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Supplementary Table S6. Spearman correlations (coefficient) between the degree of decoupling and geographical and environmental variables (positive values indicate a tendency towards decoupled PD, negative values towards decoupled FD), calculated as average values per 50 km × 50 km grid cells for the combined diversity measures and individual trait-habitat combinations. Highly significant correlations (*** $p < 0.001$) are in bold, non-significant correlations ($p > 0.05$) are grey. For full names of the variables, see Sup. Table S4.

		DRY						MESIC							WET							ALPINE					
		combined	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass	*combined*	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass	Lateral spread	*combined*	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass	Lateral spread	*combined*	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass
N	*Number of cases*	*299*	*529*	*389*	*389*	*245*	*245*	*516*	*558*	*540*	*540*	*502*	*502*	*38*	*351*	*499*	*472*	*472*	*293*	*293*	*148*	*23*	*90*	*51*	*51*	*38*	*38*
Lon	Longitude	0.06	**-0.30**	**-0.33**	**-0.20**	0.04	**-0.20**	**0.33**	**0.19**	**0.20**	**0.24**	**0.41**	**0.23**	**0.65**	**0.43**	**0.20**	0.00	**0.29**	**0.23**	**0.26**	**0.41**	-0.45	-0.15	-0.44	**-0.48**	0.12	0.09
Lat	Latitude	0.11	0.11	**0.21**	**0.27**	0.03	**0.18**	**-0.48**	**-0.49**	**-0.43**	**-0.43**	**-0.37**	**-0.32**	0.48	**-0.22**	-0.03	**-0.20**	0.11	**-0.47**	**0.16**	**-0.46**	-0.42	**0.43**	**-0.54**	**-0.57**	0.03	0.28
b1	Ann. mean temp.	**-0.32**	-0.11	-0.15	**-0.30**	-0.17	**-0.22**	**-0.35**	**-0.26**	**-0.15**	**-0.24**	**-0.45**	**-0.32**	**-0.67**	**-0.35**	-0.10	0.08	**-0.40**	**-0.24**	**-0.48**	**-0.35**	-0.19	**-0.40**	-0.18	0.04	0.01	0.04
b2	Mean diurnal rng	-0.14	**-0.23**	**-0.41**	**-0.25**	-0.06	**-0.17**	**0.54**	**0.44**	**0.39**	**0.45**	**0.51**	**0.37**	-0.31	**0.50**	**0.32**	0.15	**0.29**	**0.45**	**0.23**	**0.57**	-0.33	0.09	**-0.58**	**-0.61**	0.07	0.12
b3	Isothermality	-0.11	**0.25**	0.15	0.13	-0.04	0.23	0.08	**0.16**	0.12	0.11	-0.05	0.05	-0.46	-0.06	-0.01	0.10	-0.13	**0.24**	**-0.15**	0.24	0.46	0.27	0.30	0.30	-0.08	-0.06
b4	Temp. seasonality	0.05	**-0.28**	**-0.34**	**-0.22**	0.02	**-0.17**	**0.49**	**0.34**	**0.34**	**0.38**	**0.52**	**0.34**	**0.53**	**0.52**	**0.26**	0.06	**0.32**	**0.40**	**0.26**	**0.55**	-0.43	0.00	**-0.50**	**-0.52**	0.08	0.12
b5	Max temp. warmest M	**-0.33**	**-0.31**	**-0.42**	**-0.45**	-0.19	**-0.34**	**0.25**	**0.22**	**0.26**	**0.25**	0.09	0.11	-0.35	**0.22**	**0.24**	**0.22**	0.00	**0.19**	-0.12	**0.34**	-0.40	**-0.38**	**-0.48**	-0.24	0.04	0.02
b6	Min temp. coldest M	-0.17	0.12	0.16	0.00	-0.12	0.00	**-0.52**	**-0.40**	**-0.33**	**-0.42**	**-0.57**	**-0.41**	-0.33	**-0.51**	**-0.27**	0.00	**-0.42**	**-0.44**	**-0.42**	**-0.58**	0.23	-0.28	0.29	**0.46**	-0.06	-0.05
b7	Temp. ann. rng	0.00	**-0.24**	**-0.33**	**-0.19**	0.03	**-0.14**	**0.48**	**0.36**	**0.34**	**0.40**	**0.48**	**0.34**	-0.06	**0.51**	**0.32**	0.09	**0.34**	**0.41**	**0.29**	**0.54**	-0.51	0.11	**-0.66**	**-0.65**	0.11	0.21
b8	Mean temp. wettest Q	-0.15	**-0.39**	**-0.44**	**-0.36**	-0.19	**-0.22**	**0.20**	0.09	0.11	**0.16**	**0.23**	**0.15**	0.32	**0.34**	**0.16**	0.05	**0.22**	0.09	**0.19**	**0.27**	-0.53	-0.13	**-0.63**	**-0.61**	0.02	0.23
b9	Mean temp. driest Q	**-0.24**	-0.01	0.10	-0.06	-0.15	-0.13	**-0.49**	**-0.34**	**-0.28**	**-0.37**	**-0.54**	**-0.36**	**-0.66**	**-0.50**	**-0.16**	0.00	**-0.36**	**-0.45**	**-0.38**	**-0.54**	0.02	**-0.40**	0.13	0.31	0.02	-0.17
b10	Mean temp. warmest Q	**-0.32**	**-0.32**	**-0.38**	**-0.47**	-0.19	**-0.37**	0.09	0.07	**0.16**	0.12	-0.04	0.00	**-0.61**	0.05	0.12	**0.19**	-0.14	0.06	**-0.26**	0.08	-0.39	**-0.42**	-0.28	-0.06	-0.03	0.03
b11	Mean temp. coldest Q	**-0.24**	0.09	0.11	-0.05	-0.14	-0.06	**-0.52**	**-0.39**	**-0.32**	**-0.39**	**-0.59**	**-0.41**	**-0.63**	**-0.51**	**-0.22**	0.03	**-0.41**	**-0.41**	**-0.43**	**-0.55**	0.02	**-0.35**	0.00	0.19	-0.01	-0.02
b12	Ann. prec.	**0.41**	**0.50**	**0.55**	**0.53**	**0.27**	**0.40**	**0.21**	**0.25**	**0.22**	**0.22**	0.09	**0.20**	-0.52	-0.06	-0.08	0.00	-0.06	0.15	-0.05	0.09	0.11	**0.48**	0.19	0.28	0.04	0.20
b13	Prec. wettest M	**0.34**	**0.37**	**0.36**	**0.33**	0.19	**0.22**	**0.44**	**0.42**	**0.40**	**0.40**	**0.38**	**0.40**	0.09	**0.21**	-0.03	0.08	0.06	**0.39**	0.08	**0.48**	0.00	**0.37**	0.06	0.13	-0.01	0.25
b14	Prec. driest M	**0.32**	**0.47**	**0.52**	**0.55**	**0.26**	**0.44**	0.13	**0.19**	**0.15**	**0.16**	0.00	0.13	-0.45	-0.11	0.00	0.02	-0.03	0.11	-0.02	0.07	0.12	**0.49**	0.25	0.35	0.12	0.04
b15	Prec. seasonality	-0.12	**-0.27**	**-0.33**	**-0.36**	-0.13	**-0.28**	**0.23**	0.14	**0.18**	**0.15**	**0.36**	**0.23**	**0.59**	**0.34**	-0.04	0.01	0.13	**0.22**	0.15	**0.40**	-0.17	-0.27	-0.39	**-0.45**	-0.13	0.25
b16	Prec. wettest Q	**0.34**	**0.37**	**0.37**	**0.34**	0.19	**0.23**	**0.44**	**0.41**	**0.40**	**0.39**	**0.38**	**0.40**	0.08	**0.21**	-0.03	0.07	0.06	**0.40**	0.10	**0.47**	0.03	**0.40**	0.02	0.10	0.00	0.28

		DRY						MESIC							WET							ALPINE					
		combined	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass	*combined*	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass	Lateral spread	*combined*	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass	Lateral spread	*combined*	Plant height	Leaf area	Specific leaf area	Leaf nitrogen content	Seed mass
b17	Prec. driest Q	**0.32**	**0.48**	**0.53**	**0.55**	**0.26**	**0.44**	0.10	**0.16**	0.12	0.13	-0.03	0.10	**-0.52**	-0.15	-0.02	0.00	-0.05	0.07	-0.03	0.01	0.13	**0.49**	0.31	0.40	0.13	0.02
b18	Prec. warmest Q	**0.48**	**0.41**	**0.43**	**0.53**	**0.26**	**0.41**	**0.41**	**0.30**	**0.28**	**0.34**	**0.34**	**0.35**	-0.17	**0.33**	0.09	-0.04	**0.30**	**0.28**	**0.35**	**0.46**	-0.10	**0.55**	-0.18	-0.20	0.11	0.36
b19	Prec. of coldest Q	**0.21**	**0.43**	**0.46**	**0.39**	0.16	**0.28**	0.02	0.13	0.10	0.06	-0.11	0.03	**-0.56**	**-0.20**	-0.11	0.03	**-0.16**	0.02	**-0.16**	-0.05	0.13	0.29	0.30	**0.48**	0.07	0.08
e1	Ann. PET	**-0.31**	**-0.20**	**-0.32**	**-0.41**	-0.18	**-0.31**	**0.32**	**0.32**	**0.34**	**0.33**	0.14	**0.17**	-0.49	**0.19**	**0.17**	**0.24**	-0.12	**0.30**	**-0.20**	**0.38**	-0.39	**-0.43**	-0.34	-0.10	0.06	-0.09
e2	Thornthwaite aridity	**-0.50**	**-0.41**	**-0.44**	**-0.53**	**-0.28**	**-0.44**	**-0.37**	**-0.30**	**-0.23**	**-0.29**	**-0.31**	**-0.33**	-0.08	**-0.23**	-0.02	0.02	**-0.21**	**-0.20**	**-0.28**	**-0.33**	-0.13	**-0.56**	-0.06	0.11	-0.10	-0.26
e3	Climatic moist. ind.	**0.51**	**0.44**	**0.58**	**0.58**	**0.32**	**0.44**	0.00	0.01	-0.01	-0.01	0.03	0.07	0.02	-0.13	**-0.18**	-0.14	0.00	-0.04	0.05	-0.09	0.45	**0.60**	**0.49**	0.33	-0.04	0.11
e4	Continentality	0.03	**-0.27**	**-0.32**	**-0.22**	0.01	**-0.18**	**0.42**	**0.26**	**0.28**	**0.33**	**0.44**	**0.29**	**0.67**	**0.48**	**0.27**	0.04	**0.35**	**0.31**	**0.28**	**0.55**	-0.48	-0.06	**-0.64**	**-0.57**	0.20	0.18
e5	Emberger's quotient	**0.35**	**0.44**	**0.52**	**0.47**	**0.27**	**0.38**	-0.03	0.03	0.00	-0.01	-0.08	0.02	-0.49	**-0.21**	**-0.20**	-0.06	**-0.16**	-0.01	-0.13	-0.14	0.56	**0.55**	**0.61**	**0.45**	-0.12	0.01
e6	Sum mean month. temps. > 0°C	**-0.29**	-0.04	-0.06	**-0.22**	-0.14	**-0.17**	**-0.42**	**-0.32**	**-0.22**	**-0.31**	**-0.53**	**-0.37**	**-0.79**	**-0.41**	-0.15	0.06	**-0.42**	**-0.28**	**-0.48**	**-0.45**	-0.20	**-0.42**	-0.21	0.02	0.01	0.01
e7	Sum mean month. temps. > 5°C	**-0.35**	-0.13	**-0.17**	**-0.31**	-0.18	**-0.24**	**-0.31**	**-0.26**	-0.13	**-0.22**	**-0.39**	**-0.30**	**-0.70**	**-0.30**	-0.11	0.05	**-0.39**	-0.14	**-0.46**	**-0.29**	-0.36	**-0.45**	-0.35	-0.10	-0.03	0.00
e8	Max temp. coldest M	**-0.22**	0.08	0.09	-0.06	-0.12	-0.05	**-0.45**	**-0.32**	**-0.26**	**-0.34**	**-0.53**	**-0.37**	**-0.68**	**-0.47**	**-0.24**	0.04	**-0.44**	**-0.34**	**-0.45**	**-0.56**	0.05	**-0.39**	0.07	0.27	0.00	-0.11
e9	Min temp. warmest M	**-0.31**	**-0.34**	**-0.32**	**-0.42**	-0.21	**-0.34**	**-0.32**	**-0.35**	**-0.17**	**-0.25**	**-0.31**	**-0.30**	-0.08	**-0.20**	-0.06	0.04	**-0.21**	**-0.25**	**-0.33**	**-0.33**	-0.18	**-0.40**	-0.31	-0.08	-0.03	0.03
e10	No. months mean temp. > 10°C	**-0.32**	**-0.16**	**-0.17**	**-0.31**	-0.16	**-0.24**	**-0.36**	**-0.33**	**-0.18**	**-0.27**	**-0.42**	**-0.36**	**-0.71**	**-0.36**	-0.11	0.01	**-0.39**	**-0.25**	**-0.46**	**-0.46**	-0.34	**-0.43**	-0.43	-0.18	-0.01	0.04
e11	Mean month. PET coldest Q	-0.19	-0.02	-0.09	**-0.21**	-0.09	**-0.15**	0.10	**0.16**	**0.16**	0.12	0.01	0.00	0.16	-0.11	-0.12	**0.18**	**-0.30**	0.11	**-0.34**	-0.01	0.22	**-0.41**	0.24	0.38	-0.08	-0.21
e12	Mean month. PET driest Q	-0.15	-0.03	0.05	-0.10	-0.08	-0.10	**-0.30**	**-0.17**	**-0.17**	**-0.24**	**-0.35**	**-0.23**	**-0.65**	**-0.38**	**-0.16**	0.01	**-0.34**	**-0.24**	**-0.39**	**-0.37**	0.11	**-0.37**	0.19	0.36	-0.11	-0.22
e13	Month. variability in PET	**-0.26**	**-0.29**	**-0.40**	**-0.38**	-0.14	**-0.30**	**0.28**	**0.20**	**0.25**	**0.25**	**0.17**	**0.14**	-0.30	**0.32**	**0.28**	0.12	0.13	**0.24**	0.03	**0.40**	-0.49	-0.27	**-0.56**	-0.36	0.13	0.06
e14	Mean month. PET warmest Q	**-0.29**	**-0.27**	**-0.36**	**-0.39**	-0.14	**-0.31**	**0.32**	**0.29**	**0.30**	**0.30**	**0.17**	**0.17**	-0.40	**0.26**	**0.24**	**0.18**	0.01	**0.29**	-0.07	**0.40**	-0.49	**-0.35**	**-0.54**	-0.29	0.05	0.02
e15	Mean month. PET wettest Q	-0.06	**-0.17**	**-0.30**	-0.16	-0.10	-0.10	**0.37**	**0.31**	**0.27**	**0.34**	**0.26**	**0.25**	-0.16	**0.37**	**0.25**	0.06	**0.21**	0.18	**0.18**	**0.39**	-0.44	0.06	-0.42	**-0.52**	0.16	0.23
e16	Comp. thermicity index	**-0.29**	-0.09	-0.07	**-0.22**	-0.15	**-0.16**	**-0.49**	**-0.38**	**-0.28**	**-0.37**	**-0.57**	**-0.42**	**-0.78**	**-0.47**	**-0.16**	0.03	**-0.45**	**-0.34**	**-0.50**	**-0.52**	-0.03	**-0.40**	-0.07	0.14	0.00	-0.06
e17	Topographic wetness	**-0.31**	**-0.15**	-0.16	**-0.19**	-0.20	**-0.11**	**-0.51**	**-0.53**	**-0.44**	**-0.44**	**-0.48**	**-0.42**	**-0.58**	**-0.33**	0.00	**-0.16**	-0.11	**-0.42**	-0.10	**-0.58**	-0.32	-0.34	**-0.50**	-0.35	0.11	0.03
e18	Terrain roughness index	**0.30**	0.14	**0.17**	0.18	**0.10**	**0.56**	**0.55**	**0.47**	**0.47**	**0.50**	**0.44**	**0.58**	0.02	**0.35**	**0.18**	0.11	**0.46**	0.08	**0.60**	0.33	0.32	**0.52**	0.38	-0.14	-0.01	-0.01