Supplementary file for: Grau O., Ninot J.M., Pérez-Haase A. & Callaghan T.V. 2014. Plant coexistence patterns and High-Arctic vegetation composition in three common plant communities in north-east Greenland. *Polar Research 33*. Correspondence: Oriol Grau, Department of Plant Biology, University of Barcelona, Av. Diagonal 643, ES-08028 Barcelona, Catalonia, Spain. Email: grau.oriol@gmail.com.

Supplementary Table S1. Results of the generalized linear mixed models with Poisson error structure on the number of individuals (above) and number of species (below).

ralized linear mixed model:				
Fixed effects: numb	er of individuals	~ Community * I	Patch type	
Random effect: Plot (patch type nested within plot)				
	Estimate	Std. error	z-value	Pr(> z)
(Intercept)	3.29759	0.25925	12.720	< 2e-16 ***
Heath community	-0.01204	0.36637	-0.033	0.9738
Fell-field community	-0.14048	0.36697	-0.383	0.7019
Salix patch	-0.35914	0.16283	-2.206	0.0274 *
Dryas patch	-0.18979	0.16068	-1.181	0.2375
Heath community: Salix patch	0.26353	0.22739	1.159	0.2465
Fell-field community:Salix patch	0.15904	0.23037	0.690	0.4900
Heath community: Dryas patch	0.25541	0.22468	1.137	0.2556
Fell-field:Dryas patch	-1.18432	0.24854	-4.765	1.89e-06 ***
Number of observations: 108				
Number of groups:				
Plot	Patch type within plot			
9	27			

Generalized linear mixed model:					
Fixed effects: number of species ~ Community * Patch type					
Random effect: Plot (patch type nested within plot)					
	Estimate	Std. error	z-value	Pr(> z)	
(Intercept)	1.783e+00	1.388e-01	12.853	< 2e-16 ***	
Heath community	4.109e-02	1.948e-01	0.211	0.833	
Fell-field community	1.551e-01	1.911e-01	0.811	0.417	
Salix patch	-1.823e-01	1.750e-01	-1.042	0.297	
Dryas patch	-4.256e-02	1.686e-01	-0.252	0.801	
Heath community: Salix patch	3.922e-02	2.437e-01	0.161	0.872	
Fell-field community:Salix patch	-1.633e-07	2.384e-01	0.000	1.000	
Heath community: Dryas patch	-1.806e-01	2.418e-01	-0.747	0.455	
Fell-field:Dryas patch	-1.130e+00	2.809e-01	-4.023	5.74e-05 ***	

Number of observations: 108	
Number of groups:	
Plot	Patch type within plot
9	27

Supplementary Table S2. Multiplicative β -diversity: final species richness in the accumulation curve/mean initial number of species from species accumulation curves.

Patch type × plant community combination	β-diversity
Dryas patches in the Salix snowbed	2.446
Dryas patches in the Dryas heath	2.478
Moss patches in the fell-field	2.733
Moss patches in the Salix snowbed	2.761
Salix patches in the Dryas heath	2.814
Moss patches in the Dryas heath	2.992
Salix patches in the Salix snowbed	3.267
Salix patches in the fell-field	3.589
Dryas patches in the fell-field	5.678

Supplementary Table S3. Models describing the best fit to species abundance distributions and the three most abundant species found in each patch type and plant community. The differences estimated by these fitted models depend basically on how abundant the most abundant species are compared to the rest of species. We firstly classified the species from most to least abundant (i.e., rank-abundance plots, not shown) using the BiodiversityR package (Kindt 2004) in each patch type \times plant community combination. In this classification we considered all the individuals of each species from all quadrats together. Then, we selected the model which best fitted their species abundance distribution, that is, with the lowest Akaike Information Criterion (AIC) value compared to all the other potential models (Kindt & Coe 2005). Log-normal and Zipf models were fitted as a generalized linear model with a logarithmic link function. A preemption model was fitted as a purely nonlinear model (see Supplementary Fig. S2 for a graphic description of the fitted models). The model which best fitted the species abundance distribution differed between patch types in the fell-field and in the heath but it became similar for all patch types in the snowbed, where species abundances (i.e., number of individuals for each species) in all patch types showed a similar decreasing pattern from the most to the least abundant species. Moss and Salix patches showed a similar pattern in the fell-field and in the heath, whereas Dryas patches showed a varying distribution in each plant community.

		Dryas	Mosses	Salix
Fell-field	Best model	Zipf	Log-normal	Zipf

	Most abundant	Polygonum viviparum	Polygonum viviparum	Polygonum viviparum
	species	Salix arctica Festuca ovina	Dryas octopetala Saxifraga cernua	Festuca ovina
	Best model	Log-normal	Log-normal	Zipf
Dryas heath	Most abundant species	Polygonum viviparum Luzula confusa Salix arctica	Polygonum viviparum Poa arctica Salix arctica	Polygonum viviparum Luzula confusa Dryas octopetala
Salix	Best model	Pre-emption	Pre-emption	Pre-emption
snowbed	Most abundant species	Equisetum arvense Polygonum viviparum Salix arctica	Equisetum arvense Polygonum viviparum Luzula confusa	Equisetum arvense Hierochloe alpine Polygonum viviparum

References

Kindt R. 2004. Biodiversity. R. Software for biodiversity and ecological analysis.

Kindt R. & Coe R. 2005. *Tree diversity analysis. A manual and software for common statistical methods for ecological and biodiversity studies.* Nairobi: World Agroforestry Centre.



Supplementary Fig. S1. (a) Leaf dry weight/leaf fresh weight ratio (mg/g) and (b) leaf fresh weight/soil area covered (g/m²) in *Salix* and *Dryas* patches in the *Salix* snowbed, the *Dryas* heath and the fell-field. Terms are abbreviated as follows: fell-field *Dryas* patches (FD), moss patches (FM) and *Salix* patches (FS); *Dryas* heath *Dryas* patches (HD), moss patches (HM) and *Salix* patches (HS); *Salix* snowbed *Dryas* patches (SD), moss patches (SM) and *Salix* patches (SS).



Species rank

Supplementary Fig. S2. Pre-emption, log-normal and Zipf species abundance distribution models.



Supplementary Fig. S3. Principal component analysis based on the presence and absence of species in the distinct patch type × plant community combinations. Terms are abbreviated as follows: fell-field *Dryas* patches (FD), moss patches (FM) and *Salix* patches (FS); *Dryas* heath *Dryas* patches (HD), moss patches (HM) and *Salix* patches (HS); *Salix* snowbed *Dryas* patches (SD), moss patches (SS).



Supplementary Fig. S4. Leaf N (%) in *Salix* (S) and in *Dryas* (D) growing in the *Salix* snowbed, in the *Dryas* heath and in the fell-field.