87.6	0.6	12			
<i>Minuartia aizoides</i>							77.9	0.9	12	78.7	0.6	12
<i>Nardus stricta</i>				64.5	0.6	12	62.8	0.8	12	66.9	0.3	12

	ALH			FVG			GHM			SBC		
<i>Phleum alpinum</i>							73.2	0.6	12	74.0	0.6	12
<i>Polygonum bistorta</i>	80.0	2.4	12	83.8	0.3	12						
<i>Ranunculus oreophilus</i>	80.3	0.3	12	81.9	0.3	12						
<i>Scorzonera cana</i>	81.2	0.6	12	83.2	0.4	12						
<i>Sibbaldia procumbens</i>							71.1	0.4	12	74.5	0.7	12
<i>Veronica gentianoides</i>	87.4	0.2	12	85.5	0.5	12	84.8	0.3	12			

26Table S2.

27Statistic details for meta-analysis of the correspondence in trend for leaf traits between species-  
28based and CWM based pattern among alpine communities (the CWM gradient).

		$\bar{g}$	$P(\bar{g})$	$L_1$	$L_2$	$s_{\bar{g}}^2$	$s_A^2$	$Q$	$df$	$P(Q)$	$I^2$
SLA	Total	0.146	0.538	-0.318	0.610	0.056	0.863	98.8	18	<0.001	81.8
	forb	0.160	0.695	-0.641	0.960	0.167	1.611	86.8	10	<0.001	88.5
	gram	0.113	0.112	-0.259	0.485	0.036	0.115	11.7	7	0.112	40
Thickness	Total	0.010	0.961	-0.380	0.399	0.039	0.559	72.1	18	<0.001	75
	forb	0.094	0.770	-0.537	0.725	0.104	0.931	54.6	10	<0.001	81.7
	gram	-0.096	0.664	-0.528	0.336	0.049	0.226	16.7	7	0.019	58.2
Leaf area	Total	-0.694	0.001	-1.108	-0.280	0.045	0.649	77.3	18	<0.001	76.7
	forb	-1.042	<0.0001	-1.504	-0.580	0.056	0.404	29.7	10	0.001	66.3
	gram	-0.219	0.507	-0.865	0.427	0.109	0.681	32.5	7	<0.001	78.5
Water content	Total	-0.069	0.816	-0.651	0.513	0.088	1.453	145.0	18	<0.001	87.6
	forb	0.032	0.943	-0.841	0.904	0.198	1.945	99.8	10	<0.001	90
	gram	-0.201	0.610	-0.973	0.571	0.155	1.043	44.6	7	<0.001	84.3
Dry mass	Total	-0.480	0.015	-0.868	-0.092	0.039	0.552	70.6	18	<0.001	74.5
	forb	-0.673	0.010	-1.188	-0.159	0.069	0.562	39.2	10	<0.001	74.5
	gram	-0.219	0.472	-0.814	0.377	0.092	0.553	28.0	7	0.002	75

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30Abbreviations:  $\bar{g}$  – the standardized mean difference,  $P(\bar{g})$  – the  $P$ -value for  $\bar{g}$ ,  $L_1, L_2$  – the 95% confidence limits for  
31 $\bar{g}$ ,  $s_{\bar{g}}^2$  – the variance of  $\bar{g}$ ,  $Q$  – the effect size homogeneity statistics,  $P(Q)$  – the  $P$ -value for  $Q$ ,  $s_A^2$  – the added variance  
32component, the between-studies variance ( $\tau^2$  in the ‘meta’ package),  $I^2$  – the proportion of the variation in the effect  
33sizes that is due to heterogeneity, % (it is analogous to the ANOVA intraclass correlation coefficient),  $df$  – the number  
34of degrees of freedom (number of studies – 1)

35Table S3.

36Statistic details for meta- analysis of the correspondence in trend for leaf traits between species-  
 37based and CWM based pattern among alpine communities according to the toposequence model  
 38(the snowmelt gradient)

		$\bar{g}$	$P(\bar{g})$	$L_1$	$L_2$	$s_{\bar{g}}^2$	$s_A^2$	$Q$	$df$	$P(Q)$	$I^2$
SLA	Total	-0.520	0.018	-0.951	-0.090	0.048	0.717	85.2	18	<0.001	78.9
	forb	-1.014	0.001	-1.635	-0.393	0.102	0.884	52.4	10	<0.001	80.9
	gram	0.113	0.552	-0.260	0.485	0.036	0.115	11.7	7	0.112	40
Thickness	Total	0.42	0.014	0.084	0.756	0.029	0.370	54.0	18	<0.001	66.7
	forb	0.677	0.004	0.212	1.141	0.056	0.411	29.9	10	<0.001	66.5
	gram	0.096	0.664	-0.336	0.528	0.049	0.226	16.7	7	0.019	58.2
Leaf area	Total	-0.262	0.298	-0.755	0.231	0.063	1.003	109.9	18	<0.001	83.6
	forb	-0.912	0.001	-1.442	-0.381	0.073	0.599	39.2	10	<0.001	74.5
	gram	0.603	0.018	0.102	1.104	0.065	0.335	19.6	7	0.006	64.3
Water content	Total	-0.509	0.042	-1.000	-0.018	0.063	0.986	107.4	18	<0.001	83.2
	forb	-0.734	0.023	-1.368	-0.100	0.105	0.939	56.4	10	<0.001	82.3
	gram	-0.201	0.610	-0.973	0.571	0.155	1.043	44.6	7	<0.001	84.3
Dry mass	Total	-0.143	0.514	-0.573	0.287	0.048	0.723	86.9	18	<0.001	79.3
	forb	-0.410	0.159	-0.980	0.161	0.085	0.736	48.1	10	<0.001	79.2
	gram	0.217	0.485	-0.391	0.825	0.096	0.586	29.3	7	0.001	76.1

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40Abbreviations are the same as in Table S2.

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