

Appendix

Table S1. Descriptive statistics of environmental variables used in this study.

Variable	Code	Mean	SD
Temperature			
Mean annual temperature	TEM	13.2	6.2
Mean temperature of the coldest month	TEM _{min}	1.7	9.2
Mean temperature of the warmest month	TEM _{max}	23.4	4.5
Seasonal variation in TEM	TEM _{var}	21.7	7.2
Precipitation			
Annual precipitation	PREC	1117.6	498.9
Minimum monthly precipitation	PREC _{min}	21.3	16.7
Maximum monthly precipitation	PREC _{max}	203.2	78.3
Seasonal variation in precipitation	PREC _{var}	181.9	67.2
Annual rainfall	RAIN	1107.6	509.6
Summer rainfall	RAIN _{sum}	628.1	251.7
Evapotranspiration			
Annual actual evapotranspiration	AET	845.4	284.7
Minimum monthly AET	AET _{min}	19.5	14.5
Maximum monthly AET	AET _{max}	135.8	30.1
Seasonal variation in AET	AET _{var}	116.4	23.3
Annual potential evapotranspiration	PET	975.9	222.2
Minimum monthly PET	PET _{min}	24.7	19.4
Maximum monthly PET	PET _{max}	145.3	17.2
Seasonal variation in PET	PET _{var}	120.6	15
Water deficit	WD	130.4	155
Moisture Index	MI	0.8	0.2
Primary productivity			
Annual net primary production	NPP	668.3	199.8
Normalized difference vegetation index	NDVI	0.4	0.1
NDVI during the course of summer	NDVI _{sum}	0.5	0.1
Enhanced vegetation index	EVI	0.3	0.1
EVI during the course of summer	EVI _{sum}	0.3	0.1
Global vegetation index	GVI	954.1	181.7
Physiography			
Lowest elevation	ELEV _{min}	590.8	571.3
Highest elevation	ELEV _{max}	2189.6	1448.3
Topographic relief	ELEV _{var}	1570.7	1164.9
Log ₁₀ topographic relief	LOGELEV _{var}	3.1	0.4

Table S2. Pearson correlation coefficients between 30 environmental variables used to relate species richness of amphibians and reptiles in China (n = 245). Variable codes are the same as in Table S1.

Variable	TEM	TEM _{min}	TEM _{max}	TEM _{var}	PREC
TEM	1.000				
TEM _{min}	0.956	1.000			
TEM _{max}	0.837	0.647	1.000		
TEM _{var}	-0.699	-0.875	-0.198	1.000	
PREC	0.837	0.842	0.642	-0.675	1.000
PREC _{min}	0.659	0.611	0.645	-0.376	0.850
PREC _{max}	0.796	0.800	0.589	-0.654	0.951
PREC _{var}	0.764	0.780	0.526	-0.669	0.897
RAIN	0.852	0.854	0.659	-0.680	0.999
RAIN _{sum}	0.811	0.832	0.566	-0.710	0.949
AET	0.825	0.857	0.588	-0.729	0.937
AET _{min}	0.785	0.810	0.562	-0.685	0.869
AET _{max}	0.684	0.685	0.546	-0.534	0.793
AET _{var}	0.392	0.378	0.353	-0.262	0.480
PET	0.791	0.868	0.446	-0.834	0.836
PET _{min}	0.783	0.864	0.409	-0.851	0.828
PET _{max}	0.642	0.623	0.550	-0.451	0.724
PET _{var}	-0.279	-0.406	0.099	0.585	-0.244
WD	-0.380	-0.330	-0.441	0.145	-0.522
MI	0.565	0.556	0.495	-0.400	0.719
NPP	0.785	0.787	0.602	-0.630	0.825
NDVI	0.573	0.590	0.424	-0.491	0.703
NDVI _{sum}	0.220	0.177	0.278	-0.052	0.371
EVI	0.670	0.673	0.507	-0.544	0.761
EVI _{sum}	0.427	0.395	0.405	-0.251	0.537
GVI	0.381	0.380	0.273	-0.315	0.471
ELEV _{min}	-0.569	-0.422	-0.709	0.093	-0.587
ELEV _{max}	-0.492	-0.286	-0.761	-0.115	-0.424
ELEV _{var}	-0.330	-0.140	-0.603	-0.203	-0.233
LOGELEV _{var}	-0.264	-0.121	-0.451	-0.131	-0.216

Table S2 (continued).

Variable	PREC _{min}	PREC _{max}	PREC _{var}	RAIN	RAIN _{sum}
PREC _{min}	1.000				
PREC _{max}	0.724	1.000			
PREC _{var}	0.596	0.985	1.000		
RAIN	0.850	0.949	0.894	1.000	
RAIN _{sum}	0.690	0.961	0.948	0.948	1.000
AET	0.762	0.891	0.848	0.938	0.921
AET _{min}	0.761	0.797	0.740	0.872	0.858
AET _{max}	0.626	0.781	0.754	0.791	0.770
AET _{var}	0.332	0.510	0.511	0.476	0.457
PET	0.585	0.830	0.822	0.837	0.826
PET _{min}	0.539	0.830	0.834	0.828	0.848
PET _{max}	0.664	0.669	0.614	0.722	0.621
PET _{var}	0.062	-0.310	-0.376	-0.246	-0.388
WD	-0.562	-0.445	-0.379	-0.523	-0.507
MI	0.633	0.670	0.623	0.718	0.708
NPP	0.628	0.809	0.787	0.830	0.829
NDVI	0.610	0.675	0.634	0.704	0.637
NDVI _{sum}	0.355	0.343	0.311	0.367	0.304
EVI	0.635	0.740	0.704	0.763	0.709
EVI _{sum}	0.470	0.510	0.478	0.535	0.485
GVI	0.364	0.511	0.505	0.468	0.456
ELEV _{min}	-0.565	-0.600	-0.559	-0.587	-0.558
ELEV _{max}	-0.449	-0.420	-0.378	-0.432	-0.370
ELEV _{var}	-0.289	-0.216	-0.180	-0.242	-0.177
LOGELEV _{var}	-0.201	-0.226	-0.213	-0.219	-0.204

Table S2 (continued).

Variable	AET	AET _{min}	AET _{max}	AET _{var}	PET
AET	1.000				
AET _{min}	0.882	1.000			
AET _{max}	0.886	0.653	1.000		
AET _{var}	0.593	0.219	0.882	1.000	
PET	0.841	0.752	0.709	0.446	1.000
PET _{min}	0.811	0.788	0.614	0.301	0.953
PET _{max}	0.712	0.612	0.703	0.524	0.818
PET _{var}	-0.236	-0.320	0.009	0.210	-0.298
WD	-0.631	-0.542	-0.611	-0.450	-0.111
MI	0.829	0.648	0.831	0.667	0.423
NPP	0.873	0.738	0.840	0.622	0.709
NDVI	0.751	0.623	0.766	0.599	0.558
NDVI _{sum}	0.434	0.238	0.612	0.640	0.141
EVI	0.799	0.683	0.776	0.574	0.642
EVI _{sum}	0.604	0.417	0.709	0.653	0.340
GVI	0.497	0.410	0.571	0.480	0.404
ELEV _{min}	-0.548	-0.467	-0.565	-0.437	-0.395
ELEV _{max}	-0.341	-0.305	-0.395	-0.319	-0.217
ELEV _{var}	-0.145	-0.153	-0.195	-0.156	-0.064
LOGELEV _{var}	-0.105	-0.115	-0.107	-0.067	-0.088

Table S2 (continued).

Variable	PET _{min}	PET _{max}	PET _{var}	WD	MI
PET _{min}	1.000				
PET _{max}	0.670	1.000			
PET _{var}	-0.529	0.276	1.000		
WD	-0.123	-0.134	0.006	1.000	
MI	0.405	0.371	-0.099	-0.916	1.000
NPP	0.701	0.572	-0.253	-0.587	0.795
NDVI	0.546	0.491	-0.145	-0.579	0.734
NDVI _{sum}	0.098	0.248	0.156	-0.595	0.664
EVI	0.650	0.539	-0.224	-0.547	0.724
EVI _{sum}	0.317	0.355	-0.004	-0.621	0.739
GVI	0.407	0.326	-0.154	-0.334	0.468
ELEV _{min}	-0.376	-0.497	-0.082	0.440	-0.514
ELEV _{max}	-0.179	-0.425	-0.254	0.315	-0.333
ELEV _{var}	-0.036	-0.271	-0.264	0.174	-0.151
LOGELEV _{var}	-0.095	-0.194	-0.098	0.067	-0.062

Table S2 (continued).

Variable	NPP	NDVI	NDVI _{sum}	EVI	EVI _{sum}
NPP	1.000				
NDVI	0.826	1.000			
NDVI _{sum}	0.600	0.822	1.000		
EVI	0.867	0.964	0.739	1.000	
EVI _{sum}	0.761	0.906	0.943	0.891	1.000
GVI	0.651	0.820	0.664	0.807	0.754
ELEV _{min}	-0.569	-0.450	-0.378	-0.523	-0.476
ELEV _{max}	-0.414	-0.274	-0.270	-0.348	-0.329
ELEV _{var}	-0.228	-0.108	-0.140	-0.166	-0.166
LOGELEV _{var}	-0.092	0.067	0.081	-0.011	0.042

Table S2 (continued).

Variable	GVI	ELEV _{min}	ELEV _{max}	ELEV _{var}	LOGELEV _{var}
GVI	1.000				
ELEV _{min}	-0.384	1.000			
ELEV _{max}	-0.331	0.655	1.000		
ELEV _{var}	-0.214	0.341	0.916	1.000	
LOGELEV _{var}	-0.025	0.296	0.733	0.814	1.000

Table S3. Adjusted coefficient of determination (r^2) and AIC value for the 12 regression models with the smallest AIC values for amphibians and reptiles in China. Variable codes are the same as in Table S1.

No.	Model	Amphibian				Reptile			
		Rank	r^2	AIC	Δr^2	Rank	r^2	AIC	Δr^2
1	$TEM_{min} + RAIN + RAIN^2 + NPP$	8	0.781	-841	0.029	11	0.639	-728	0.077
2	$TEM_{min} + RAIN + RAIN^2 + NPP + LOGELEV_{var}$	5	0.795	-855	0.015	9	0.653	-735	0.063
3	$TEM_{min} + RAIN + RAIN^2 + NPP + ELEV_{min}$	9	0.781	-839	0.029	8	0.682	-756	0.034
4	$TEM_{min} + RAIN + RAIN^2 + NPP + LOGELEV_{var} + ELEV_{min}$	4	0.796	-855	0.014	4	0.712	-778	0.004
5	$TEM_{min} + RAIN + RAIN^2 + NPP + LOGELEV_{var} + ELEV_{min} + LOGELEV_{var} \times TEM_{min}$	2	0.802	-862	0.008	1	0.716	-780	0.000
6	$TEM_{min} + RAIN + RAIN^2 + NPP + LOGELEV_{var} + ELEV_{min} + LOGELEV_{var} \times RAIN$	6	0.797	-855	0.013	3	0.715	-779	0.001
7	$TEM_{min} + RAIN + RAIN^2 + NPP + LOGELEV_{var} + ELEV_{min} + (LOGELEV_{var} \times TEM_{min}) + (LOGELEV_{var} \times RAIN)$	1	0.810	-871	0.000	6	0.714	-778	0.002
8	$TEM_{min} + RAIN + RAIN^2 + NPP + TEM_{min} \times MI + LOGELEV_{var} + ELEV_{min}$	3	0.799	-858	0.011	5	0.713	-778	0.003
9	$TEM_{min} + RAIN + NPP + LOGELEV_{var} + ELEV_{min}$	11	0.759	-816	0.051	2	0.712	-780	0.004
10	$TEM_{min} + PREC + PREC^2 + NPP + LOGELEV_{var} + ELEV_{min}$	7	0.794	-852	0.016	7	0.711	-778	0.005
11	$TEM_{min} + AET + AET^2 + NPP + LOGELEV_{var} + ELEV_{min}$	10	0.779	-836	0.031	10	0.644	-728	0.072
12	$TEM_{min} + PET + PET^2 + NPP + LOGELEV_{var} + ELEV_{min}$	12	0.754	-810	0.056	12	0.641	-726	0.075

Note: The lowest value of model rank corresponds to the lowest value of AIC. Δr^2 is the difference in r^2 between the model with the highest r^2 and the focal model. ΔAIC is the difference in AIC between the model with the lowest AIC and the focal model.