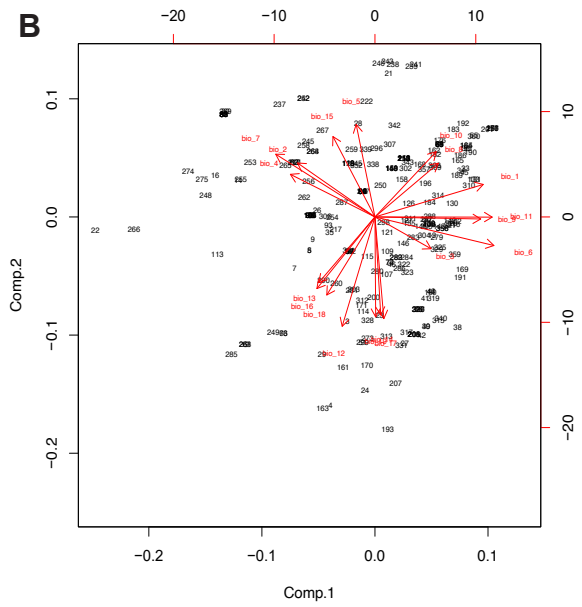
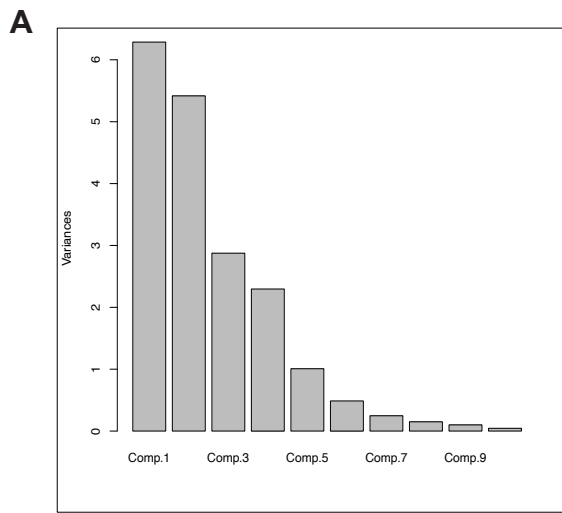


Supplementary file 9. Principal Component Analysis (PCA) of climate associated to sites occupied by *Euphorbia tithymaloides*.

Supplementary file 9.1. Loadings of the variables on the axis from a PCA on climate for *Euphorbia tithymaloides*.

Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6	PC 7	PC 8	PC 9	PC 10
BIO 1 (mean annual T)	0.3478	0.1077	0.0379	0.2705	0.0134	0.0284	0.0268	0.0447	0.0060	0.0202
BIO 2 (mean T diurnal range)	-0.2487	0.1786	-0.1976	0.1423	0.5215	0.0518	-0.0257	-0.0502	-0.0473	-0.1426
BIO 3 (Isothermality)	0.1804	-0.1053	-0.4046	-0.0247	0.4050	0.2837	-0.2857	0.3764	-0.3296	0.2864
BIO 4 (T seasonality)	-0.2717	0.1412	0.3467	0.1359	-0.1217	-0.1224	-0.0811	0.1098	-0.1827	0.4120
BIO 5 (max T of warmest month)	-0.0604	0.3064	-0.0096	0.3995	0.2777	-0.1337	0.1623	-0.1252	0.0808	-0.1339
BIO 6 (min T of coldest month)	0.3822	-0.0948	-0.0321	0.0144	-0.1567	0.0002	0.0738	0.0161	0.0122	-0.0592
BIO 7 (T annual range)	-0.3189	0.2079	0.0203	0.1656	0.2426	-0.0593	0.0154	-0.0676	0.0264	-0.0140
BIO 8 (mean T of wettest quarter)	0.2036	0.1778	0.2893	0.3368	-0.0795	0.2011	-0.2299	0.2747	-0.1308	-0.1929
BIO 9 (mean T of driest quarter)	0.3398	-0.0068	-0.1686	0.2198	0.1125	-0.0998	0.1419	-0.5050	0.2114	0.4805
BIO 10 (mean T of warmest quarter)	0.1967	0.2163	0.2540	0.3587	-0.0878	-0.0800	-0.0093	0.1473	-0.1344	0.0885
BIO 11 (mean T of coldest quarter)	0.3769	-0.0005	-0.1561	0.1015	0.0644	0.0642	0.0571	-0.0127	0.0651	-0.2869
BIO 12 (annual P)	-0.1051	-0.3622	-0.0845	0.2755	-0.0551	-0.0122	0.1269	-0.1108	-0.2086	-0.3648
BIO 13 (mean P of wettest month)	-0.1804	-0.2174	-0.2643	0.3314	-0.2281	0.0190	0.1885	0.1558	-0.0989	0.4037
BIO 14 (mean P of driest month)	0.0187	-0.3249	0.3171	0.0198	0.3037	0.0703	0.3109	0.2254	0.2169	-0.0292
BIO 15 (P seasonality, CV)	-0.1350	0.2663	-0.3414	0.0918	-0.2490	0.1553	0.0831	0.4224	0.6444	-0.0186
BIO 16 (mean P of wettest quarter)	-0.1867	-0.2370	-0.2272	0.3274	-0.2325	0.0349	0.2232	0.0045	-0.2329	-0.1609
BIO 17 (mean P of driest quarter)	0.0286	-0.3366	0.2936	0.0254	0.2995	-0.0034	0.2969	0.2671	0.2023	0.1353
BIO 18 (mean P of warmest quarter)	-0.1547	-0.2586	0.1863	0.2409	-0.0357	0.6072	-0.4306	-0.3379	0.2942	0.0431
BIO 19 (mean P of coldest quarter)	0.0025	-0.3311	-0.0806	0.1977	0.0584	-0.6475	-0.5687	0.1322	0.2587	-0.0652
Standard deviation	2.5073	2.3274	1.6956	1.5153	1.0039	0.6981	0.4978	0.3886	0.3177	0.2112
Proportion of variance	0.3309	0.2851	0.1513	0.1208	0.0530	0.0257	0.0130	0.0079	0.0053	0.0023
Cumulative proportion	0.3309	0.6160	0.7673	0.8881	0.9412	0.9668	0.9799	0.9878	0.9931	0.9955

Variable	PC 11	PC 12	PC 13	PC 14	PC 15	PC 16	PC 17	PC 18	PC 19
BIO 1 (mean annual T)	0.1078	0.1986	0.1516	0.1878	0.0311	0.6108	0.5092	0.2144	1.67E-07
BIO 2 (mean T diurnal range)	-0.1239	-0.0229	0.2949	0.1466	0.0881	-0.4405	0.4682	0.0350	-3.02E-08
BIO 3 (Isothermality)	0.2533	-0.0317	-0.1540	-0.0871	-0.0849	0.0738	-0.1559	-0.0012	-1.67E-08
BIO 4 (T seasonality)	0.3162	-0.0587	-0.0724	-0.0068	-0.0771	-0.0423	0.3145	-0.5483	-1.26E-07
BIO 5 (max T of warmest month)	0.0352	0.2253	-0.4054	-0.4852	-0.0707	0.0686	-0.1002	-0.0039	-0.3314
BIO 6 (min T of coldest month)	0.0767	0.1522	-0.2163	-0.3935	-0.0509	-0.3743	0.3270	0.0329	0.5730
BIO 7 (T annual range)	-0.0431	-0.0167	-0.0139	0.0864	0.0076	0.3165	-0.2943	-0.0269	0.7496
BIO 8 (mean T of wettest quarter)	-0.4447	-0.5226	-0.1671	-0.0019	0.0231	-0.0322	-0.0003	-0.0076	-6.70E-09
BIO 9 (mean T of driest quarter)	0.0289	-0.4484	-0.0238	0.1301	-0.0362	-0.0935	-0.0677	-0.0168	-4.24E-08
BIO 10 (mean T of warmest quarter)	0.2760	0.2713	0.3108	0.1987	-0.0054	-0.3776	-0.3915	0.2791	1.93E-10
BIO 11 (mean T of coldest quarter)	-0.0797	0.2106	0.2173	0.1128	0.1029	0.0206	-0.1806	-0.7555	-1.16E-07
BIO 12 (annual P)	0.2153	-0.0318	-0.3825	0.4783	-0.3713	-0.0683	0.0410	-0.0039	3.17E-08
BIO 13 (mean P of wettest month)	-0.5797	0.3112	0.0533	-0.0032	-0.1381	-0.0197	0.0049	-0.0165	2.97E-09
BIO 14 (mean P of driest month)	0.0361	-0.1696	0.3668	-0.2456	-0.5204	0.0632	-0.0243	-0.0177	-1.48E-08
BIO 15 (P seasonality, CV)	0.2180	-0.1217	-0.0816	0.1348	-0.0739	-0.0714	0.0326	-0.0109	2.28E-09
BIO 16 (mean P of wettest quarter)	0.2843	-0.3179	0.2896	-0.3292	0.4260	0.0917	-0.0239	0.0207	-2.00E-08
BIO 17 (mean P of driest quarter)	-0.0155	0.0803	-0.3133	0.2029	0.5830	-0.0672	-0.0069	0.0099	8.26E-09
BIO 18 (mean P of warmest quarter)	0.0789	0.2002	0.0260	-0.0886	0.0544	-0.0231	-0.0123	-0.0009	-7.20E-09
BIO 19 (mean P of coldest quarter)	-0.0172	-0.0144	0.0670	-0.0641	0.0230	0.0159	0.0123	0.0046	1.05E-09
Standard deviation	0.17537	0.15753	0.10305	0.09207	0.08081	0.05194	4.24E-02	1.60E-02	1.85E-08
Proportion of variance	0.00162	0.00131	0.00056	0.00045	0.00034	0.00014	9.48E-05	1.35E-05	1.79E-17
Cumulative proportion	0.99709	0.99840	0.99896	0.99941	0.99975	0.99989	1.00E+00	1.00E+00	1.00E+00



Supplementary file 9.2. A. Biplot showing cumulative variance across PCs. **B.** Space of morphological variation according to PC1 and PC2, with variables mapped onto it.