Supplementary Materials

Ecological niche models reveal climate change effect on biogeographical regions: the Iberian Peninsula as case study

Table S1. The average minimum, mean and maximum value of each environmental variables selected of the past (LIG, LGM and Mid Holocene), present and future (2050 and 2070) in the Iberian Peninsula. Bio4: temperature seasonality; Bio6: minimum temperature of the coldest month; Bio8: mean temperature of the wettest quarter; Bio9: mean temperature of the driest quarter; Bio12: annual precipitation; Bio17: precipitation of the driest quarter.

Variable	Time period	Minimum	Mean	Maximum
Bio 4 (°C)	LIG	347.4	754.7	929.5
	LGM	224.9	439.8	582.8
	Mid Holocene	283.8	642.0	855.7
	Present	261.1	565.4	697.0
	2050	270.0	617.4	840.6
	2070	265.0	619.4	840.6
Bio 6 (°C)	LIG	-10.9	0.4	8.0
	LGM	-12.4	-0.3	7.6
	Mid Holocene	-9.9	1.4	9.6
	Present	-8.9	1.9	9.3
	2050	-5.6	3.4	12.6
	2070	-7.6	3.5	12.6
Bio 8 (°C)	LIG	-4.3	7.4	16.8
	LGM	-7.7	5.2	13.9
	Mid Holocene	-2.9	9.9	21.2
	Present	0.0	10.4	20.0
	2050	-4.8	10.8	23.8
	2070	-2.4	11.8	23.8
Bio 9 (°C)	LIG	-0.1	23.0	30.0
	LGM	1.3	14.9	21.5
	Mid Holocene	-1.0	20.8	22.9
	Present	-0.2	19.1	26.7
	2050	1.4	22.8	33.6
	2070	1.5	23.0	33.6
Bio 12 (mm)	LIG	332.6	745.4	1770.1
	LGM	236.0	851.9	2852.3
	Mid Holocene	247.2	737.3	1840.1
	Present	221.6	664.8	1670.0
	2050	145.5	619.8	1961.9
	2070	145.5	618.0	1961.9
Bio 17 (mm)	LIG	10.2	74.0	305.8
	LGM	6.0	61.8	247
	Mid Holocene	6.6	79.6	345.3
	Present	8.0	81.5	318.3
	2050	5.0	68.5	342.7
	2070	6.0	66.8	342.7

Table S2. Kruskal-Wallis tests comparing the AUC values of each species models and null models.

	Species	Chi-square	p-value
Amphibians	*Alytes cisternasii*	14.286	0.00016
	Alytes dickhilleni	14.286	0.00016
	Alytes obstetricans	14.296	0.00016
	Bufo spinosus	14.286	0.00016
	Calotriton asper	14.307	0.00016
	Chioglossa lusitanica	14.307	0.00016
	Discoglossus galganoi	14.286	0.00016
	Epidalea calamita	14.307	0.00016
	Hyla arborea complex	14.286	0.00016
	Hyla meridionalis	14.296	0.00016
	Ichthyosaura alpestris	14.296	0.00016
	Lissotriton boscai	14.296	0.00016
	Lissotriton helveticus	14.286	0.00016
	Pelobates cultripes	14.296	0.00016
	Pelodytes sp.	14.286	0.00016
	Pelophylax perezi	14.296	0.00016
	Pleurodeles waltl	14.286	0.00016
	Rana iberica	14.307	0.00016
	Rana temporaria	14.286	0.00016
	Salamandra salamandra	14.307	0.00016
	Triturus marmoratus/pygmaeus	14.296	0.00016
Reptiles	*Acanthodactylus erythrurus*	14.296	0.00016
	Anguis sp.	14.286	0.00016
	Blanus cinereus/mariae	14.286	0.00016
	Chalcides bedriagai	14.286	0.00016
	Chalcides striatus	14.307	0.00016
	Chamaeleo chamaeleon	14.296	0.00016
	Coronella austriaca	14.307	0.00016
	Coronella girondica	14.286	0.00016
	Emys orbicularis	14.286	0.00016
	Hemidactylus turcicus	14.286	0.00016
	Hemorrhois hippocrepis	14.296	0.00016
	Hierophis viridiflavus	14.329	0.00015
	Iberolacerta monticola	14.286	0.00016
	Lacerta bilineata	14.286	0.00016
	Lacerta schreiberi	14.286	0.00016
	Macroprotodon brevis	14.296	0.00016
	Malpolon monspessulanus	14.296	0.00016
	Mauremys leprosa	14.340	0.00015
	Natrix maura	14.296	0.00016
	Natrix natrix	14.286	0.00016
	Podarcis bocagei	14.296	0.00016
	Podarcis carbonelli	14.296	0.00016
	Podarcis hispanicus complex	14.307	0.00016
	Podarcis muralis	14.286	0.00016
	Psammodromus algirus	14.286	0.00016
	Psammodromus hispanicus	14.286	0.00016
	Rhinechis scalaris	14.286	0.00016
	Tarentola mauritanica	14.286	0.00016
	Timon lepidus	14.340	0.00015
	Vipera aspis	14.286	0.00016
	Vipera latastei	14.296	0.00016
	Vipera seoanei	14.286	0.00016
	Zamenis longissimus/lineatus	14.296	0.00016
	Zooteca vivipara	14.296	0.00016

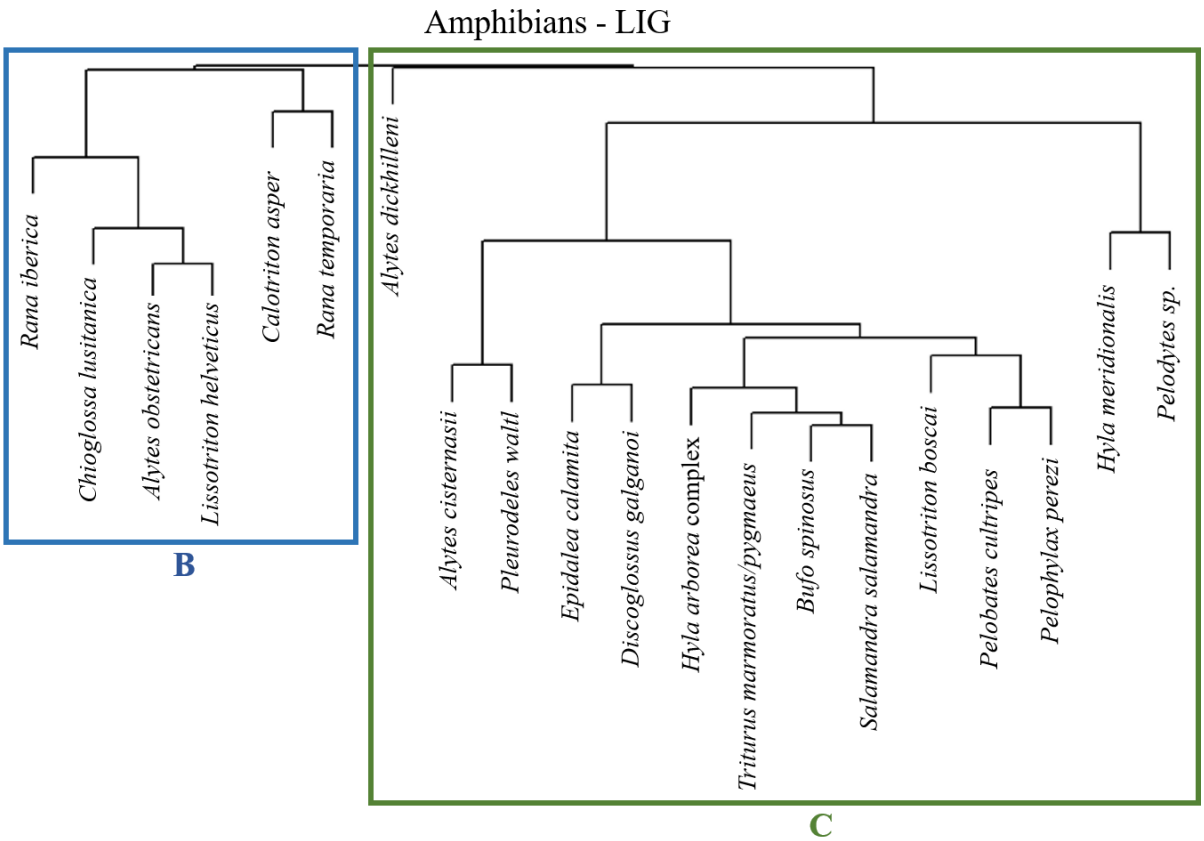

Figure S1. Dendrogram of amphibian species in the LIG. B: Atlantic chorotype, C: Mediterranean chorotype.

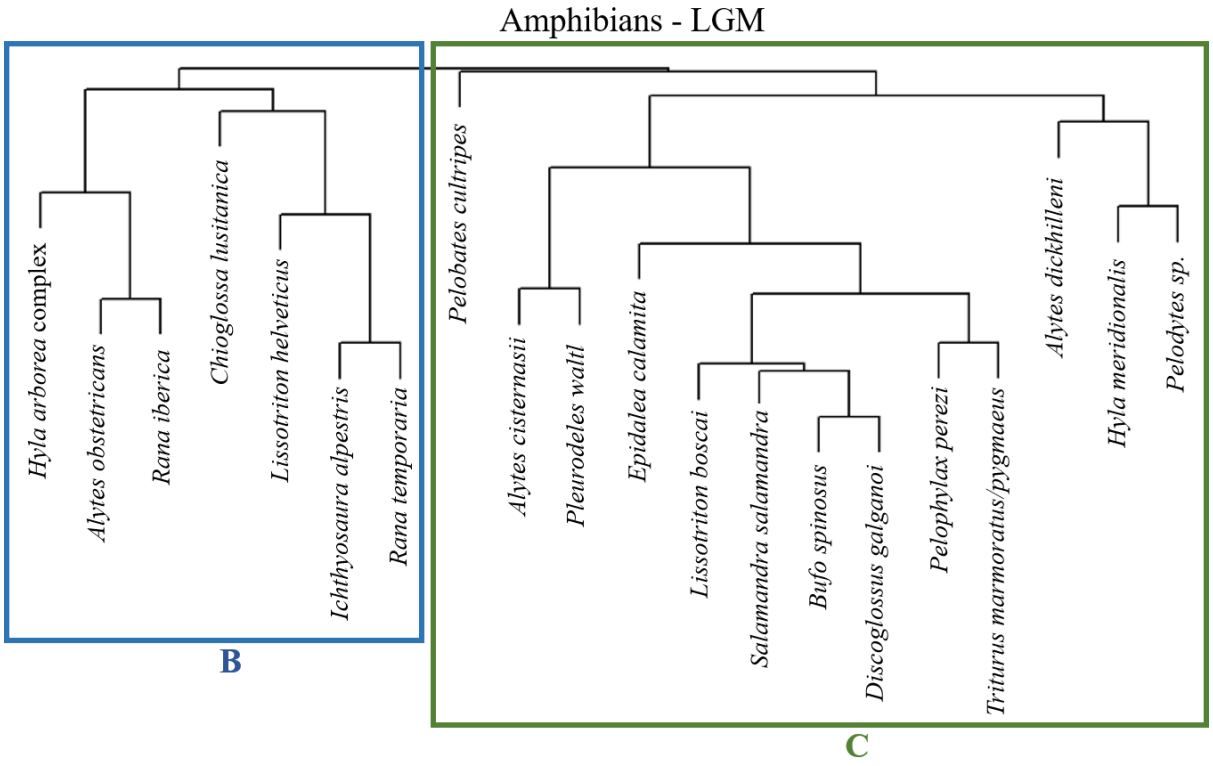

Figure S2. Dendrogram of amphibian species in the LGM. B: Atlantic chorotype, C: Mediterranean chorotype.

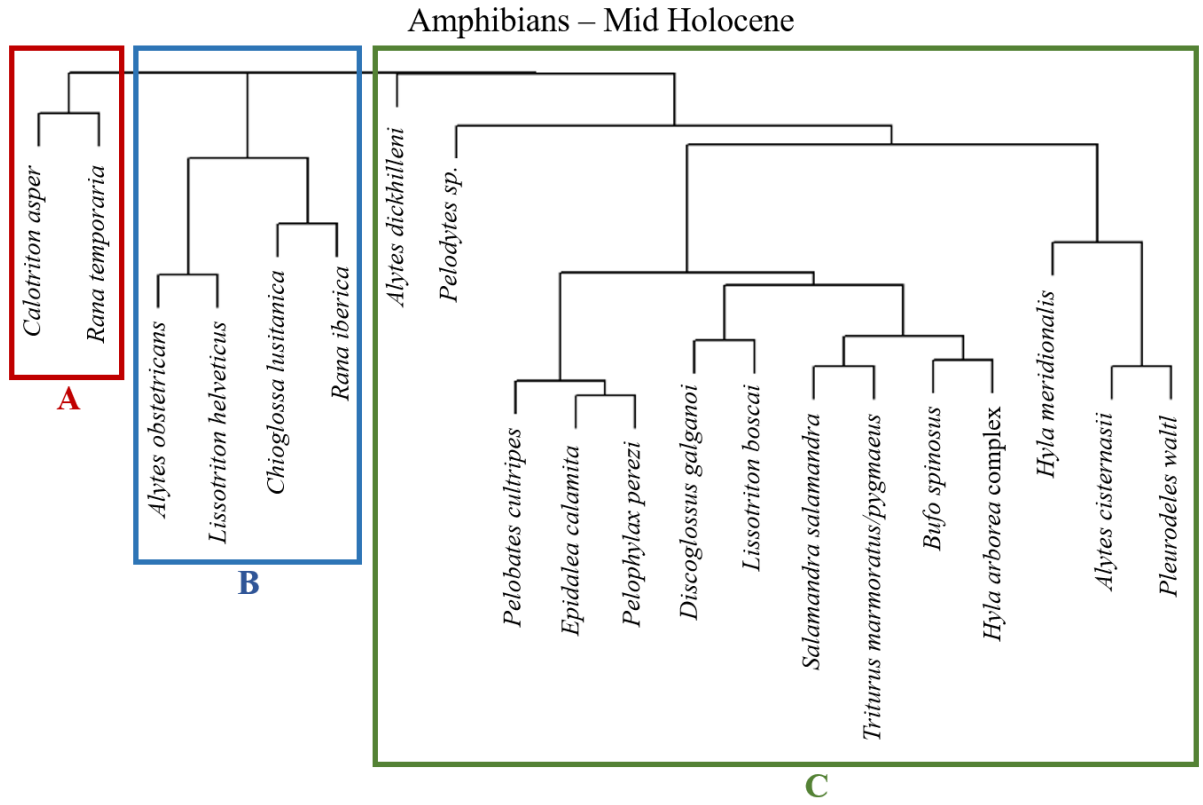

Figure S3. Dendrogram of amphibian species in the Mid Holocene. A and B: Atlantic chorotypes, C: Mediterranean chorotype.

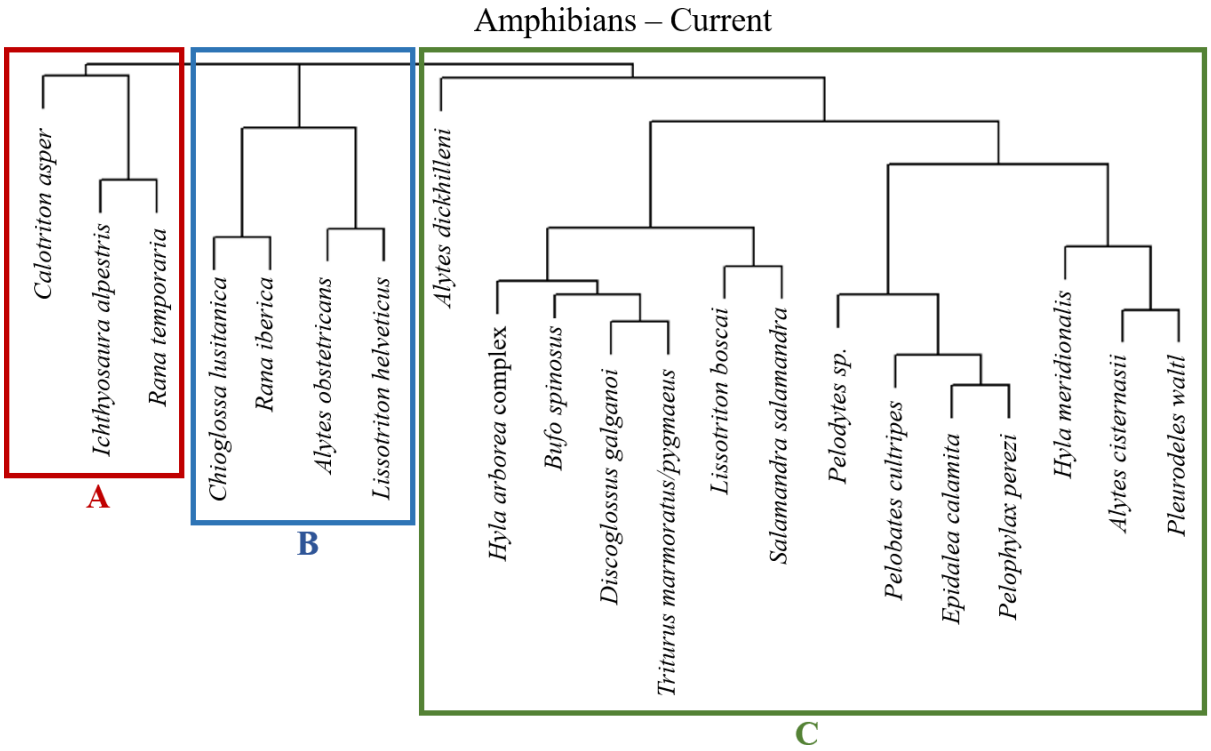

Figure S4. Dendrogram of amphibian species in the present. A and B: Atlantic chorotypes, C: Mediterranean chorotype.

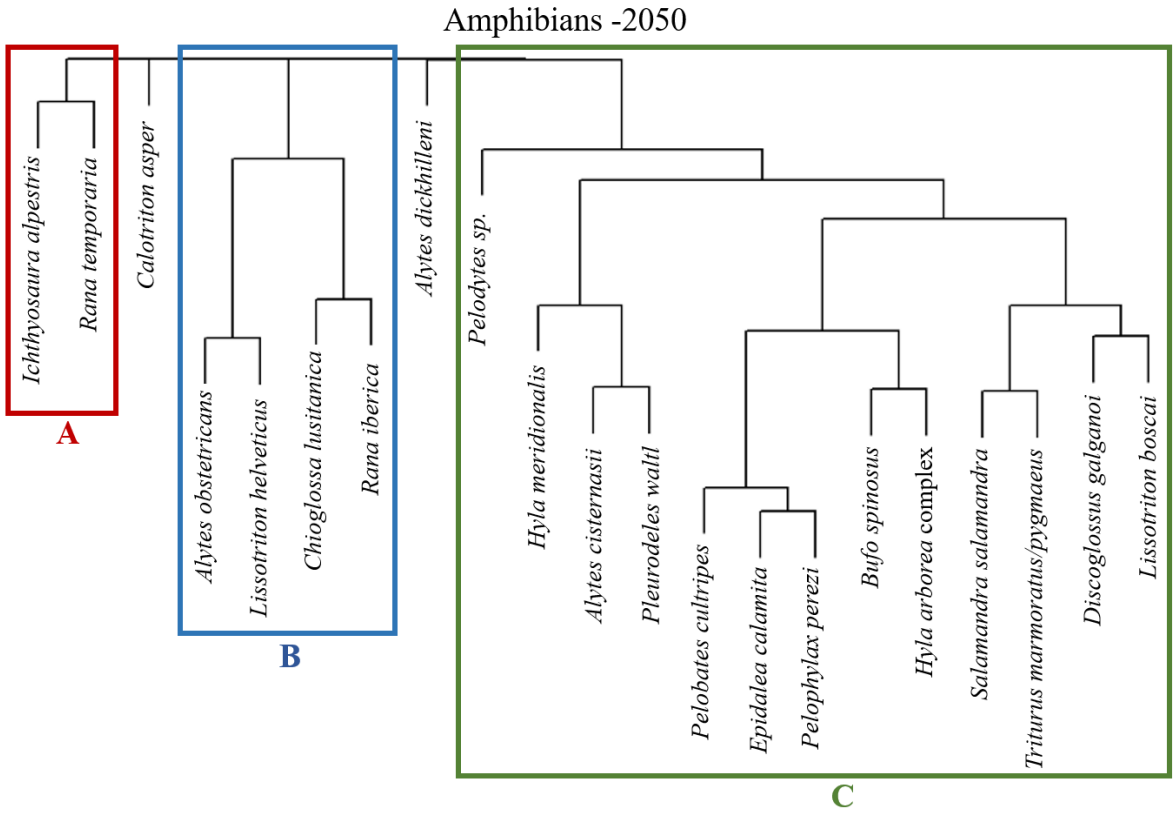

Figure S5. Dendrogram of amphibian species in 2050. A and B: Atlantic chorotypes, C: Mediterranean chorotype.

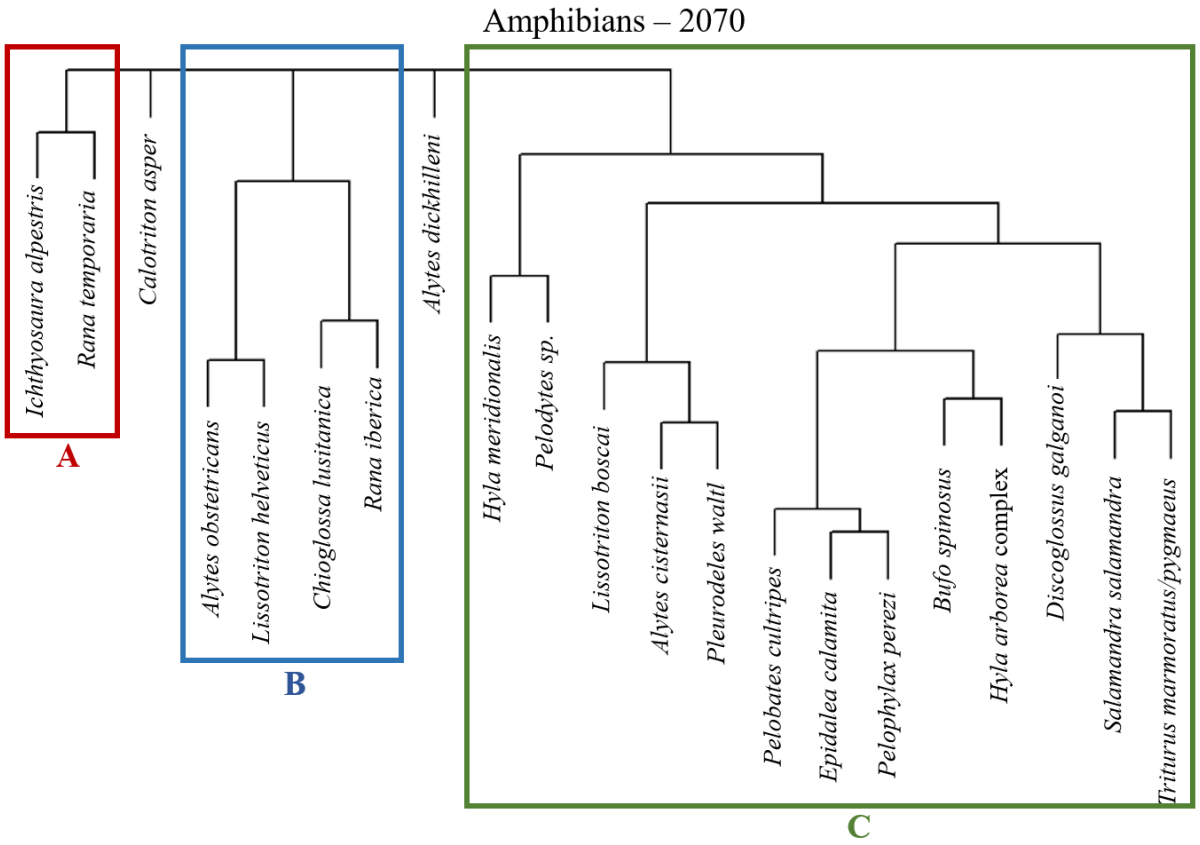

Figure S6. Dendrogram of amphibian species in 2070. A and B: Atlantic chorotypes, C: Mediterranean chorotype.

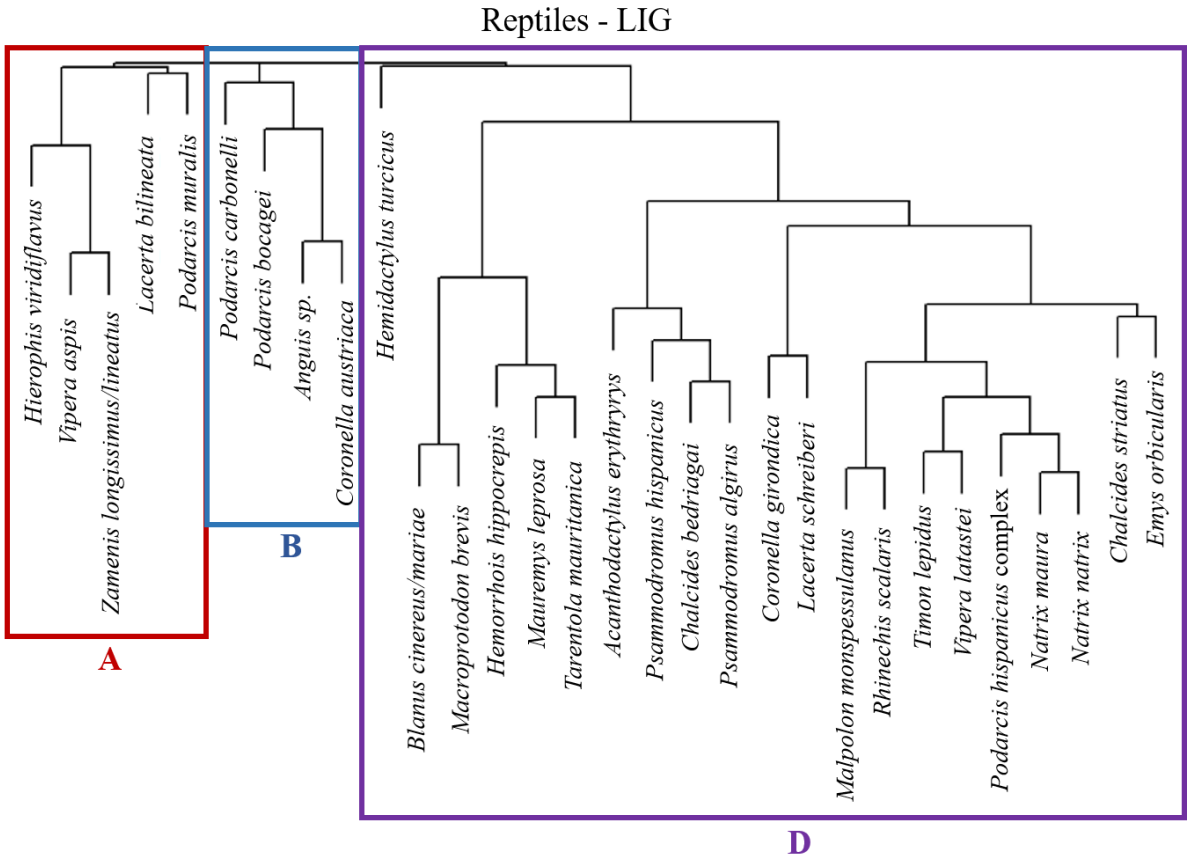

Figure S7. Dendrogram of reptiles' species in the LIG. A and B: Atlantic chorotypes, D: Mediterranean chorotype.

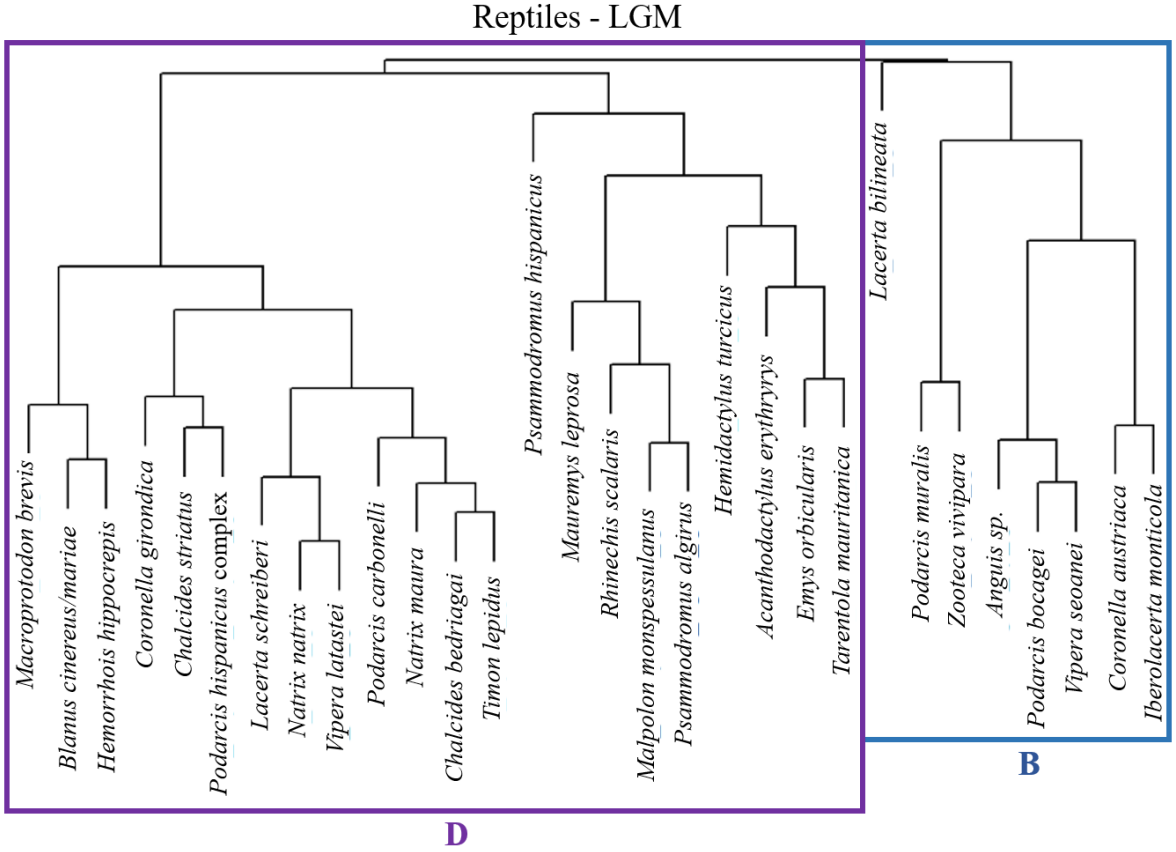

Figure S8. Dendrogram of reptiles' species in the LGM. B: Atlantic chorotype, D: Mediterranean chorotype.

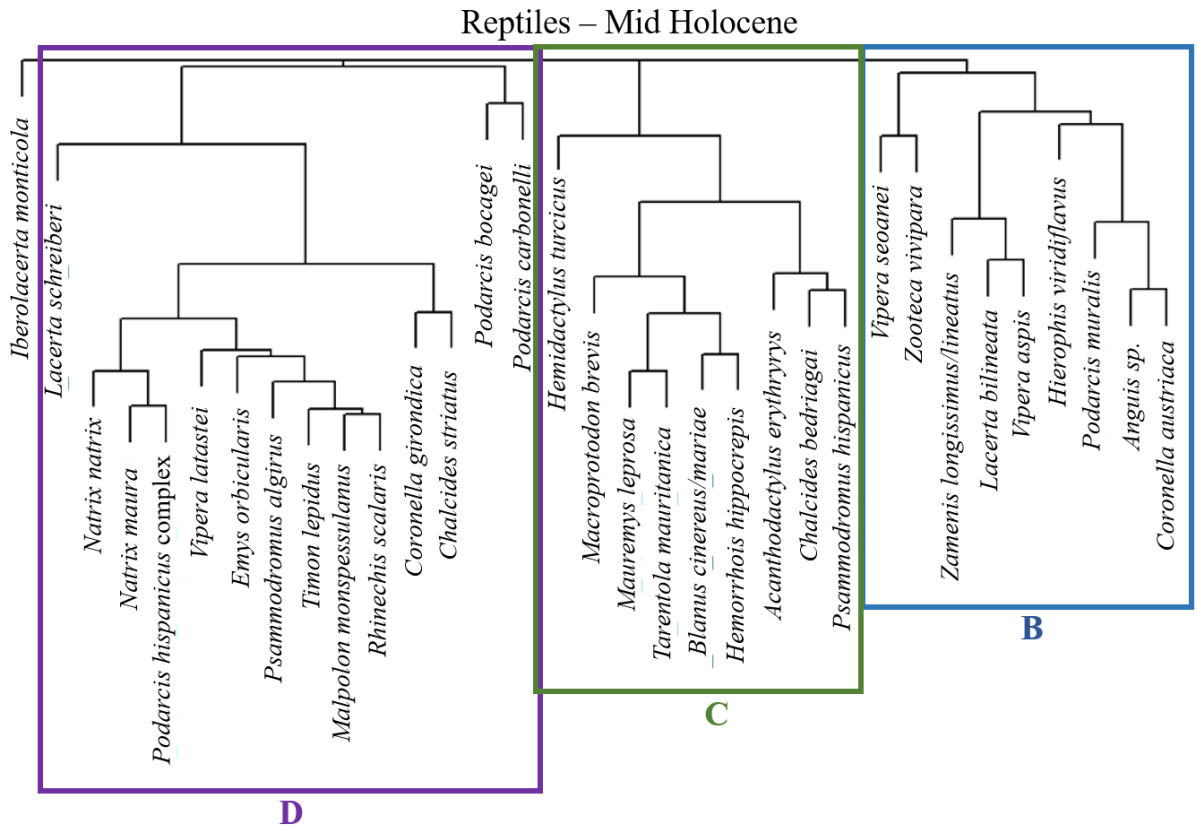

Figure S9. Dendrogram of reptiles' species in the Mid Holocene. B: Atlantic chorotype, C and D: Mediterranean chorotypes.

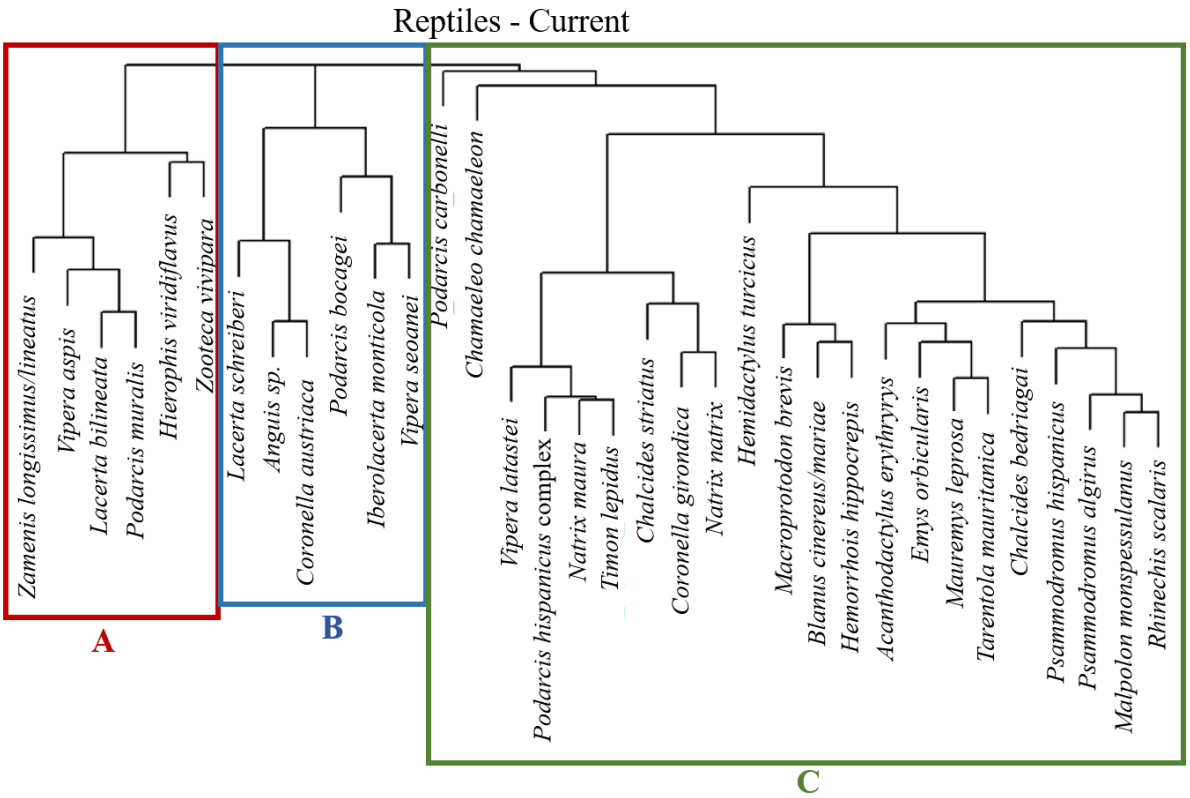

Figure S10. Dendrogram of reptiles' species in the present. A and B: Atlantic chorotypes, C: Mediterranean chorotype.

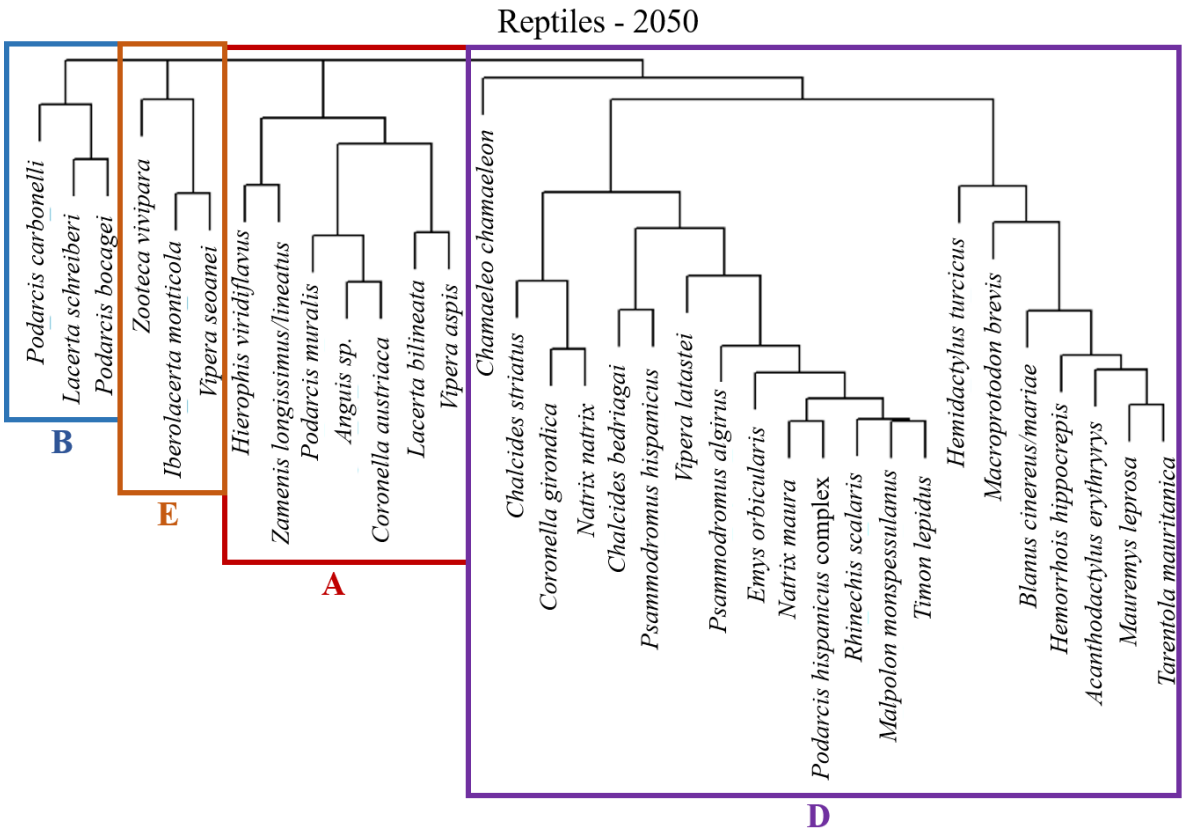

Figure S11. Dendrogram of reptiles' species in 2050. A, B and E: Atlantic chorotypes, D: Mediterranean chorotype.

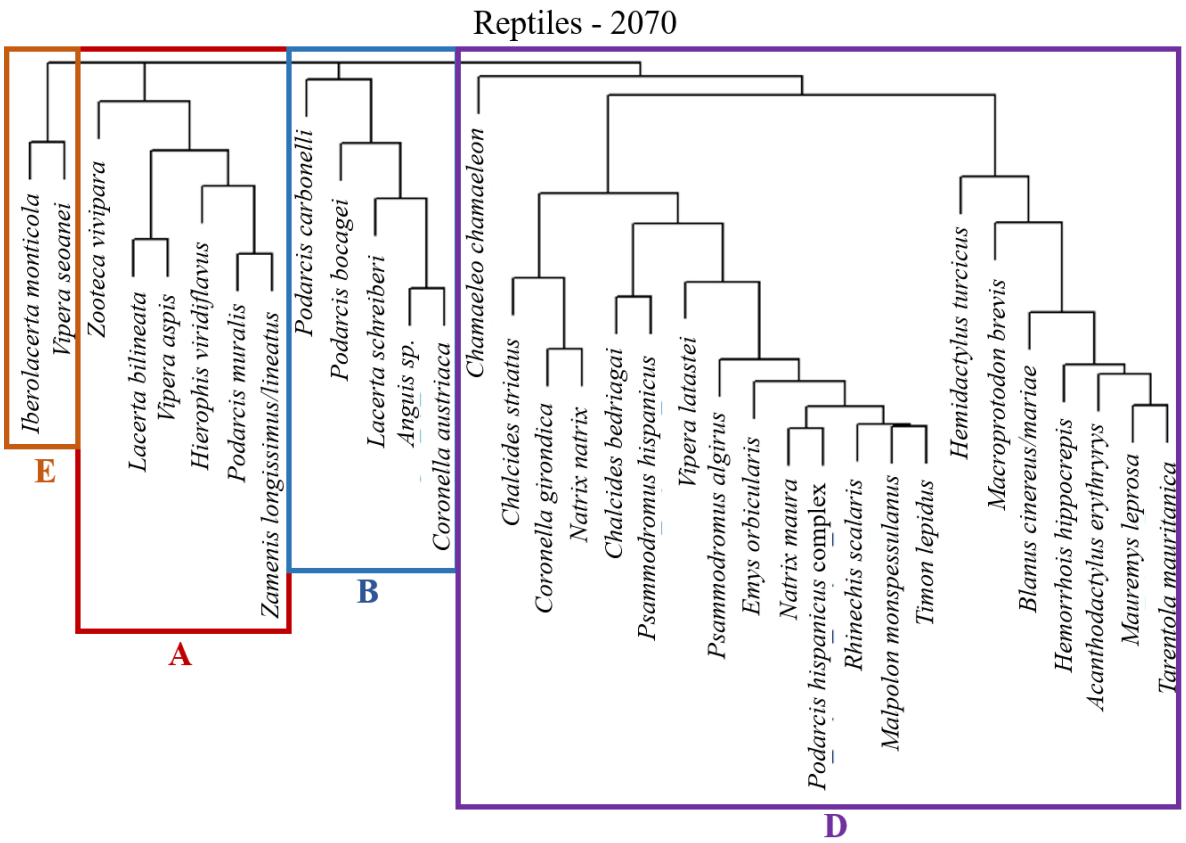

Figure S12. Dendrogram of reptiles' species in 2070. A, B and E: Atlantic chorotypes, D: Mediterranean chorotype.

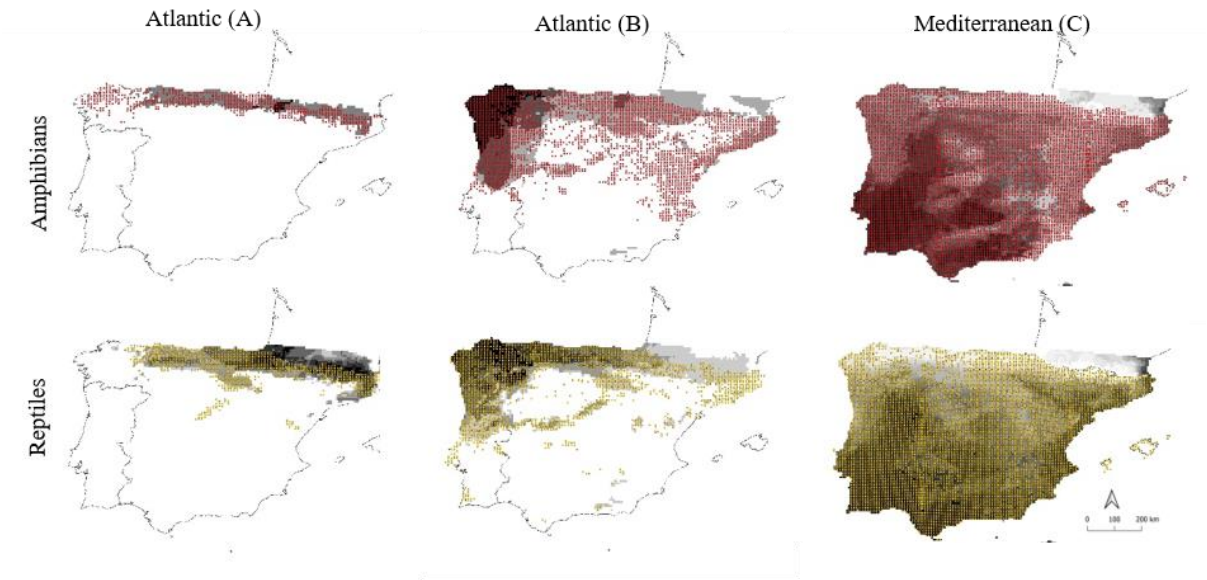

Figure S13. Species presence data (amphibians in red and reptiles in yellow) and each biogeographical region of the model calculated for the present.