Supporting Information

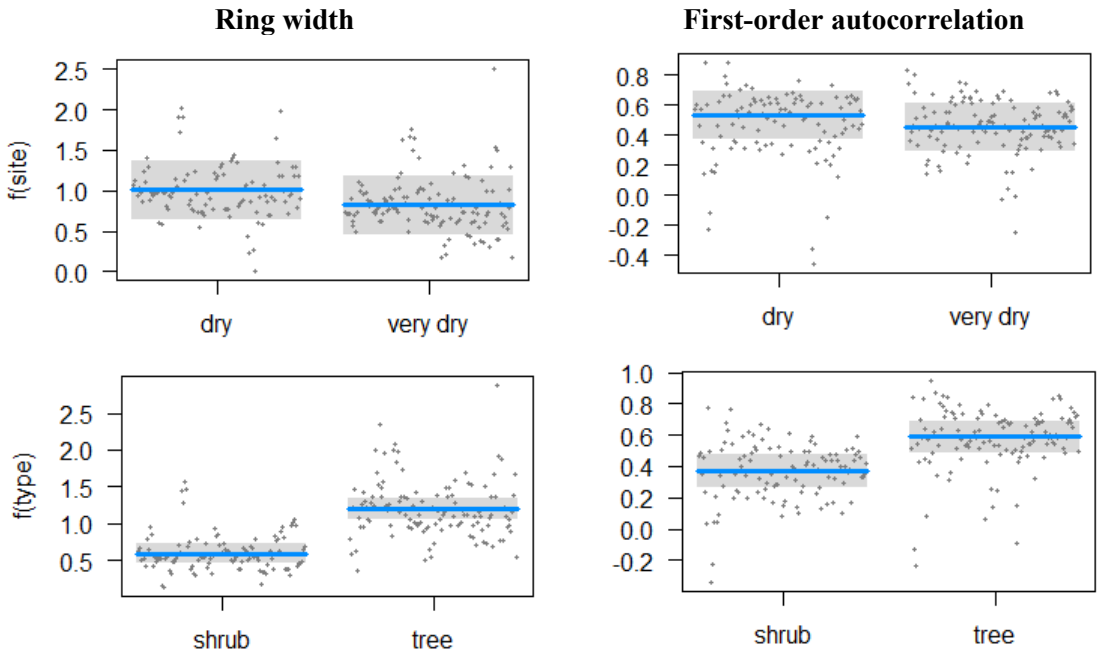

Figure S1. Comparison of ring width and its first-order autocorrelation between sites and between growth forms based on the fitted linear mixed-effect models.

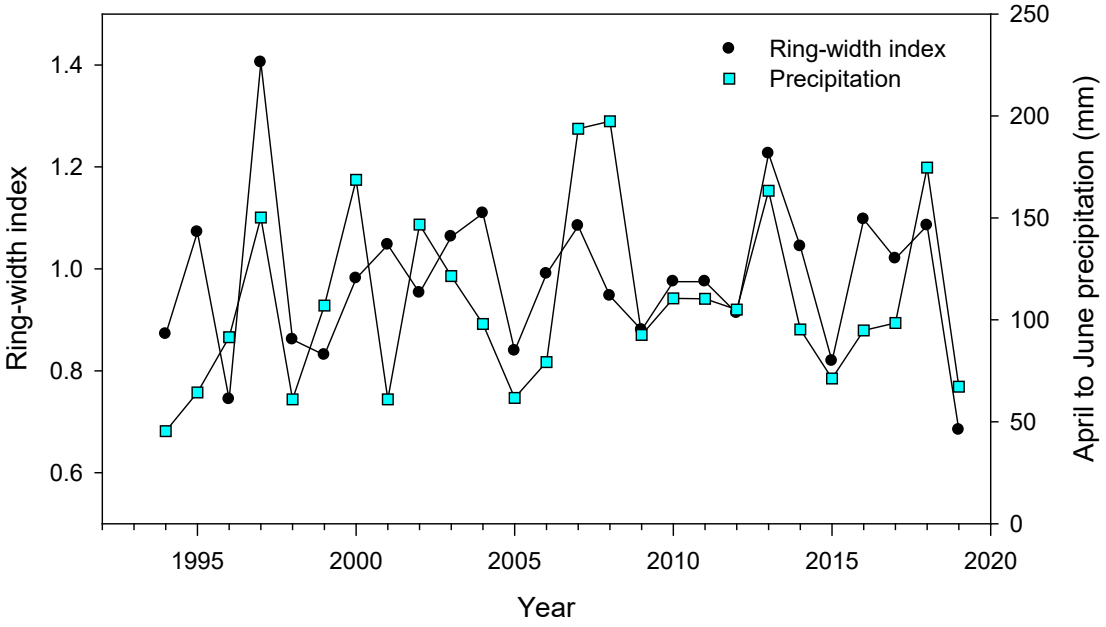

Figure S2. Comparison of the year-to-year *Ephedra* growth (ring-width index) and April to June precipitation variability in the dry site. The selected climate variable showed the highest association with the mean series of ring-width index for the best replicated period showing a correlation of $r = 0.44$ ($p = 0.02$).

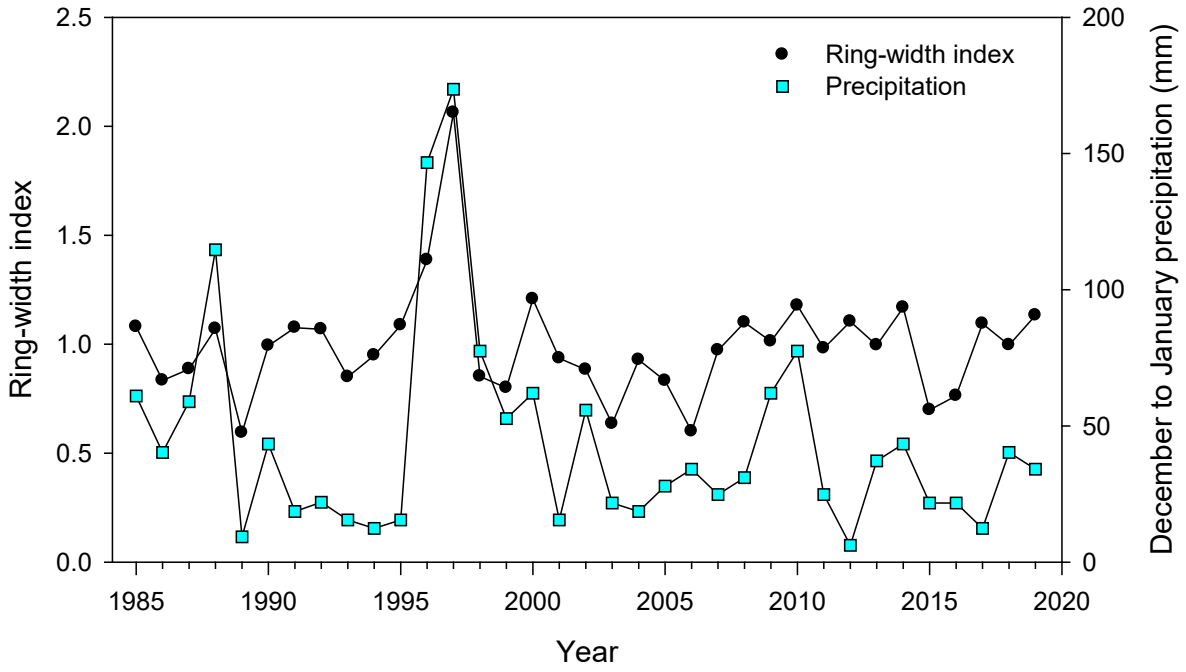

Figure S3. Comparison of the year-to-year *Ephedra* growth (RWI, ring width index) and December to January precipitation variability in the very dry site. The selected climate variable showed the highest association with the mean series of ring-width index for the best replicated period showing a correlation of $r = 0.59$ ($p = 0.0009$).

Table S1. Model selection for growth rate (RWI, ring width indices) response to 12-month June SPEI between dry and very dry sites (sites) and between shrubs and trees (growth form) considering the period 1989–2019. The coefficients for the 12-month June SPEI (SPEI) and the factors (+ if included) of each proposed linear mixed-effect model are shown together with the degrees of freedom, the change in AIC and the Akaike weight. The selected models are shown in bold.

Site						
(Intercept)	site	SPEI	Site : SPEI	df	ΔAIC	Akaike weight
1.09		**0.15**		**4**	**0.00**	**0.66**
1.08	+	0.15		5	1.91	0.25
1.07	+	0.14	+	6	3.93	0.09
0.97				3	24.85	0.00
0.96	+			4	26.69	0.00
Growth form						
(Intercept)	SPEI	type	Type : SPEI	df	ΔAIC	Akaike weight
1.09	**0.15**			**4**	**0.00**	**0.58**
1.10	0.15	+		5	1.25	0.31
1.11	0.15	+	+	6	3.34	0.11
0.97				3	24.85	0.00
0.98		+		4	26.22	0.00

Table S2. Pearson correlation coefficients (*r*) calculated between mean series of observed and simulated ring width indices for the cross-validated sub-periods 1960–1990 and 1991–2019. Pearson correlation coefficients were always significant at the 0.05 level. Statistics of the Bayesian estimation of the growth response parameters (T_1, T_2, M_1, and M_2 for minimum and optimal temperature and soil moisture values, respectively) are also shown.

Site type	Species	1960-1990 / 1991-2019				
		r	**T_1 (ºC)**	**T_2 (ºC)**	**M_1 (v/v)**	**M_2 (v/v)**
Mid-elevation dry site	*Pinus halepensis*	0.69 / 0.77	2.64 / 5.68	11.90 / 10.72	0.081 / 0.050	0.388 / 0.458
	Juniperus thurifera	0.50 / 0.63	8.47 / 7.90	16.12 / 16.33	0.002 / 0.082	0.315 / 0.325
	Juniperus phoenicea	0.48 / 0.55	6.36 / 5.78	15.89 / 20.10	0.001 / 0.085	0.365 / 0.161
	Ephedra nebrodensis	– / 0.65	– / 7.56	– / 10.38	– / 0.007	– / 0.316
Low-elevation very dry site	*Pinus halepensis*	0.77 / 0.78	7.04 / 5.86	16.37 / 15.32	0.006 / 0.098	0.435 / 0.480
	Juniperus thurifera	0.45 / 0.70	3.33 / 6.84	12.88 / 11.24	0.093 / 0.019	0.309 / 0.430
	Juniperus phoenicea	0.58 / 0.68	7.15 / 5.09	12.61 / 15.08	0.001 / 0.066	0.290 / 0.259
	Ephedra nebrodensis	– / 0.38	– / 6.17	– / 17.39	– / 0.003	– / 0.235