Supplementary Material

Appendix A. Fire regime of the study mountains and the local study area.

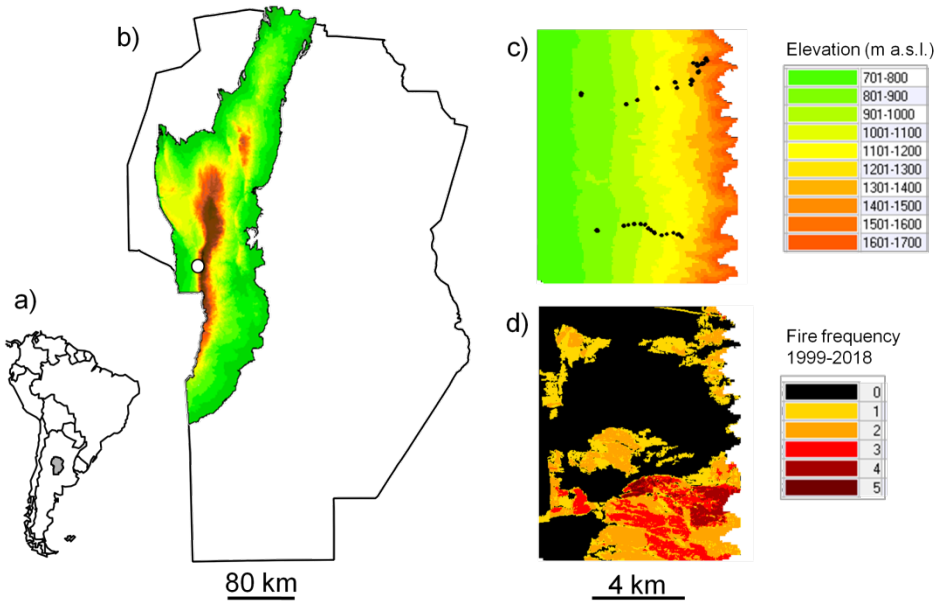

Figure A1. a) Location of the Cordoba province in South America. b) Location of the study mountains in the Cordoba province, showing the local study area in the western mountainside (white dot). c) The local study area showing the elevation gradient from 700 to 1700 m a.s.l. and the study trees (black dots). d) Fire frequency in a 19-years period (1999-2018, without year 2012), using a data base elaborated by Argañaraz et al. (2020).

Table A1. Fire statistics for the elevation intervals where Chaco low-mountain ecosystems are distributed along the Cordoba mountains. Data were obtained from Argañaraz et al. (2020). For each interval we indicate the total burnable area studied by Argañaraz et al (2020), the fire incidence (%) averaged across 19 years (1999-2018, without year 2012), the fire return interval estimated as the time necessary to burn an area equivalent to the total area, and the minimum and maximum annual incidence.

Elevation interval	Area (ha)	Average fire incidence (%)	Return interval (years)	Min. burned area (%)	Max. burned area (%)
500-900	966,999	1.3	80	0.1	4.0
900-1300	513,916	2.7	37	0.1	11.4
1300-1700	167,331	3.2	32	0.1	10.0
Total	1,648,246	1.9	52	0.1	5.5

Table A2. Fire statistics for the elevation intervals in our study area. Data were obtained from Argañaraz et al. (2020). For each interval we indicate the total area analyzed (Fig. A1c,d), the fire incidence (%) averaged across 19 years (1999-2018, without year 2012), the fire return interval estimated as the time necessary to burn an area equivalent to the total area, and the minimum and maximum annual incidence.

Elevation interval	Area (ha)	Average fire incidence (%)	Return interval (years)	Min. burned area (%)	Max. burned area (%)
700-900	3896	2.3	43	0	14.2

900-1300	4290	5.0	20	0	30.4
1300-1700	1737	6.8	15	0	44.5
Total	9923	4.3	23	0	23

Argañaraz, J.P., Cingolani, A.M., Bellis, L.M., Giorgis, M.A., 2020. Fire incidence along an elevation gradient in the mountains of central Argentina. Ecol. Austral 30, 268–281. https://doi.org/10.25260/EA.20.30.2.0.1054.

Appendix B. Expected number of germinable seeds per tree as in integrated indicator of reproductive potential.

Table B1. Expected number of germinable seeds per tree for contrasting conditions of fire damage, elevation and plant height (plotted in Figure 5 of the main text). For each covariate we indicate the ratio (quotient) between contrasting conditions for the different combinations of the other covariates.

a) Fire Damage

Tree height	Elevation	No damage (0%)	Total damage (100%)	Ratio
Short (165 cm)	Low (957 m)	346	41	8
	High (1525 m)	15	1	15
Tall (300 cm)	Low (957 m)	2020	358	6
	High (1525 m)	107	7	15

b) Elevation

Tree height	Damage	Low (957 m)	High (1525 m)	
Short (165 cm)	No damage (0%)	346	15	23
	Total damage (100%)	41	1	41
Tall (300 cm)	No damage (0%)	2020	107	19
	Total damage (100%)	358	7	51

c) Size

Elevation	Damage	Short (165 cm)	Tall (300 cm)	
Low (957 m)	No damage (0%)	346	2020	6
	Total damage (100%)	41	358	9
High (1525 m)	No damage (0%)	15	107	7
	Total damage (100%)	1	7	7

Appendix C. Interannual climatic variability during the study.

Table C1. Previous climate and fruit production by fruiting season. Precipitation (accumulated) and temperature (averaged) were computed from the late winter-spring period (August-December) in the year prior to each fruiting season. This period corresponds to the flowering season and the first stages of fruit production. For each climatic variable, we show the value for each fruiting season, the differences with the long-term average (between brackets) and the corresponding percentile considering all years in the climate datasets (%). The long-term averages

are shown in the bottom row. Precipitation data was averaged from 11 weather stations (28 years, 1992-2019), and temperature was obtained from a sensor located at 780 m a.s.l. in the study mountains, at 90 km from the study area (19 years of data). The fruit production corresponds to trees with low or no fire damage (≤ 15 %, N = 54). Observed values are the proportion of trees that produced fruits, and predicted values are the fruit production probabilities averaged over the same set of trees.

Fruiting season*	Precipitation		Temperature		Fruit production	
	(mm)	(%)	(C°)	(%)	Predicted (%)	Observed (%)
2009	507 (+140)	97	17.04 (-0.36)	22	16.8	17.0
2010	214 (-153)	0	18.47 (+1.06)	100	49.9	47.2
2011	271 (-96)	7	17.12 (-0.29)	28	33.5	35.8
Long-term average	367		17.41			

* Climate data for each fruiting season corresponds to the August-December period in the previous year.