

SUPPLEMENTARY INFORMATION

Table S11. Additional information on taxa. **Vegetation**, plant communities where the plant lives: Mire [Bo]; scree vegetation (Dwarf Shrub) [Cpm]; Shrub (Juniper) [En]; Festuca pastures (Grassland) [P]; Psycro-xerophilous pastures (Grassland) [Pp]; Snowdrifts grasslands [Pv]; Dwarf shrubs [To]; **Br-BI**, Braun-Blanquet density/cover scores (source bibliography); **Total Cover**, global cover of the plant community; **Altitude**, altitudinal level where the plots are located; **Snow**, number of days per year registered with snow cover; **Radiation**, Mean annual total radiation (in MJ·m⁻²); **Distribution**, distribution real of species; **Distribution s/**, distribution simplify used in the model; **Family**, taxonomic family.

Taxon	Vegetation	Br-BI	Total Cover	Altitude	Snow	Radiation	Distribution	Distribution s/	Family
<i>Thymus serpylloides</i> Bory subsp. <i>serpylloides</i>	La, Pp, To	2, 1, +	50% - 70%	2.270 - 2.790	99 - 224	4058 - 7365	Sierra Nevada y Sierra de Filabres	Sierra Nevada s.l. [SN]	Labiatae
<i>Arenaria armerina</i> subsp. <i>caesia</i> (Boiss.) C. Díaz, C. Morales & F. Valle	La, Pp, Pv, To	2, 1, +	10% - 70%	2.270 - 3.040	99 - 224	4058 - 7365	Andalucía oriental	Baetic ranges [Baetic]	Caryophyllaceae
<i>Senecio pyrenaicus</i> subsp. <i>granatensis</i> (Boiss.) Rivas Mart.	La, To	2, 1, +	20% - 40%	2.270 - 2.370	99 - 224	4058 - 7365	Sierra Nevada, Sierra de la Sagra y Sierra de Tejeda	Sierra Nevada s.l. [SN]	Asteraceae
<i>Agrostis nevadensis</i> Boiss.	Pv, Pp, Bo, To, Cpm, P	+	50% - 65%	2.310 - 3.050	82 - 247	4058 - 7186	Sierra Nevada	Sierra Nevada s.l. [SN]	Poaceae
<i>Armeria splendens</i> (Lag. & Rodr.) Webb	Bo, La	2, 1	50% - 90%	2.270 - 2.780	99 - 234	5251 - 7123	Sierra Nevada	Sierra Nevada s.l. [SN]	Plumbaginaceae
<i>Hormathophylla spinosa</i> (L.) P. Küpfer	To, P, Pp, Pv, Cpm	2, 1, +	15% - 20%	2.310 - 3.040	82 - 247	4058 - 7074	Oromediterránea occidental	Mediterranean region [Med.]	Brassicaceae
<i>Paronychia polygonifolia</i> (Vill.) DC.	Pp, To	+	30% - 80%	2.310 - 2.790	82 - 224	4058 - 5410	Mediterránea	Mediterranean region [Med.]	Caryophyllaceae
<i>Dactylis glomerata</i> subsp. <i>juncinella</i> (Bory) Stebbins & Zohary	P, Pp, Pv	1, +	15% - 50%	2.350 - 3.040	190 - 234	3821 - 7074	Bético-magrebí	Baetic ranges [Baetic]	Poaceae
<i>Festuca clementei</i> Lam.	P, Pp, Pv, Cpm	3, 2, 1	10% - 75%	2.350 - 3.040	190 - 247	3821 - 7074	Sierra Nevada	Sierra Nevada s.l. [SN]	Poaceae

<i>Reseda complicata</i> Bory	To, P, Pp, Pv, Cpm, En	3, 2, 1	10% - 75%	2.250 - 3.050	179 - 247	3821 -7186	Sierra Nevada	Sierra Nevada s.l. [SN]	Resedaceae
<i>Holcus caespitosus</i> Boiss.	To, Pp, Pv, Cpm	1, +	2% - 15%	2.310 - 2.930	179 - 236	4058 - 7186	Sierra Nevada	Sierra Nevada s.l. [SN]	Poaceae
<i>Epilobium alsinifolium</i> Vill.	Bo	1, +	40% - 75%	2.250 - 2.890	198 - 234	4679 - 6359	Europea	Wide distribution [Amp.]	Onagraceae
<i>Epilobium anagallidifolium</i> Lam.	Bo	+	40% - 75%	2.250 - 2.860	198 - 234	4679 - 5593	Circumboreal	Alpine species [Alp.]	Onagraceae
<i>Arabis alpina</i> L.	En, Cpm, Pp, Pv	1	5%	2.250 - 3.040	190 - 247	4892 - 7074	Holártica	Alpine species [Alp.]	Brassicaceae
<i>Trisetum glaciale</i> (Bory) Boiss.	Pp, To	1, +	25% - 30%	2.340 -3.040	190 - 236	4765 - 6531	Sierra Nevada	Sierra Nevada s.l. [SN]	Poaceae

Table SI2. Additional information about plots and viewshed.

Plots	Plant Community	Viewshed
2.04.1-2.Bo	Mire	2.04
2.05.1-2.Bo	Mire	2.05
2.08.1-2.Bo	Mire	2.08
2.08.15-16.Bo	Mire	2.08
2.04.3-4.Bo	Mire	2.04
2.05.3-4.Bo	Mire	2.05
2.04.5-6.Bo	Mire	2.04
2.05.5-6.Bo	Mire	2.05
2.04.11-12.Cpm	scree vegetation (Dwarf Shrub)	2.04
2.05.11-12.Cpm	scree vegetation (Dwarf Shrub)	2.05
2.04.13-14.Cpm	scree vegetation (Dwarf Shrub)	2.04
2.05.13-14.Cpm	scree vegetation (Dwarf Shrub)	2.05
2.04.15-16.Cpm	scree vegetation (Dwarf Shrub)	2.04
2.08.9-10.En	Shrub (Juniper)	2.08
2.08.11-12.P	<i>Festuca</i> pastures (Grassland)	2.08
2.08.13-14.P	<i>Festuca</i> pastures (Grassland)	2.08
2.04.17-18.Pp	Psycro-xerophilous pastures (Grassland)	2.04
2.02.3-4.Pp	Psycro-xerophilous pastures (Grassland)	2.02
2.02.7-8.Pp	Psycro-xerophilous pastures (Grassland)	2.02
2.04.7-8.Pp	Psycro-xerophilous pastures (Grassland)	2.04
2.05.7-8.Pp	Psycro-xerophilous pastures (Grassland)	2.05
2.04.9-10.Pp	Psycro-xerophilous pastures (Grassland)	2.04
2.05.9-10.Pp	Psycro-xerophilous pastures (Grassland)	2.05
2.02.1-2.Pv	Snowdrifts grasslands	2.02
2.02.5-6.Pv	Snowdrifts grasslands	2.02
2.08.3-4.To	Dwarf shrubs	2.08
2.08.5-6.To	Dwarf shrubs	2.08
2.08.7-8.To	Dwarf shrubs	2.08

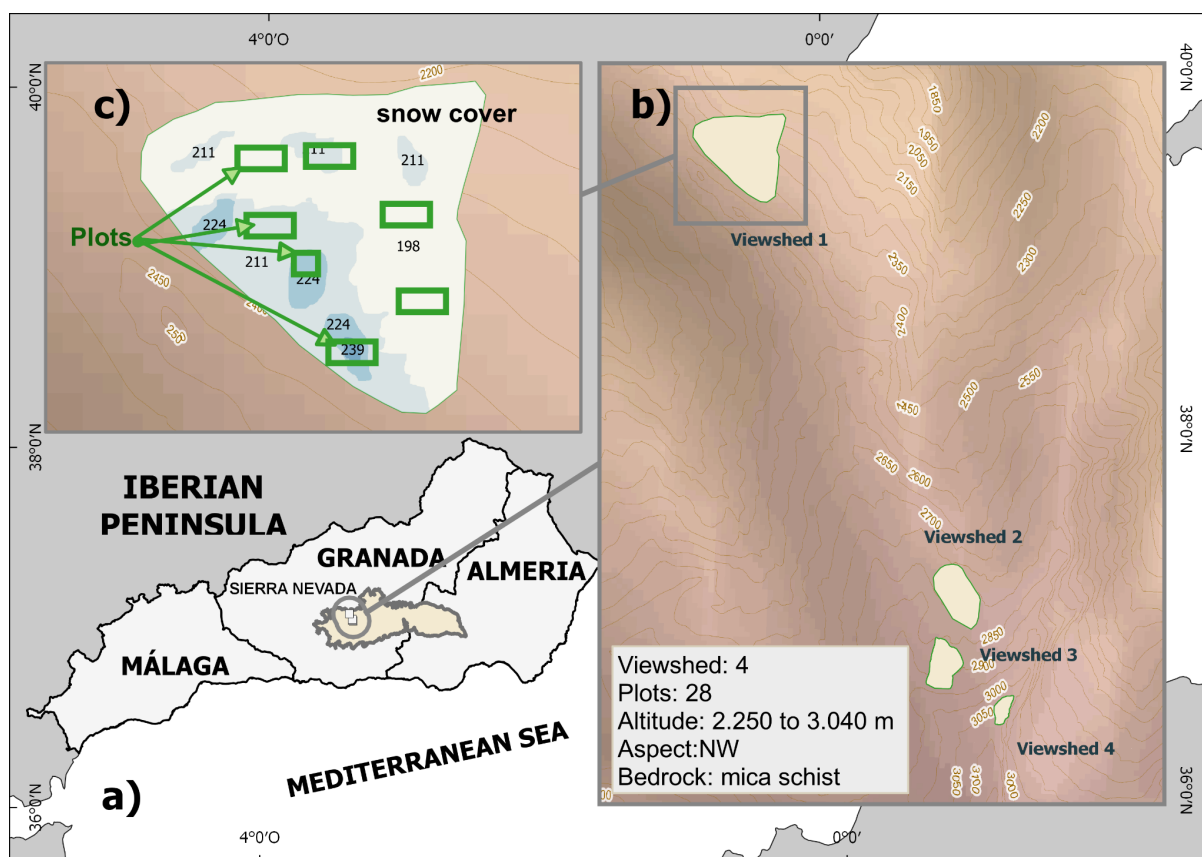


Figure S11. Esquema de las plantaciones y plots

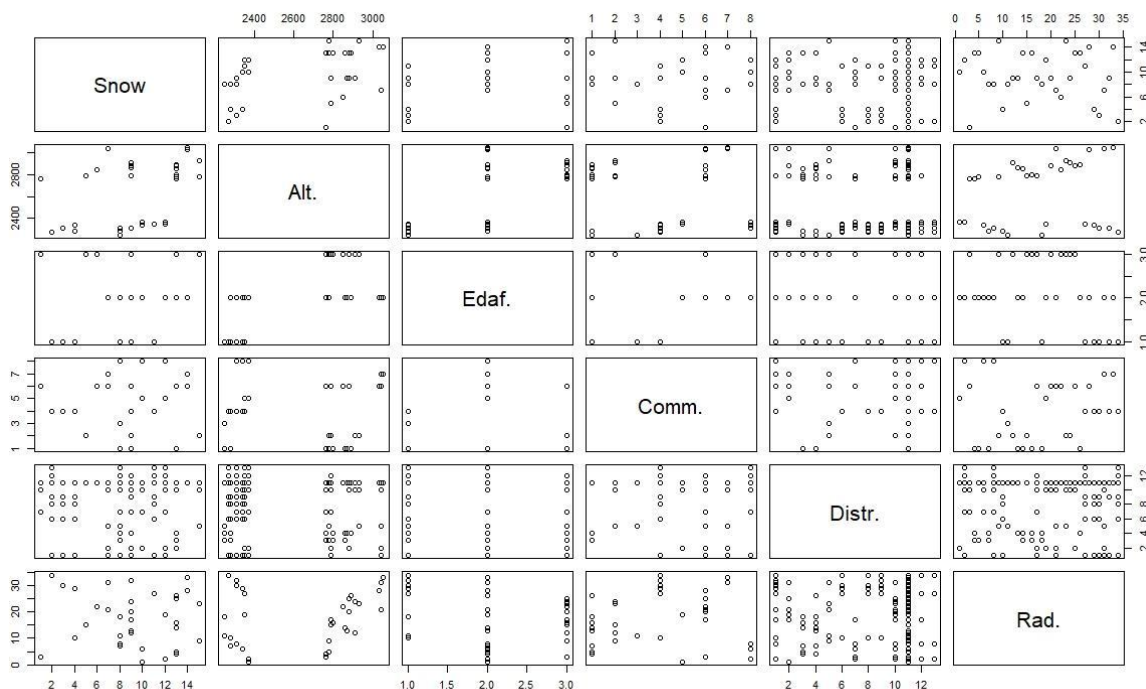


FIGURE S12. Correlation between variables in the GLM analysis. Snow: snow permanence; Alt.: Altitude; Edaf.: Edaphology of the ground; Comm.: plant community; Distr.: plant distribution area; Rad.: peak solar time in $\text{MJ} \cdot \text{m}^{-2}$.

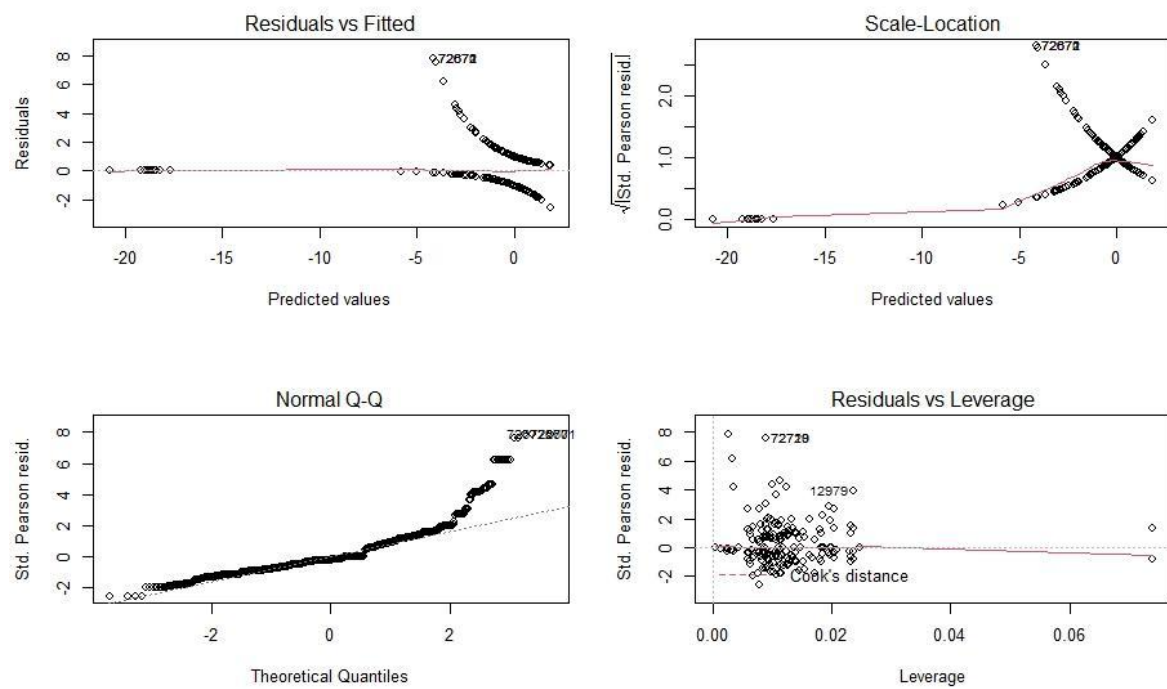


FIGURE S13. Graphical result of the residuals of the GLM analysis. Standardized residuals against predicted values (top left); probability plot of normality (bottom left) and outliers (bottom right).

Table SI3. Results by GLM, with all data, with and without significance level. Radiation:X, where X is the value in MJ·m⁻². Distribution: Wide distribution [Amp. included in the Intercept level]; Apine species [Alp.]; Mediterranean region [Med.]; Baetic ranges [Baetic]; Sierra Nevada s.l. [SN]. Significance: Significance level, ***, $p<0.001$; **, $p<0.01$; *, $p<0.05$; ·, $p<0.1$, blank, $p<1$.

	Estimate	Std. Error	z value	Significance
(Intercept)	0.55799	1.77291	0.31473	
Altitude	-0.00276	0.00045	-6.15907	***
Snow	0.02445	0.00739	3.30855	***
Edaphology: Dystric Regosol	-0.71730	0.73924	-0.97032	
Edaphology: Stone & rocks	-3.39597	0.86870	-3.90925	***
Radiation: 4058	-0.50011	0.30517	-1.63882	
Radiation:4514	6.11479	1.21077	5.05031	***
Radiation:4679	-16.17444	747.25062	-0.02165	
Radiation:4724	-17.41769	630.17118	-0.02764	
Radiation:4765	-0.29140	0.31105	-0.93682	
Radiation:4766	1.11332	0.72472	1.53621	
Radiation:4855	0.57840	0.32850	1.76073	·
Radiation:4892	2.74985	0.44423	6.19013	***
Radiation:4987	-1.20046	0.73784	-1.62699	
Radiation:5177	1.27587	0.68270	1.86885	·
Radiation:5252	-16.41339	764.75880	-0.02146	
Radiation:5357	-16.14440	976.90949	-0.01653	
Radiation:5362	1.74161	0.74109	2.35007	
Radiation:5386	2.73445	0.84363	3.24129	***
Radiation:5410	1.68823	0.46968	3.59439	***
Radiation:5595	-0.71829	0.32168	-2.23293	*
Radiation:5694	0.56818	0.84504	0.67237	
Radiation:5755	-0.87135	0.41315	-2.10906	*
Radiation:5955	2.63749	0.68570	3.84639	***
Radiation:5976	-14.99742	441.62230	-0.03396	
Radiation:5981	2.40640	0.53763	4.47590	***
Radiation:6359	-17.02917	759.36716	-0.02243	
Radiation:6531	0.33083	0.30536	1.08341	
Distribution: Alp.	-0.75441	0.36463	-2.06897	*
Distribution: Med.	1.80713	0.68356	2.64369	**
Distribution: Baetic	2.14136	0.69423	3.08449	**
Distribution: SN	1.46485	0.67081	2.18372	*