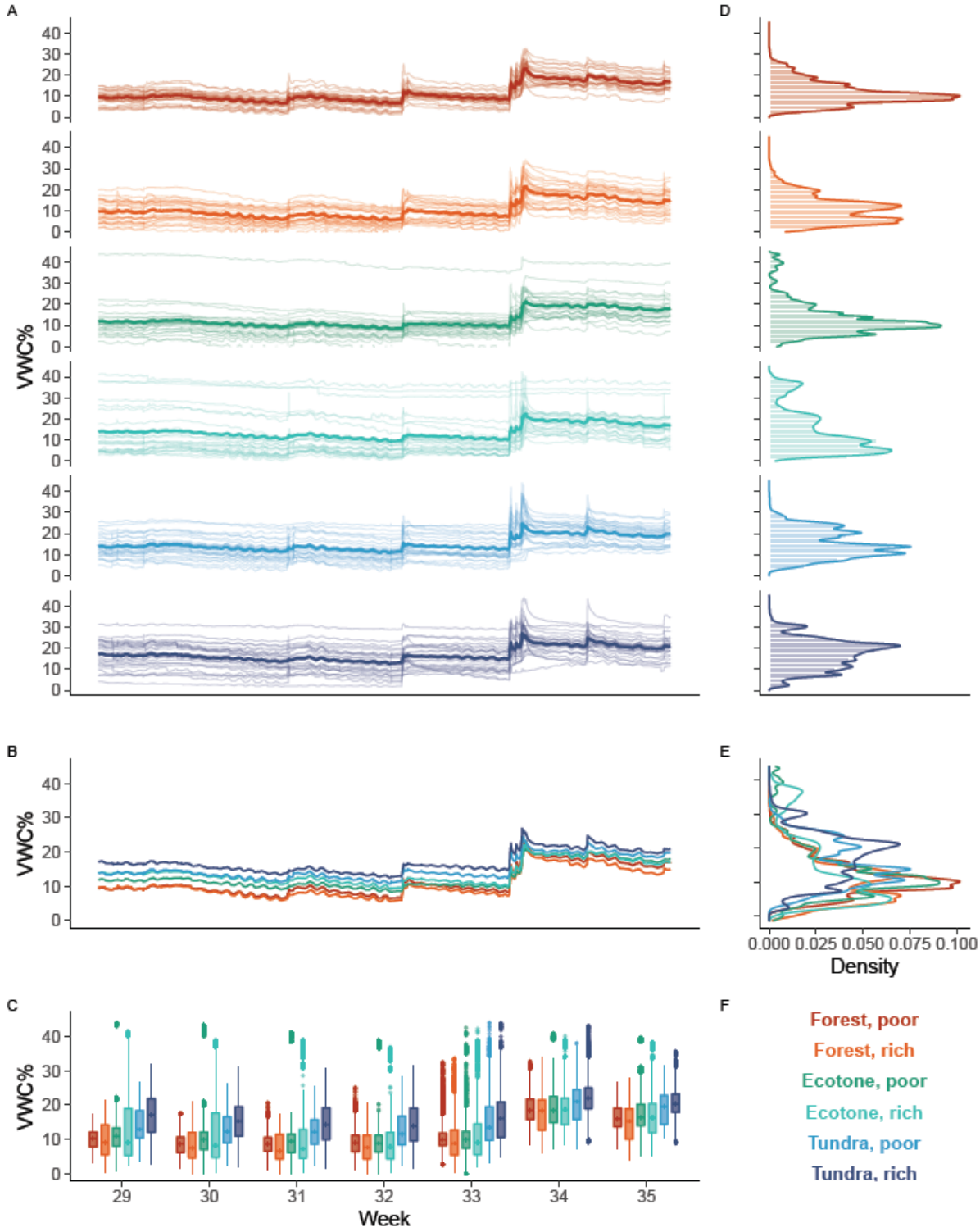
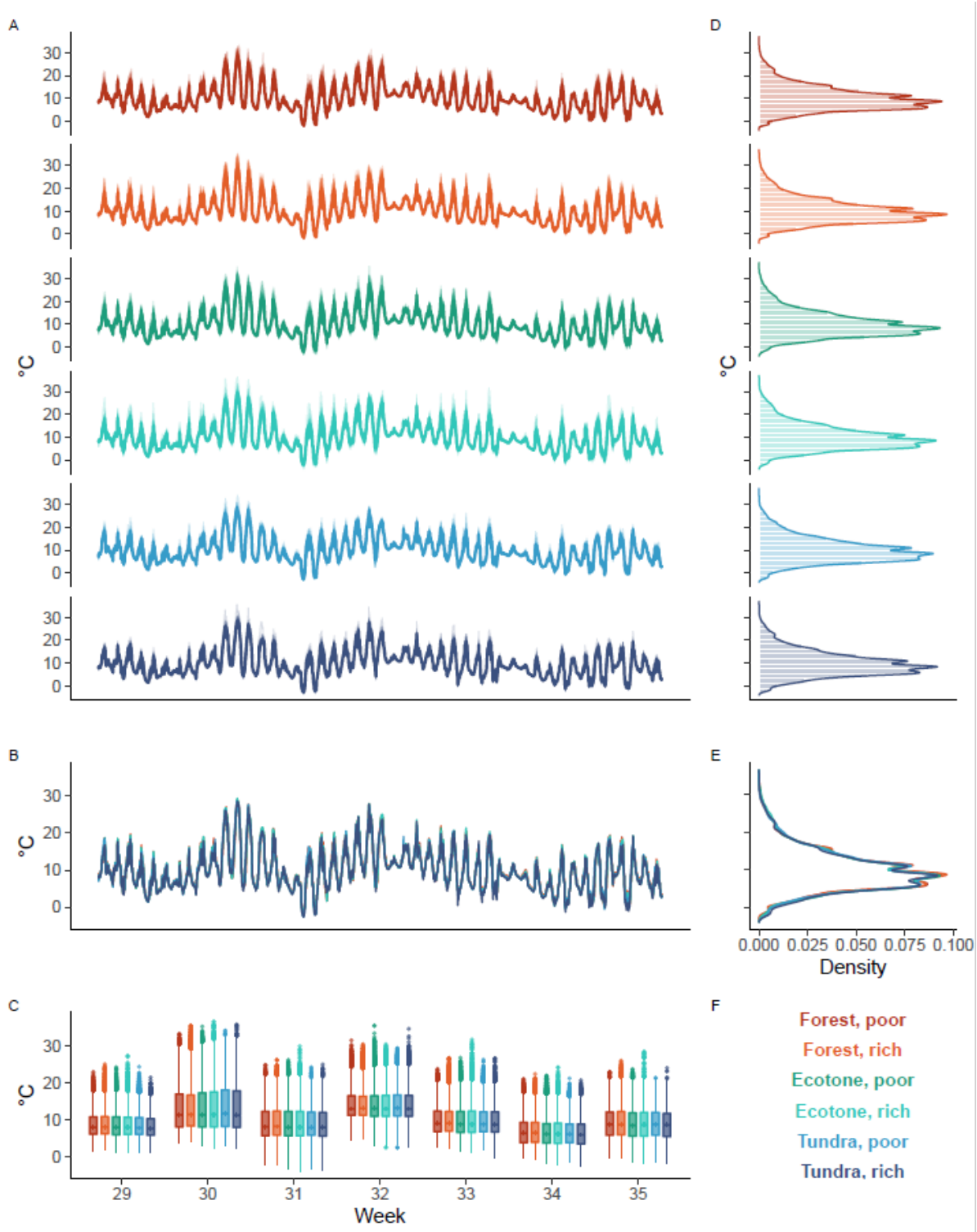
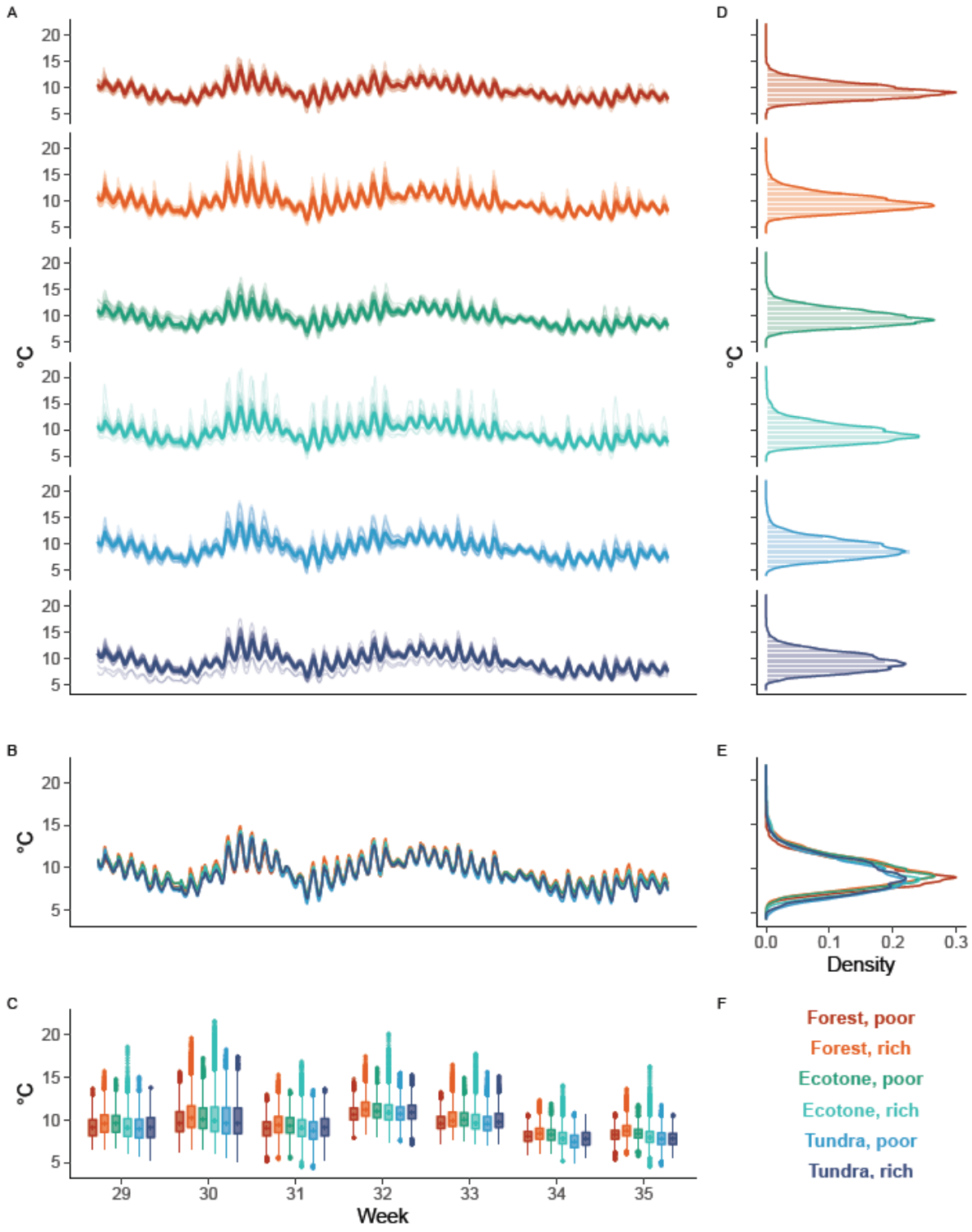
Supplementary materials



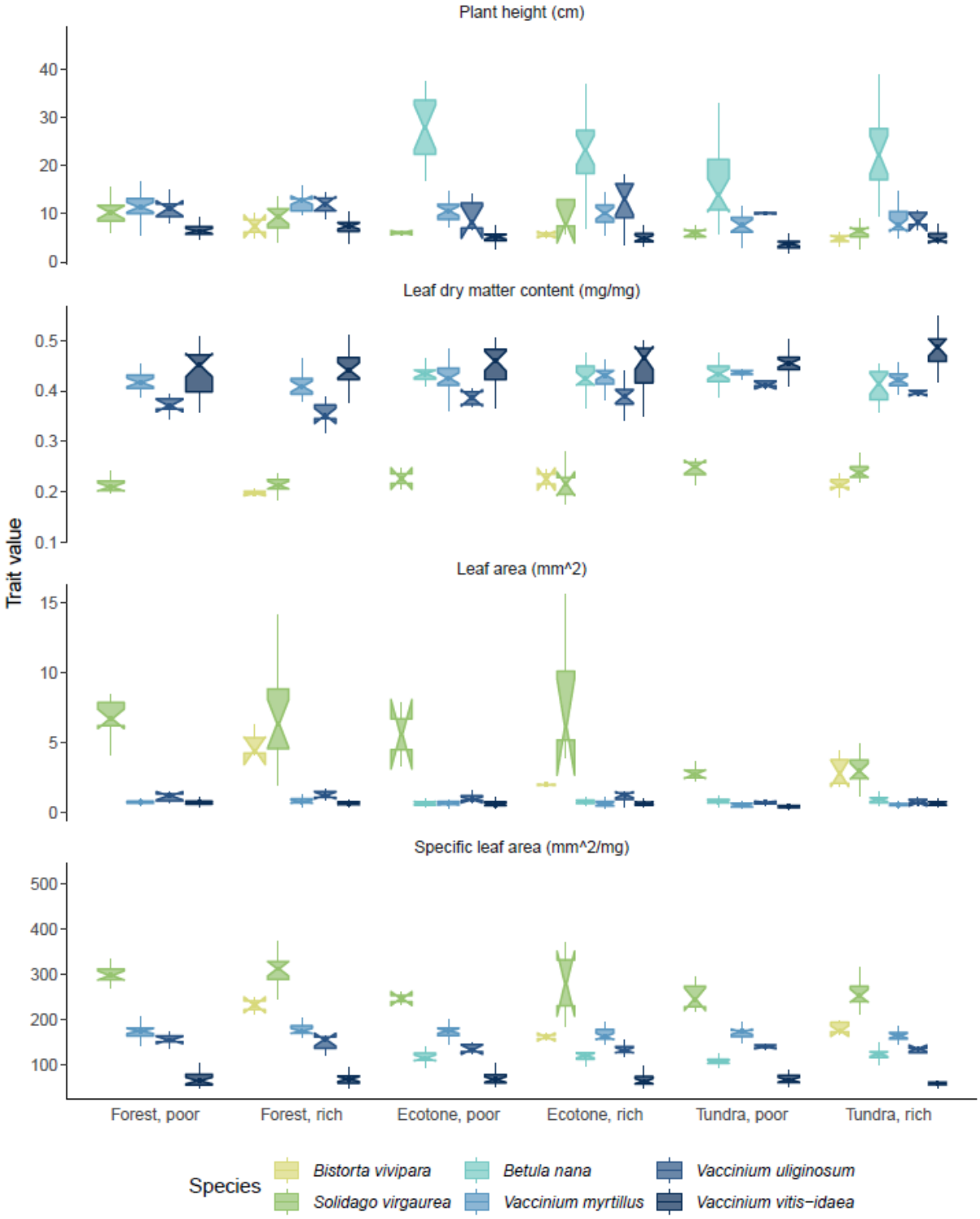
Supplementary Figure 1. Soil moisture time-series and distributions. Soil moisture time-series for each logger (thin lines) and averaged over loggers (thick lines) for each grid separately (A) and average time-series all in one panel (B). The distribution of individual moisture measurements separately (D) and plotted together (E). Boxplots showing moisture distribution by grid and week (C). VWC = volumetric water content.



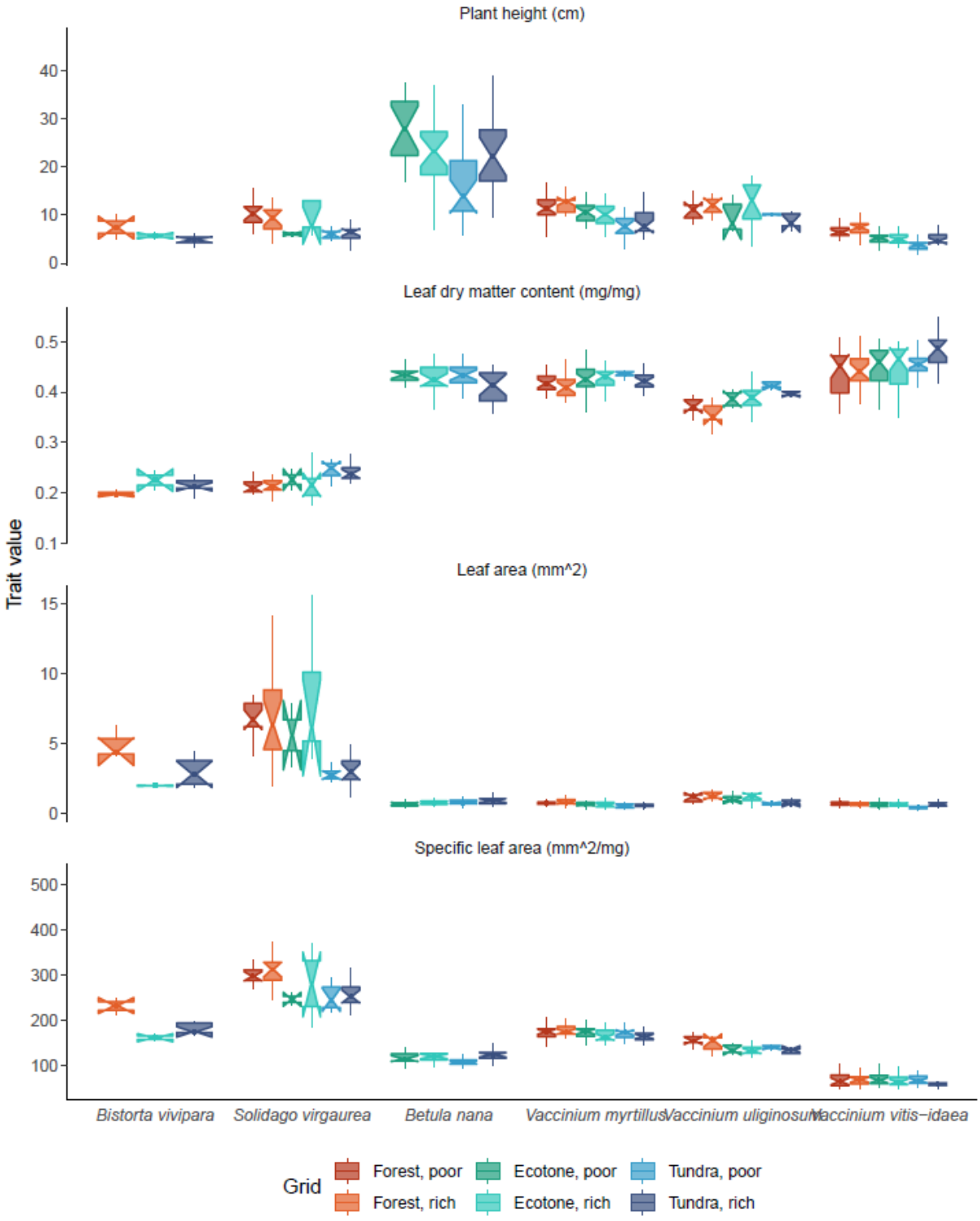
Supplementary Figure 2. Air temperature time-series and distributions. Air temperature time-series for each logger (thin lines) and averaged over loggers (thick lines) for each grid separately (A) and average timeseries all in one panel (B). The distribution of individual air temperature measurements separately (D) and plotted together (E). Boxplots showing air temperature distribution by grid and week (C).



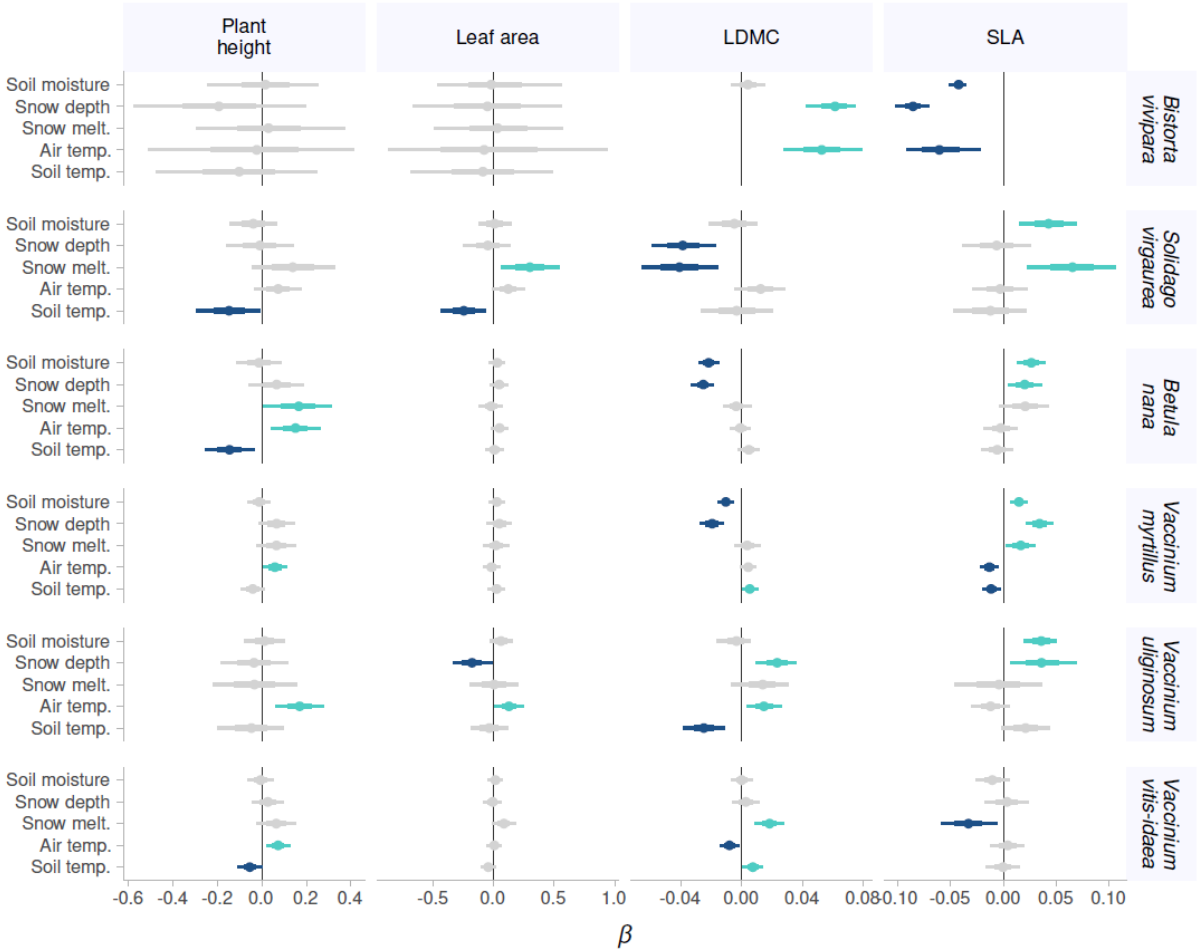
Supplementary Figure 3. Soil temperature time-series and distributions. Soil temperature time-series for each logger (thin lines) and averaged over loggers (thick lines) for each grid separately (A) and average timeseries all in one panel (B). The distribution of individual soil temperature measurements separately (D) and plotted together (E). Boxplots showing soil temperature distribution by grid and week (C).



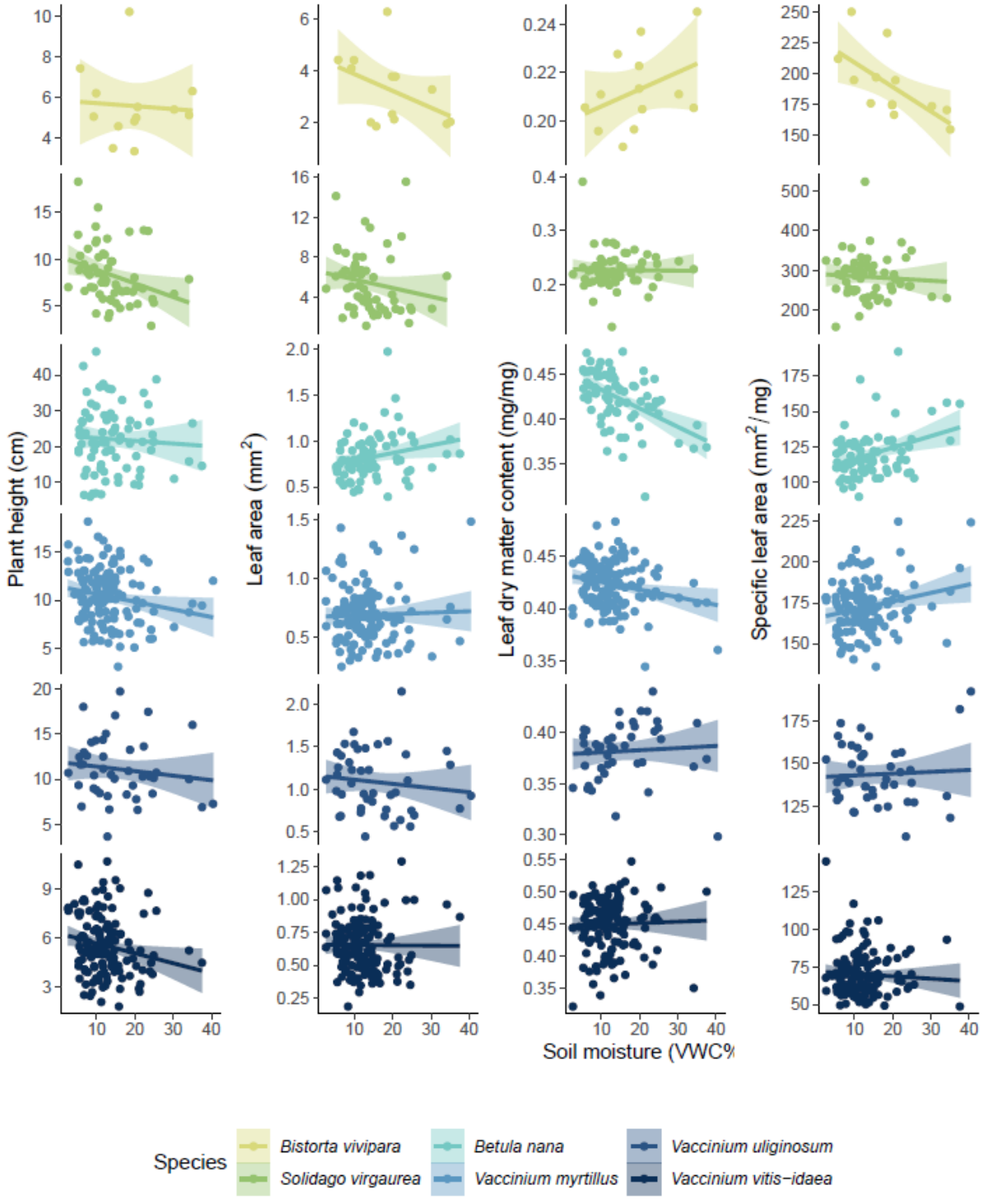
Supplementary Figure 4. Intraspecific trait variation within study grids. The boxplots represent intraspecific variation within the species. In the box plots, the notches and hinges represent the 25th, 50th, and 75th percentiles. In addition, the whiskers represent the 95% percentile intervals and the points represent the individual measurements. The same information as in Supplementary Figure 5, but arranged differently to facilitate comparison across species.



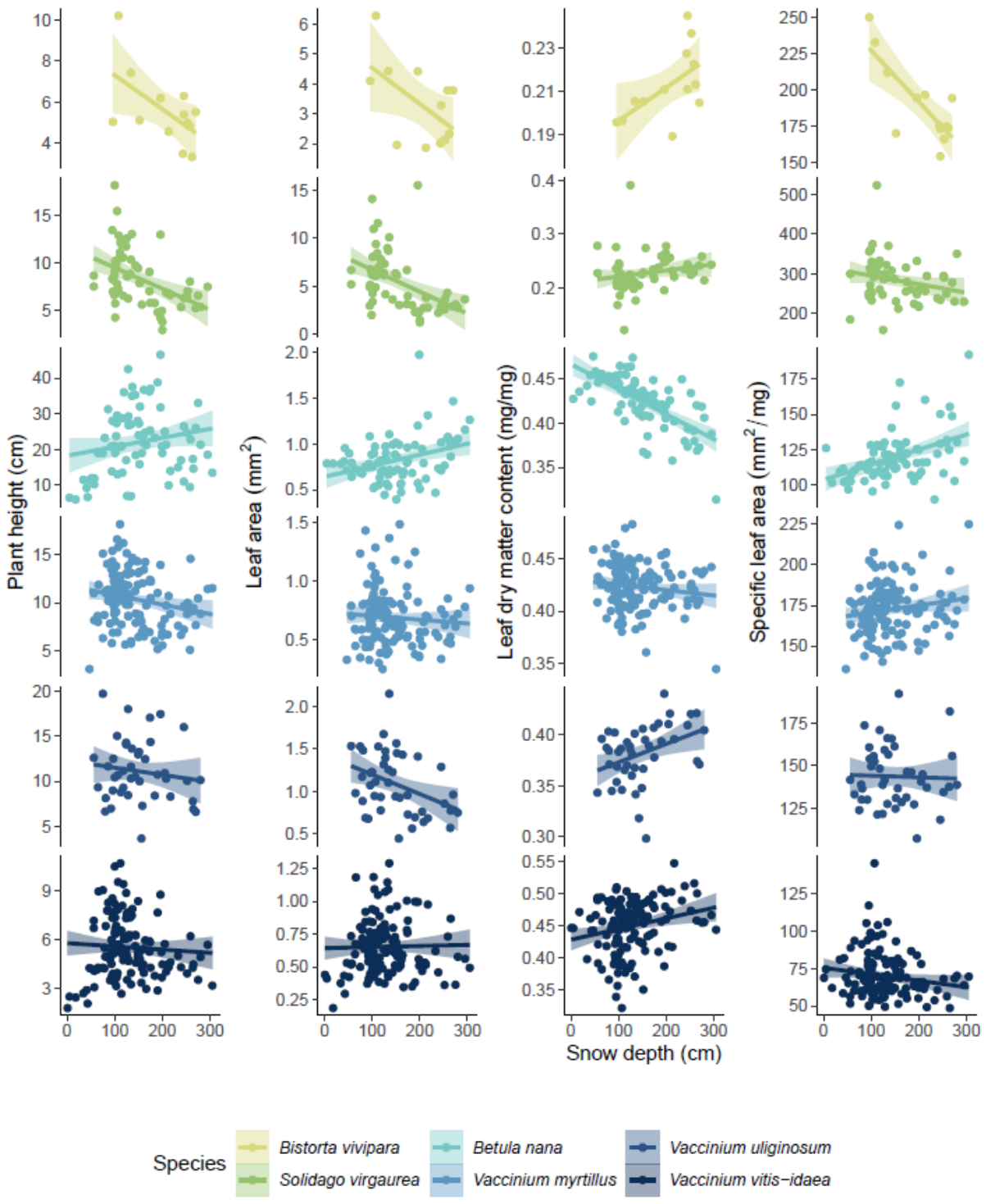
Supplementary Figure 5. Intraspecific trait variation within study grids within study species. The boxplots represent intraspecific variation within the species. In the box plots, the notches and hinges represent the 25th, 50th, and 75th percentiles. In addition, the whiskers represent the 95% percentile intervals and the points represent the individual measurements. The same information as in Supplementary Figure 4, but arranged differently to facilitate comparison within species.



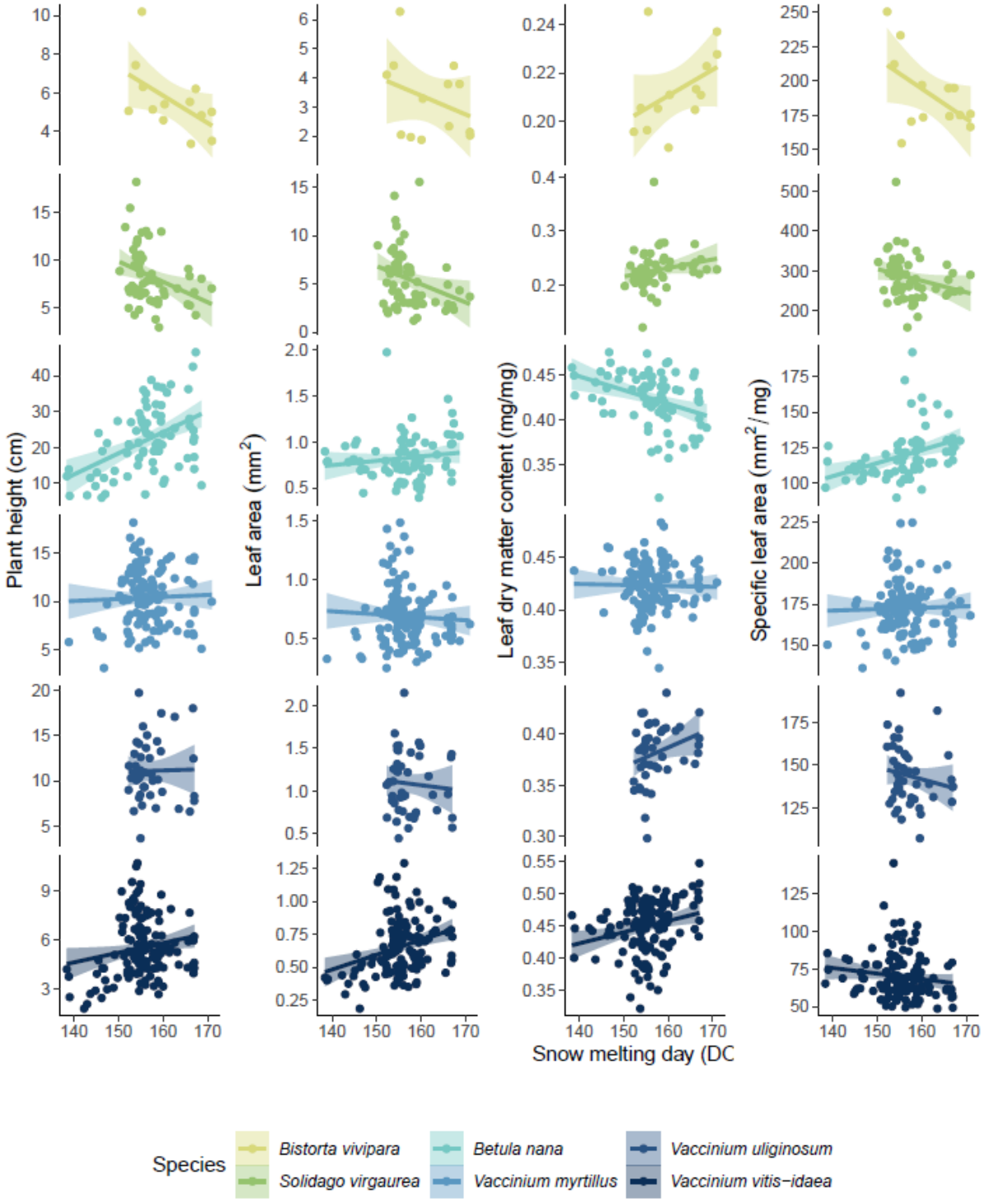
Supplementary Figure 6. Slope (ß) estimates for the predictors of the hierarchical Bayesian linear models. Models were fitted separately for each species and trait. The points represent the posterior median for slope parameters, thickened lines the 66% credible intervals, and the thin lines the 95% credible intervals. The coloured slope estimates were interpreted as "significant", as their 95% credible intervals did not cross zero. LDMC = leaf dry matter content. SLA = specific leaf area. The same information as in Figure 4, but arranged differently to facilitate comparison within species.



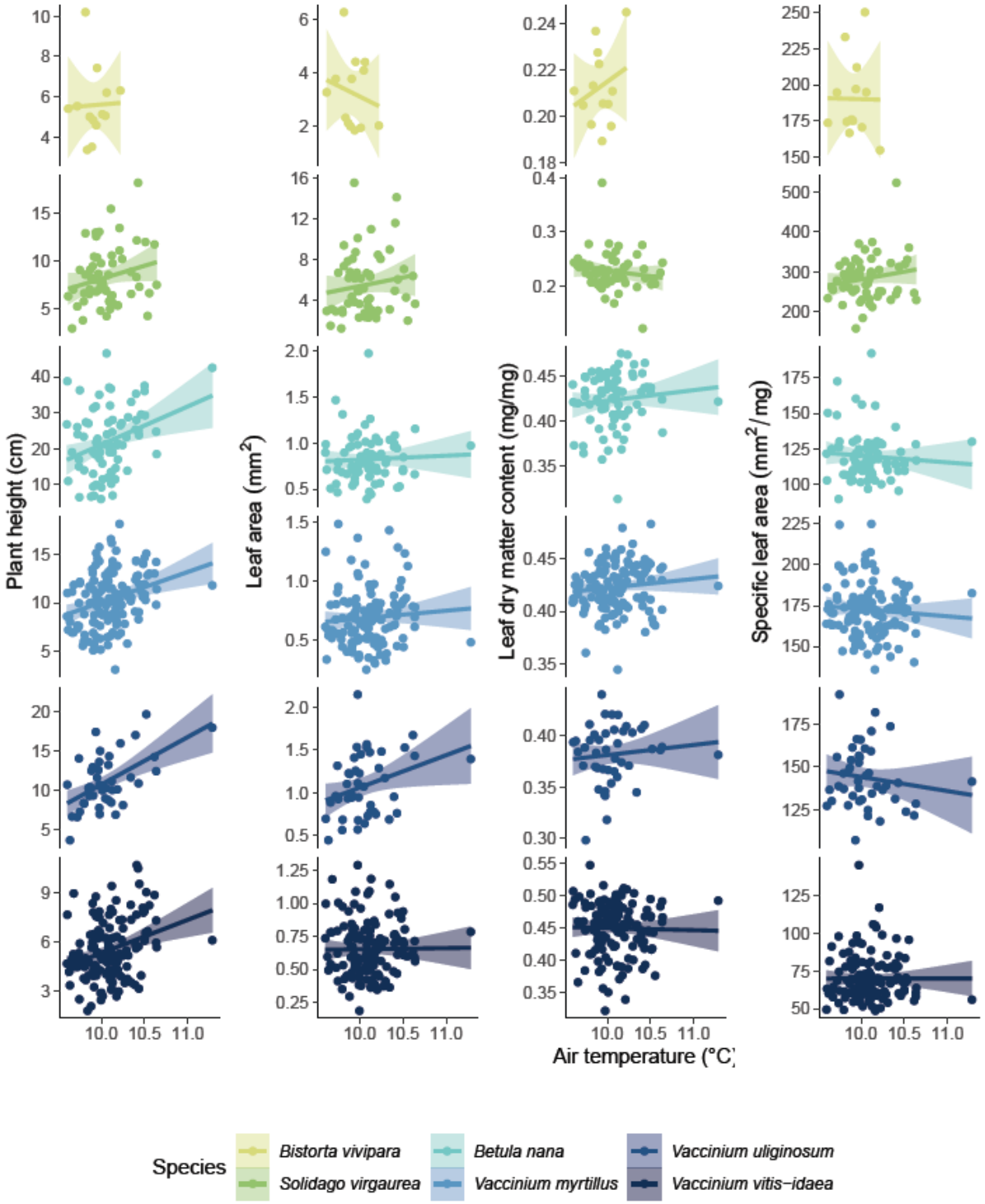
Supplementary Figure 7. Intraspecific trait variations in relation to soil moisture. The fitted lines are from simple bivariate linear models. VWC = volumetric water content.



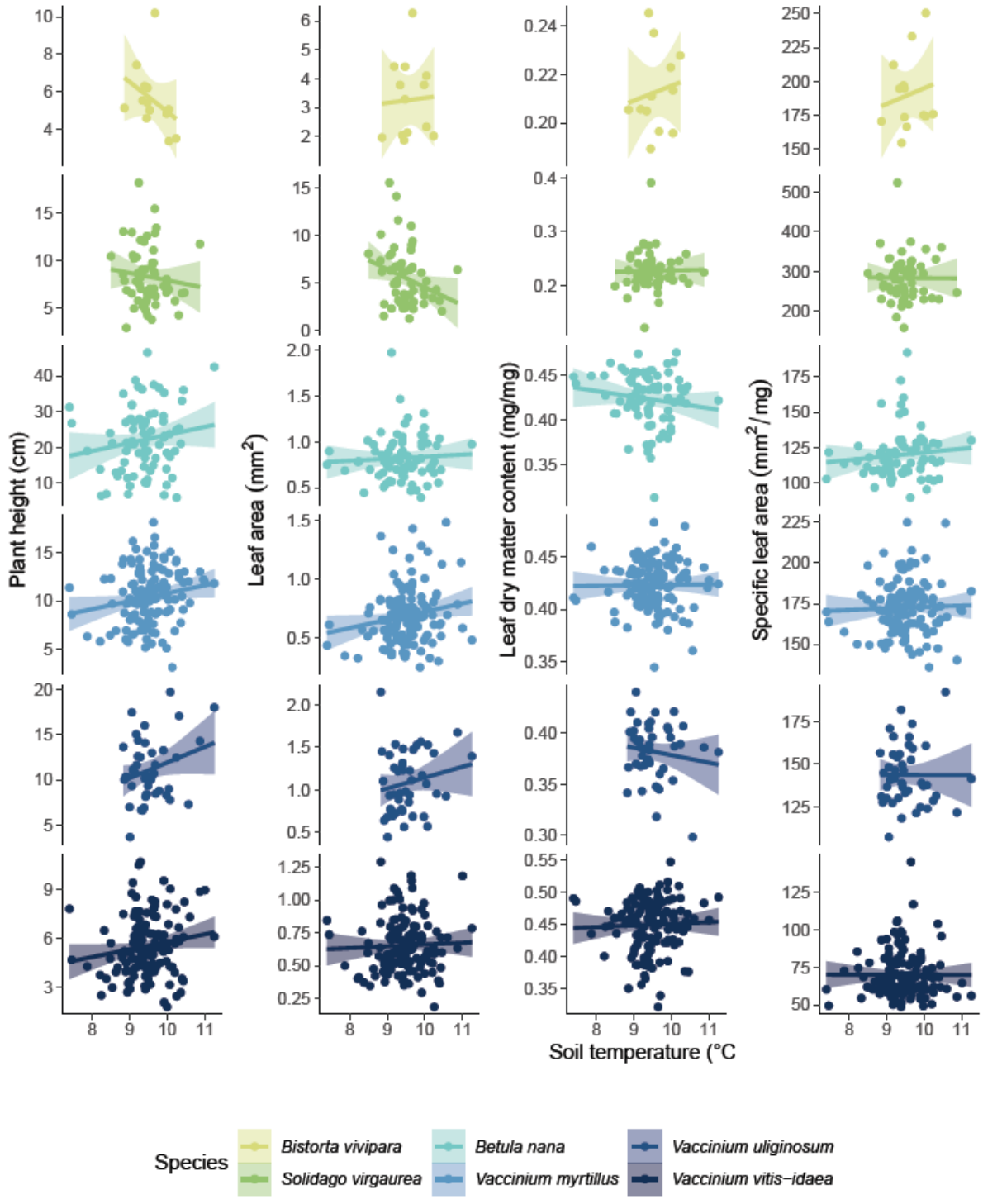
Supplementary Figure 8. Intraspecific trait variations in relation to snow depth. The fitted lines are from simple bivariate linear models.



Supplementary Figure 9. Intraspecific trait variations in relation to snow melting day. The fitted lines are from simple bivariate linear models. DOY = day of year.



Supplementary Figure 10. Intraspecific trait variations in relation to air temperature. The fitted lines are from simple bivariate linear models.



Supplementary Figure 11. Intraspecific trait variations in relation to soil temperature. The fitted lines are from simple bivariate linear models.

Supplementary Table 1. Summary statistics for the posterior samples of β-parameters (slopes) from the hierarchical Bayesian linear models. The column in the right indicates the relative proportion of the posterior samples that are on the same side of zero as the posterior median, i.e., indicates the strength of the effect (1 = all posterior samples are with the same sign; 0 = exactly half of the posterior sample is under/above zero).

Trait	Predictor	Species	Param-eter	Median	Lower_95 %	Upper_95%	Rel. Proportion above/under zero
Plant height	Soil moisture	Bistorta vivipara	β	0.0157	-0.2431	0.2538	0.1225
Plant height	Soil moisture	Solidago virgaurea	β	-0.0385	-0.1417	0.0677	0.5268
Plant height	Soil moisture	Betula nana	β	-0.0128	-0.1130	0.0882	0.2000
Plant height	Soil moisture	Vaccinium myrtillus	β	-0.0119	-0.0635	0.0391	0.3527
Plant height	Soil moisture	Vaccinium uliginosum	β	0.0118	-0.0762	0.1007	0.2118
Plant height	Soil moisture	Vaccinium vitis-idaea	β	-0.0061	-0.0625	0.0525	0.1618
Plant height	Snow depth	Bistorta vivipara	β	-0.1930	-0.5728	0.1965	0.7305
Plant height	Snow depth	Solidago virgaurea	β	-0.0088	-0.1587	0.1408	0.0860
Plant height	Snow depth	Betula nana	β	0.0667	-0.0574	0.1894	0.7082
Plant height	Snow depth	Vaccinium myrtillus	β	0.0664	-0.0128	0.1466	0.8942
Plant height	Snow depth	Vaccinium uliginosum	β	-0.0351	-0.1860	0.1193	0.3458
Plant height	Snow depth	Vaccinium vitis-idaea	β	0.0268	-0.0415	0.0957	0.5588
Plant height	Snow melting day	Bistorta vivipara	β	0.0298	-0.2952	0.3741	0.1562
Plant height	Snow melting day	Solidago virgaurea	β	0.1389	-0.0429	0.3276	0.8607
Plant height	Snow melting day	Betula nana	β	0.1657	0.0061	0.3124	0.9560
Plant height	Snow melting day	Vaccinium myrtillus	β	0.0657	-0.0222	0.1519	0.8578
Plant height	Snow melting day	Vaccinium uliginosum	β	-0.0335	-0.2198	0.1590	0.2735
Plant height	Snow melting day	Vaccinium vitis-idaea	β	0.0649	-0.0239	0.1546	0.8485
Plant height	Air temperature	Bistorta vivipara	β	-0.0230	-0.5104	0.4123	0.0993
Plant height	Air temperature	Solidago virgaurea	β	0.0733	-0.0320	0.1788	0.8250

Plant height	Air temperature	Betula nana	β	0.1510	0.0426	0.2628	0.9912
Plant height	Air temperature	Vaccinium myrtillus	β	0.0585	0.0056	0.1115	0.9683
Plant height	Air temperature	Vaccinium uliginosum	β	0.1697	0.0612	0.2778	0.9977
Plant height	Air temperature	Vaccinium vitis-idaea	β	0.0730	0.0215	0.1246	0.9948
Plant height	Soil temperature	Bistorta vivipara	β	-0.1017	-0.4763	0.2495	0.4765
Plant height	Soil temperature	Solidago virgaurea	β	-0.1472	-0.2936	-0.0073	0.9590
Plant height	Soil temperature	Betula nana	β	-0.1449	-0.2555	-0.0343	0.9897
Plant height	Soil temperature	Vaccinium myrtillus	β	-0.0408	-0.0946	0.0135	0.8578
Plant height	Soil temperature	Vaccinium uliginosum	β	-0.0468	-0.1968	0.0970	0.4852
Plant height	Soil temperature	Vaccinium vitis-idaea	β	-0.0540	-0.1087	0.0000	0.9500
Leaf area	Soil moisture	Bistorta vivipara	β	-0.0181	-0.4638	0.5575	0.0617
Leaf area	Soil moisture	Solidago virgaurea	β	0.0090	-0.1217	0.1501	0.1060
Leaf area	Soil moisture	Betula nana	β	0.0311	-0.0329	0.0962	0.6587
Leaf area	Soil moisture	Vaccinium myrtillus	β	0.0275	-0.0370	0.0910	0.5947
Leaf area	Soil moisture	Vaccinium uliginosum	β	0.0614	-0.0315	0.1537	0.8210
Leaf area	Soil moisture	Vaccinium vitis-idaea	β	0.0158	-0.0458	0.0778	0.3938
Leaf area	Snow depth	Bistorta vivipara	β	-0.0497	-0.6639	0.5661	0.1485
Leaf area	Snow depth	Solidago virgaurea	β	-0.0461	-0.2458	0.1407	0.3720
Leaf area	Snow depth	Betula nana	β	0.0466	-0.0307	0.1222	0.7710
Leaf area	Snow depth	Vaccinium myrtillus	β	0.0481	-0.0525	0.1473	0.6648
Leaf area	Snow depth	Vaccinium uliginosum	β	-0.1773	-0.3350	-0.0056	0.9592
Leaf area	Snow depth	Vaccinium vitis-idaea	β	-0.0066	-0.0828	0.0682	0.1353
Leaf area	Snow melting day	Bistorta vivipara	β	0.0321	-0.4903	0.5678	0.1113
Leaf area	Snow melting day	Solidago virgaurea	β	0.3002	0.0644	0.5430	0.9845
Leaf area	Snow melting day	Betula nana	β	-0.0206	-0.1226	0.0744	0.3308
Leaf area	Snow melting day	Vaccinium myrtillus	β	0.0203	-0.0819	0.1243	0.2880

Leaf area	Snow melting day	Vaccinium uliginosum	β	0.0048	-0.1924	0.1995	0.0393
Leaf area	Snow melting day	Vaccinium vitis-idaea	β	0.0860	-0.0124	0.1803	0.9122
Leaf area	Air temperature	Bistorta vivipara	β	-0.0771	-0.8697	0.9412	0.1575
Leaf area	Air temperature	Solidago virgaurea	β	0.1217	-0.0099	0.2530	0.9288
Leaf area	Air temperature	Betula nana	β	0.0500	-0.0221	0.1212	0.8300
Leaf area	Air temperature	Vaccinium myrtillus	β	-0.0174	-0.0830	0.0503	0.3855
Leaf area	Air temperature	Vaccinium uliginosum	β	0.1275	0.0132	0.2443	0.9710
Leaf area	Air temperature	Vaccinium vitis-idaea	β	0.0070	-0.0518	0.0642	0.1898
Leaf area	Soil temperature	Bistorta vivipara	β	-0.0873	-0.6807	0.4847	0.2670
Leaf area	Soil temperature	Solidago virgaurea	β	-0.2452	-0.4310	-0.0673	0.9928
Leaf area	Soil temperature	Betula nana	β	0.0076	-0.0638	0.0800	0.1625
Leaf area	Soil temperature	Vaccinium myrtillus	β	0.0263	-0.0425	0.0943	0.5512
Leaf area	Soil temperature	Vaccinium uliginosum	β	-0.0347	-0.1846	0.1235	0.3455
Leaf area	Soil temperature	Vaccinium vitis-idaea	β	-0.0431	-0.1021	0.0150	0.8458
LDMC	Soil moisture	Bistorta vivipara	β	0.0042	-0.0065	0.0156	0.5568
LDMC	Soil moisture	Solidago virgaurea	β	-0.0047	-0.0214	0.0100	0.4603
LDMC	Soil moisture	Betula nana	β	-0.0217	-0.0282	-0.0147	1.0000
LDMC	Soil moisture	Vaccinium myrtillus	β	-0.0103	-0.0152	-0.0054	0.9997
LDMC	Soil moisture	Vaccinium uliginosum	β	-0.0034	-0.0163	0.0058	0.4925
LDMC	Soil moisture	Vaccinium vitis-idaea	β	0.0001	-0.0067	0.0073	0.0168
LDMC	Snow depth	Bistorta vivipara	β	0.0615	0.0425	0.0750	1.0000
LDMC	Snow depth	Solidago virgaurea	β	-0.0387	-0.0591	-0.0169	0.9988
LDMC	Snow depth	Betula nana	β	-0.0252	-0.0332	-0.0182	1.0000
LDMC	Snow depth	Vaccinium myrtillus	β	-0.0194	-0.0272	-0.0119	1.0000
LDMC	Snow depth	Vaccinium uliginosum	β	0.0235	0.0093	0.0360	0.9977
LDMC	Snow depth	Vaccinium vitis-idaea	β	0.0028	-0.0063	0.0114	0.4583

LDMC	Snow melting day	Solidago virgaurea	β	-0.0409	-0.0656	-0.0157	0.9990
LDMC	Snow melting day	Betula nana	β	-0.0036	-0.0115	0.0062	0.5705
LDMC	Snow melting day	Vaccinium myrtillus	β	0.0037	-0.0047	0.0124	0.6362
LDMC	Snow melting day	Vaccinium uliginosum	β	0.0140	-0.0070	0.0307	0.8310
LDMC	Snow melting day	Vaccinium vitis-idaea	β	0.0184	0.0084	0.0276	0.9992
LDMC	Air temperature	Bistorta vivipara	β	0.0528	0.0279	0.0789	1.0000
LDMC	Air temperature	Solidago virgaurea	β	0.0125	-0.0048	0.0287	0.8470
LDMC	Air temperature	Betula nana	β	-0.0008	-0.0078	0.0060	0.1867
LDMC	Air temperature	Vaccinium myrtillus	β	0.0044	-0.0006	0.0094	0.9230
LDMC	Air temperature	Vaccinium uliginosum	β	0.0147	0.0039	0.0265	0.9915
LDMC	Air temperature	Vaccinium vitis-idaea	β	-0.0079	-0.0144	-0.0013	0.9777
LDMC	Soil temperature	Solidago virgaurea	β	-0.0032	-0.0269	0.0208	0.2200
LDMC	Soil temperature	Betula nana	β	0.0048	-0.0021	0.0113	0.8318
LDMC	Soil temperature	Vaccinium myrtillus	β	0.0054	0.0005	0.0106	0.9685
LDMC	Soil temperature	Vaccinium uliginosum	β	-0.0248	-0.0384	-0.0114	0.9988
LDMC	Soil temperature	Vaccinium vitis-idaea	β	0.0074	0.0007	0.0139	0.9732
SLA	Soil moisture	Bistorta vivipara	β	-0.0423	-0.0510	-0.0352	1.0000
SLA	Soil moisture	Solidago virgaurea	β	0.0430	0.0152	0.0694	0.9965
SLA	Soil moisture	Betula nana	β	0.0266	0.0133	0.0401	0.9997
SLA	Soil moisture	Vaccinium myrtillus	β	0.0149	0.0065	0.0232	0.9997
SLA	Soil moisture	Vaccinium uliginosum	β	0.0360	0.0191	0.0507	1.0000
SLA	Soil moisture	Vaccinium vitis-idaea	β	-0.0104	-0.0260	0.0063	0.7905
SLA	Snow depth	Bistorta vivipara	β	-0.0855	-0.1019	-0.0705	1.0000
SLA	Snow depth	Solidago virgaurea	β	-0.0063	-0.0390	0.0263	0.3035
SLA	Snow depth	Betula nana	β	0.0203	0.0046	0.0366	0.9880
SLA	Snow depth	Vaccinium myrtillus	β	0.0344	0.0217	0.0474	1.0000

SLA	Snow depth	Vaccinium uliginosum	β	0.0362	0.0065	0.0697	0.9837
SLA	Snow depth	Vaccinium vitis-idaea	β	0.0035	-0.0177	0.0239	0.2623
SLA	Snow melting day	Solidago virgaurea	β	0.0656	0.0225	0.1061	0.9960
SLA	Snow melting day	Betula nana	β	0.0207	-0.0036	0.0432	0.9045
SLA	Snow melting day	Vaccinium myrtillus	β	0.0166	0.0022	0.0303	0.9743
SLA	Snow melting day	Vaccinium uliginosum	β	-0.0041	-0.0460	0.0369	0.1642
SLA	Snow melting day	Vaccinium vitis-idaea	β	-0.0330	-0.0583	-0.0061	0.9808
SLA	Air temperature	Bistorta vivipara	β	-0.0606	-0.0919	-0.0218	0.9972
SLA	Air temperature	Solidago virgaurea	β	-0.0030	-0.0288	0.0227	0.1790
SLA	Air temperature	Betula nana	β	-0.0024	-0.0188	0.0135	0.2183
SLA	Air temperature	Vaccinium myrtillus	β	-0.0132	-0.0219	-0.0047	0.9975
SLA	Air temperature	Vaccinium uliginosum	β	-0.0120	-0.0303	0.0062	0.8062
SLA	Air temperature	Vaccinium vitis-idaea	β	0.0042	-0.0117	0.0200	0.4008
SLA	Soil temperature	Solidago virgaurea	β	-0.0122	-0.0468	0.0222	0.5003
SLA	Soil temperature	Betula nana	β	-0.0058	-0.0207	0.0093	0.5665
SLA	Soil temperature	Vaccinium myrtillus	β	-0.0116	-0.0201	-0.0028	0.9895
SLA	Soil temperature	Vaccinium uliginosum	β	0.0211	-0.0018	0.0434	0.9302
SLA	Soil temperature	Vaccinium vitis-idaea	β	-0.0003	-0.0163	0.0148	0.0275

Supplementary Table 2. Estimates for the Bayesian R^2 for the models either with only fixed effects accounted for (fit_fixed) or with both fixed and random effects (fit_total). n_obs indicate the number of trait observations in the model.

Trait	Species	Type	n_obs	Estimate	Est.Error	Q2.5	Q97.5
Height	Bistorta vivipara	fit_fixed	56	0.33	0.12	0.11	0.54
Height	Bistorta vivipara	fit_total	56	0.42	0.08	0.24	0.56
Height	Solidago virgaurea	fit_fixed	203	0.18	0.05	0.09	0.29
Height	Solidago virgaurea	fit_total	203	0.54	0.04	0.45	0.61
Height	Betula nana	fit_fixed	235	0.25	0.07	0.11	0.39
Height	Betula nana	fit_total	235	0.71	0.02	0.66	0.75
Height	Vaccinium myrtillus	fit_fixed	512	0.09	0.03	0.03	0.15
Height	Vaccinium myrtillus	fit_total	512	0.61	0.02	0.57	0.65
Height	Vaccinium uliginosum	fit_fixed	168	0.23	0.08	0.08	0.37
Height	Vaccinium uliginosum	fit_total	168	0.57	0.04	0.48	0.64
Height	Vaccinium vitis-idaea	fit_fixed	543	0.07	0.03	0.03	0.14
Height	Vaccinium vitis-idaea	fit_total	543	0.58	0.02	0.54	0.62
Leaf area	Bistorta vivipara	fit_fixed	52	0.30	0.12	0.07	0.53
Leaf area	Bistorta vivipara	fit_total	52	0.43	0.08	0.26	0.56
Leaf area	Solidago virgaurea	fit_fixed	202	0.13	0.05	0.05	0.23
Leaf area	Solidago virgaurea	fit_total	202	0.61	0.04	0.53	0.67
Leaf area	Betula nana	fit_fixed	492	0.10	0.04	0.03	0.20
Leaf area	Betula nana	fit_total	492	0.52	0.02	0.47	0.56
Leaf area	Vaccinium myrtillus	fit_fixed	1020	0.06	0.03	0.01	0.12
Leaf area	Vaccinium myrtillus	fit_total	1020	0.50	0.02	0.47	0.53
Leaf area	Vaccinium uliginosum	fit_fixed	344	0.22	0.07	0.08	0.36

Leaf area	Vaccinium uliginosum	fit_total	344	0.61	0.02	0.57	0.64
Leaf area	Vaccinium vitis-idaea	fit_fixed	1075	0.05	0.03	0.01	0.11
Leaf area	Vaccinium vitis-idaea	fit_total	1075	0.44	0.02	0.40	0.48
LDMC	Bistorta vivipara	fit_fixed	13	0.59	0.04	0.48	0.65
LDMC	Bistorta vivipara	fit_total	13	0.59	0.04	0.48	0.65
LDMC	Solidago virgaurea	fit_fixed	58	0.13	0.03	0.07	0.18
LDMC	Solidago virgaurea	fit_total	58	0.22	0.03	0.17	0.27
LDMC	Betula nana	fit_fixed	77	0.42	0.03	0.35	0.48
LDMC	Betula nana	fit_total	77	0.42	0.03	0.36	0.48
LDMC	Vaccinium myrtillus	fit_fixed	129	0.20	0.03	0.14	0.25
LDMC	Vaccinium myrtillus	fit_total	129	0.26	0.03	0.20	0.32
LDMC	Vaccinium uliginosum	fit_fixed	44	0.19	0.06	0.08	0.29
LDMC	Vaccinium uliginosum	fit_total	44	0.33	0.05	0.24	0.43
LDMC	Vaccinium vitis-idaea	fit_fixed	136	0.06	0.02	0.03	0.09
LDMC	Vaccinium vitis-idaea	fit_total	136	0.08	0.01	0.05	0.11
SLA	Bistorta vivipara	fit_fixed	13	0.82	0.03	0.75	0.85
SLA	Bistorta vivipara	fit_total	13	0.82	0.03	0.75	0.85
SLA	Solidago virgaurea	fit_fixed	58	0.12	0.04	0.05	0.19
SLA	Solidago virgaurea	fit_total	58	0.26	0.03	0.20	0.32
SLA	Betula nana	fit_fixed	77	0.21	0.05	0.12	0.31
SLA	Betula nana	fit_total	77	0.31	0.04	0.24	0.38
SLA	Vaccinium myrtillus	fit_fixed	129	0.25	0.03	0.19	0.30
SLA	Vaccinium myrtillus	fit_total	129	0.26	0.03	0.20	0.31
SLA	Vaccinium uliginosum	fit_fixed	44	0.24	0.02	0.20	0.28

SLA	Vaccinium uliginosum	fit_total	44	0.37	0.03	0.31	0.42
SLA	Vaccinium vitis-idaea	fit_fixed	135	0.03	0.02	0.01	0.07
SLA	Vaccinium vitis-idaea	fit_total	135	0.07	0.02	0.04	0.10

Supplementary Text

Study species

Bistorta vivipara (L.) Delarbre (common synonyms: *Persicaria vivipara* (L.) Ronse Decr. and *Polygonum viviparum* L.) is a predominantly Arctic-alpine perennial forb that also occurs in large parts of the boreal zone. The species is common in moist alpine meadows where vegetation is short, and thus, light competition is low (Petersen, 1981). *B. vivipara* is a geophyte that overwinters by its rhizomatous belowground organs. Its reproduction is mainly asexual (Totland & Nylehn, 1998).

Solidago virgaurea L. is a widespread Eurasian grassland and woodland perennial forb. In the sub-Arctic zone, it occurs in a wide range of habitats from dry heaths to moist meadows. The taxon is often considered as a diverse complex of varieties due to its high environmental and morphological variation across morphs (Savolainen & Kytöviita, 2016; Takahashi & Matsuki, 2017). The species is a preferred forage species by *R. tarandus tarandus (Skogland, 1980).*

Betula nana L. is a common and often dominant species in heaths and peatlands in the boreal and sub-Arctic zones (Bret-Harte et al., 2001). *B. nana* is a small deciduous dwarf shrub. Its form and growth allocation are variable and the species has potential to rapidly shift its growth allocation and strategy in response to variable environments, which explains its dominant role in many tundra ecosystems (Bret-Harte et al., 2001; Stark et al., 2015).

Vaccinium myrtillus L. is a deciduous rhizomatous dwarf shrub. It is common and dominant understory species in boreal coniferous forests, and it is also common in sub-Arctic heaths with moderately thick wintertime snowpacks (Ritchie, 1956; Rixen et al., 2010).

Vaccinium uliginosum L. is a predominantly boreal deciduous dwarf shrub. It grows in peaty coniferous forests and it is also common in Arctic and alpine tundra heaths (Karlsson, 1985). The species has a circumpolar distribution occurring both in the high-Arctic and in the mountains of the temperate zone (Young 1970).

Vaccinium vitis-idaea L. is an evergreen dwarf shrub. It has a circum-boreal distribution in the boreal and sub-Arctic zones. It is a dominant understory species in dry coniferous forest

(Taulavuori et al., 2013). In the tundra, it is common in a wide range of heath habitats. It is usually growing intertwined with other dwarf shrubs, yet is rarely the dominant species (Gehrmann et al., 2020). As an evergreen species, *V. vitis-idaea* has high photosynthetic capacity right after snowmelt or even under a thin snow layer (Lundell et al., 2008; Starr & Oberbauer, 2003).

Snow melting day

We calculated the snow melting day by utilising information from PlanetScope satellite images (3 m x 3 m resolution) from years 2017-2021. We downloaded all images that were at least partly cloud-free (n = 306) over the study area from the Planet Explorer (www.planet.com/explorer/). We manually digitised cloud masks for all images to remove cloudy pixels. We also coregistered the images with the *coregisterImages* function from *RStoolbox* R library to improve the geolocation accuracy (Leutner et al. 2019). We trained a RandomForest model (Liaw & Wiener 2002) to separate snowy pixels from melted ones resulting in two predictions per satellite image: 1) binary classification (snow or no-snow), and 2) a probability (0-1) of the predicted classes. Next, we calculated the snow persistence pixel-wise by using a binomial generalised linear model where binary classification was treated as a response variable and the day of the year of the image as an explanatory variable. Additionally, the class probabilities of the snow classifications were included as weights in the models to give more weight to observations with high certainty. Then the model was used to predict snow probability to a sequence of days and the melting day of the year was determined as the day when snow probability drops below 0.5. The snow melting day was calculated pixel-by-pixel for the whole Kilpisjärvi region and we extracted the values from the map for the plot locations.

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