

Supplementary Information S6 – GLM AICc-based model ranking. Models signalled with an asterisk (*) in bold are the best models for each species (i.e., lowest values) according to different sets of variables: CLIM – models only with climatic variables, EFA – only satellite-based Ecosystem Functioning Attributes (EFA), and CLIM_EFA – combined models using both climate and EFA variables. * Narrow distributed; ** Endemic

Species name	Group of predictor variables	AICc value
<i>Quercus broteroi</i>	CLIM_EFA (*)	797.57
	CLIM	883.66
	EFA	1049.73
<i>Quercus canariensis</i> *	CLIM_EFA (*)	214.43
	EFA	356.75
	CLIM	431.02
<i>Quercus xcerrioides</i> **	CLIM_EFA (*)	8.13
	CLIM	10.19
	EFA	97.58
<i>Quercus estremadurensis</i> *	CLIM (*)	190.11
	CLIM_EFA	193.88
	EFA	284.12
<i>Quercus faginea</i>	EFA (*)	1263.09
	CLIM_EFA	1674.71
	CLIM	1903.16
<i>Quercus lusitanica</i> *	CLIM_EFA (*)	440.53
	CLIM	554.18
	EFA	714.17
<i>Quercus marianica</i> **	CLIM_EFA (*)	186.03
	CLIM	276.67
	EFA	327.38
<i>Quercus orocantabrica</i> **	CLIM_EFA (*)	20.96
	CLIM	73.11
	EFA	84.93
<i>Quercus petraea</i>	EFA (*)	1153.95
	CLIM_EFA	1591.95
	CLIM	1811.36
<i>Quercus pubescens</i>	CLIM_EFA (*)	1041.36
	CLIM	1173.35
	EFA	1185.59
<i>Quercus pyrenaica</i>	CLIM_EFA (*)	5119.22
	CLIM	5510.87

	EFA	7145.01
	EFA (*)	1448.22
<i>Quercus robur</i>	CLIM_EFA	1642.69
	CLIM	1715.53
	CLIM_EFA (*)	915.54
<i>Quercus subpyrenaica**</i>	CLIM	1002.90
	EFA	1332.10