

Supplementary material

1 **Appendix 1.**

2

3 Table A1. Chi-squared test results for comparison between biological spectra
 4 of each altitudinal belt in high altitude grasslands of the National Park of
 5 Caparaó, Southeastern Brazil. THE = therophytes; CHA = chamaephytes; PHA
 6 = phanerophytes; GEO = geophytes; HEM = hemicryptophytes; NAN =
 7 nanophanerophytes

8

		RICHNESS						
		THE	CHA	PHA	GEO	HEM	NAN	
Observed	2100 m	0	7	0	3	16	10	
	2300 m	1	6	1	2	14	13	
	2500 m	1	10	0	5	23	13	
	2700 m	0	7	0	3	18	11	
Expected	2100 m	0.439	6.585	0.220	2.854	15.585	10.317	
	2300 m	0.451	6.768	0.226	2.933	16.018	10.604	
	2500 m	0.634	9.512	0.317	4.122	22.512	14.902	Total
	2700 m	0.476	7.134	0.238	3.091	16.884	11.177	
Chi-squared		0.043	0.031	1.087	0.196	0.167	0.484	2.008

p-value non significant

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10 Figure A1. Examples of Rubiaceae and Polygalaceae individuals sampled in a
 11 Brazilian Páramo located in the National Park of Caparaó, highlighting common
 12 adaptations of local species in response to extreme environmental conditions,
 13 such as small stature, small leaves covered with trichomes and short
 14 internodes. A = *Coccocypselum lymansmithii*. B = trichomes of *C. lymansmithii*.
 15 C = *Declieuxia coerulea*. D = *Polygala linoides*. E = trichomes of *Galium*
 16 *hypocarpium*.

