Appendix

Table ST1: Results of the ordinary least square linear regression for the elevation-dependent Mean Annual Temperature (MAT) lapse rate of Figure 2.

Variable	β_i	Standard Error	Significance (two-sided p-value)
Intercept	11.994	0.3054	<0.0001
Elevation [m]	-0.0047	0.0002	<0.0001

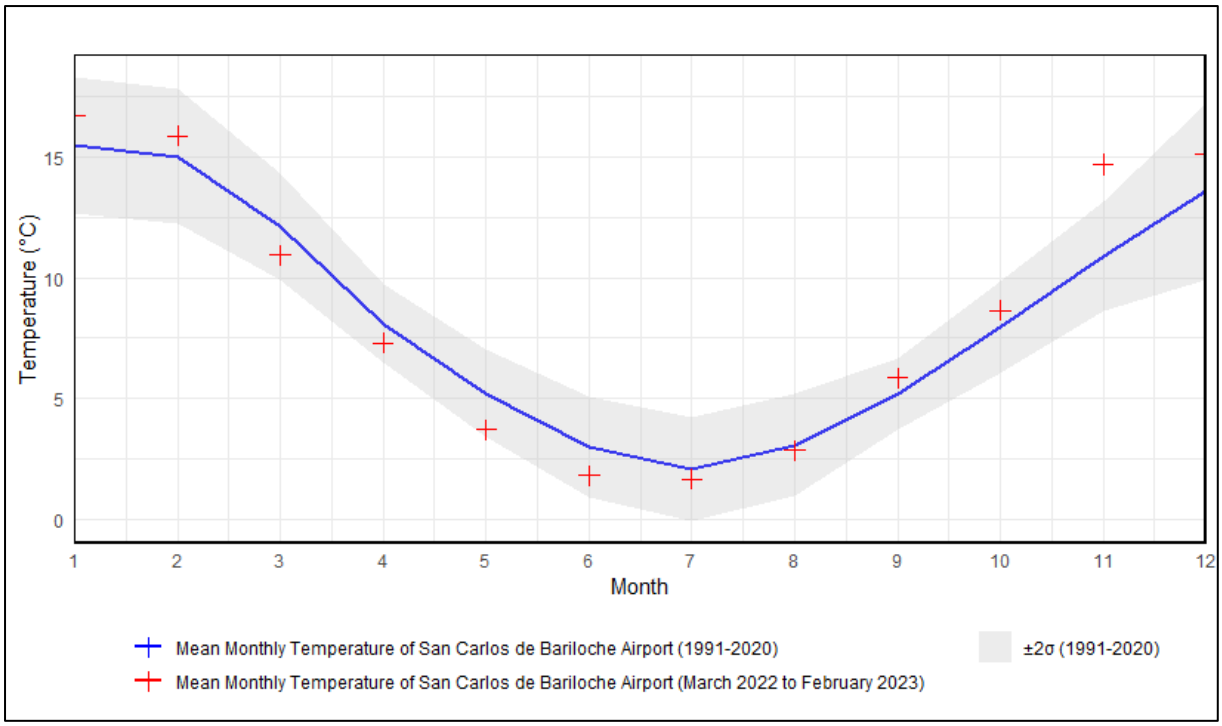
F-Statistic (df=35) 312.9, p<0.0001; Multiple R^2 = 0.899, adj. R^2 = 0.896

Table ST2: Summary and statistical comparison of the mean temperatures [°C] between forest stand and gap measurement locations. mean ± standard deviation; p: p-value (two-sided t-test); italic and colour: warmer temperture of the comparison.

	Austrocedrus chilensis			*Nothofagus pumilio*			*N. pumilio - N. antarctica* (patch)		
	stand	gap	p	stand	gap	p	stand	patch	p
Time	warmest month (January)			warmest month (January)			warmest month (January)		
02:00	*14.8 ± 3.7*	13.9 ± 3.5	0.363	*9.1 ± 3.9*	8.2 ± 3.5	0.367	*11.4 ± 4.1*	*10.7 ± 4.1*	*0.492*
06:00	*12.2 ± 3.3*	11.2 ± 3.3	0.271	*7.8 ± 3.7*	6.5 ± 3.3	0.149	*10.1 ± 4.0*	*9.1 ± 3.9*	*0.353*
10:00	15.0 ± 3.2	*17.2 ± 3.5*	**0.014**	*11.1 ± 4.9*	10.8 ± 4.7	0.773	*12.8 ± 3.9*	*12.5 ± 3.8*	*0.747*
14:00	24.3 ± 5.1	*27.0 ± 5.3*	**0.049**	17.0 ± 6.0	*19.0 ± 6.8*	0.221	*17.9 ± 4.5*	*19.5 ± 4.9*	*0.191*
18:00	24.1± 6.1	*25.7 ± 6.3*	0.310	17.3 ± 6.3	*17.7 ± 6.7*	0.791	*19.1 ± 5.5*	*20.1 ± 6.1*	*0.494*
22:00	*18.6 ± 4.5*	18.2 ± 4.5	0.746	11.9 ± 4.5	11.7 ± 4.6	0.877	*14.0 ± 4.4*	*13.8 ± 4.6*	*0.806*
Time	coldest month (July)			coldest month (July)			*coldest month (July)*		
02:00	*1.1 ± 1.4*	0.8 ± 1.4	0.422	*-2.3 ± 2.3*	-2.8 ± 2.7	0.486	*-0.8 ± 1.9*	*-0.8 ± 2.0*	*0.930*
06:00	*0.7 ± 1.5*	0.5 ± 1.5	0.474	*-2.3 ± 2.2*	-2.7 ± 2.3	0.486	*-0.9 ± 1.7*	*-0.8 ± 1.8*	*0.891*
10:00	*0.9 ± 1.4*	0.6 ± 1.5	0.572	*-1.8 ± 2.0*	-2.0 ± 2.0	0.705	*-0.6 ± 1.6*	*-0.6 ± 1.6*	*0.921*
14:00	*4.7 ± 2.8*	4.1 ± 2.5	0.657	1.2 ± 2.4	*2.1 ± 3.4*	*0.227*	*0.8 ± 1.4*	*1.2 ± 1.3*	*0.258*
18:00	*3.6 ± 2.3*	3.2 ± 2.1	0.545	-0.6 ± 2.3	*-0.5 ± 2.7*	*0.924*	*0.2 ± 1.7*	*0.5 ± 1.7*	*0.502*
22:00	*1.8 ± 1.5*	1.5 ± 1.4	0.315	*-1.9 ± 2.0*	-2.2 ± 2.3	0.563	*-0.5 ± 1.8*	*-0.4 ± 1.8*	*0.773*

Table ST3: Summary and statistical comparison of the diurnal range of temperature (DRT) [K] between forest stand and gap measurement locations. mean ± standard deviation; p: p-value (two-sided t-test)

	Warmest Quarter DRT			Coldest Quarter DRT		
species	stand	gap	p	stand	gap	p
A. chilensis	12.7 ± 4.8	15.5 ± 5.1	**<0.001**	5.4 ± 3.2	5.4 ± 3.3	0.98
N. dombeyi	9.9 ± 4.0	12.3 ± 5.3	**0.002**	3.9± 2.5	5.3 ± 3.9	**0.023**



Figrue SF1: Mean Annual Temperatur (MAT) of the meteorological station at the San Carlos de Bariloiche Airport (842 m a.s.l.; latitude: -41.151, longitude: -71.158) over the last 30-year climate reference period (1991-2020) with the MAT of the recording period.

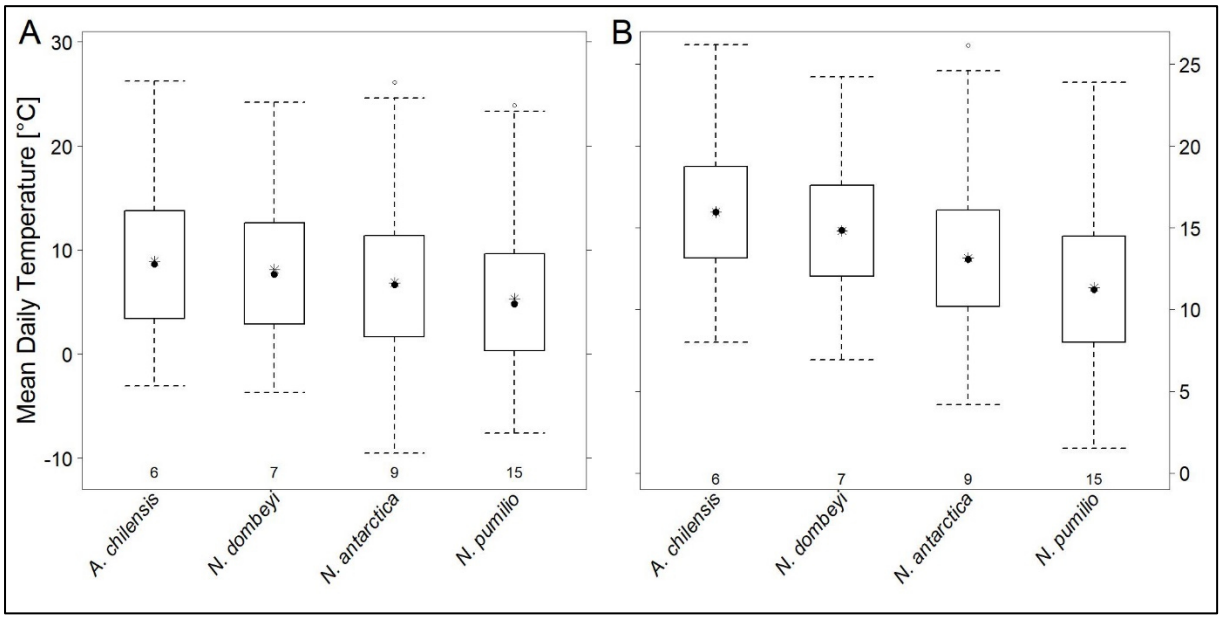


Figure SF2: Forest interior temperature differentiation between main vegetation types for the whole measurement period (A) and for the warmest quarter (WQMDT) (B). points: median, asterisk: mean; whisker: maximum of 1.5xinterquartile range, numbers indicate count of recordings.

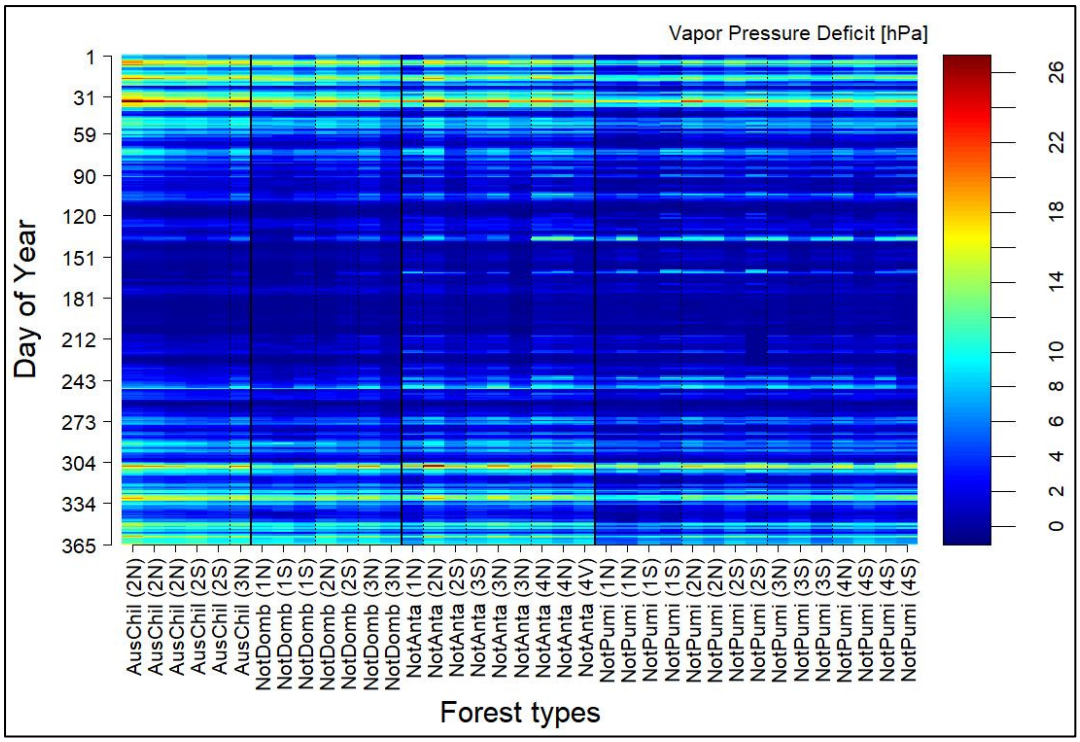


Figure SF3: Temporal pattern of the daily mean Vapour Pressure Deficit (VPD) of the different vegetation types (without gaps). Yaxis: AusChil: *A. chilensis,* NotDomb: *N. dombeyi,* NotAnta: *N. antarctica*, NotPumi: *N. pumilio*; in brackets: sector (1-4) and aspect (N: north, S: south, V: valley bottom); sorted by sector (dashed line) and elevation; see also Figure 1

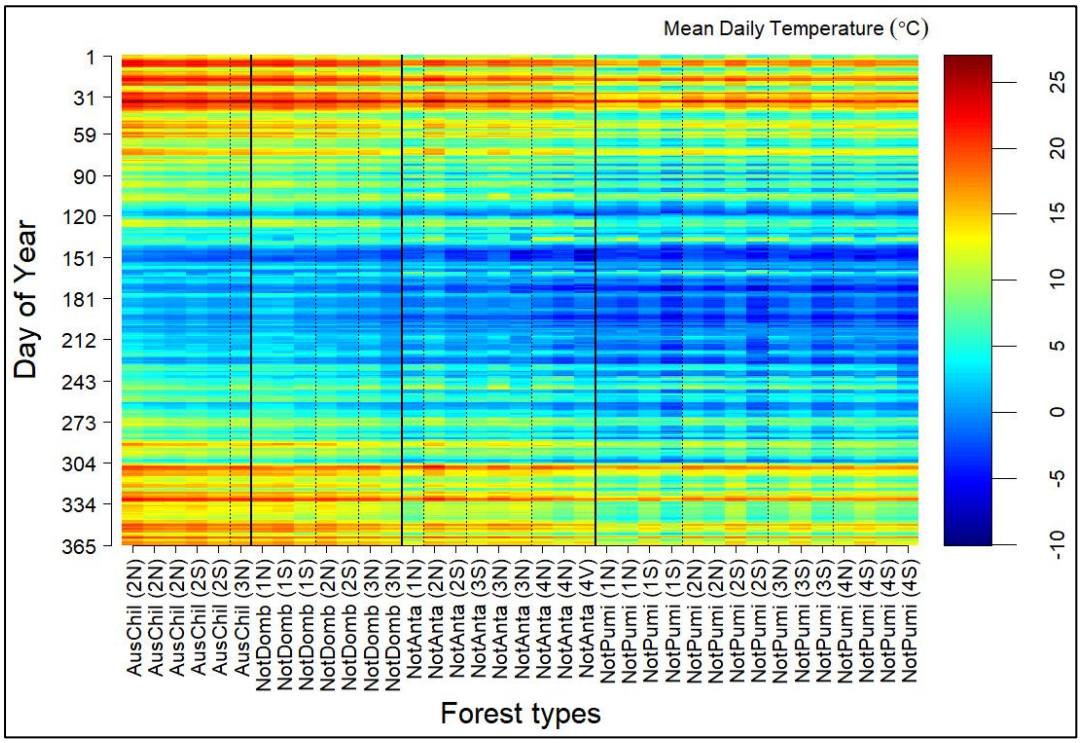


Figure SF4: Temporal pattern of the Mean Daily Temperature (MDT) of the different vegetation types (without gaps). Xaxis: AusChil: *A. chilensis,* NotAnta: *N. antarctica*, NotDomb: *N. dombeyi,* NotPumi: *N. pumilio*; in brackets: sector (1-4) and aspect (N: north, S: south, V: valley bottom); sorted by sector (dashed line), aspect and elevation; see also Figure 1

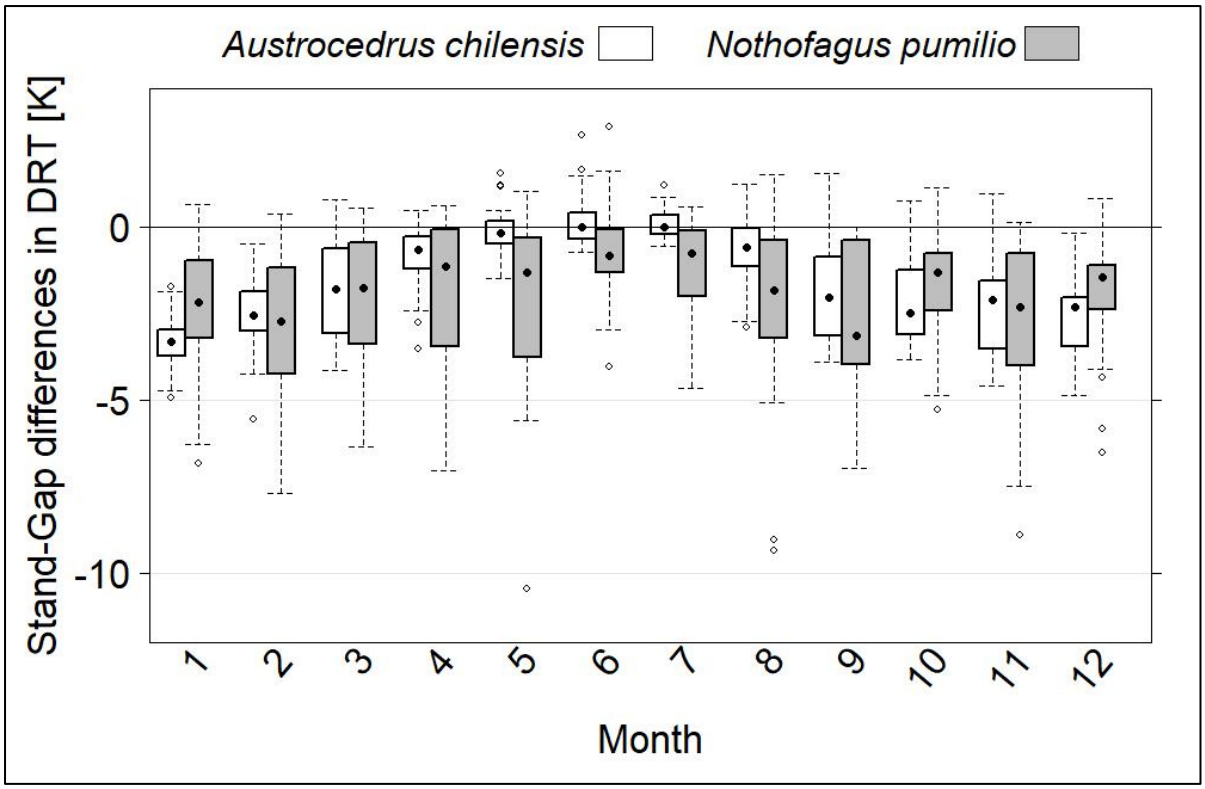


Figure SF5: Annual pattern of the differences in Diurnal Range of Temperature (DRT) between forest interior climate and gaps. full points: median; whisker: maximum of 1.5xinterquartile range

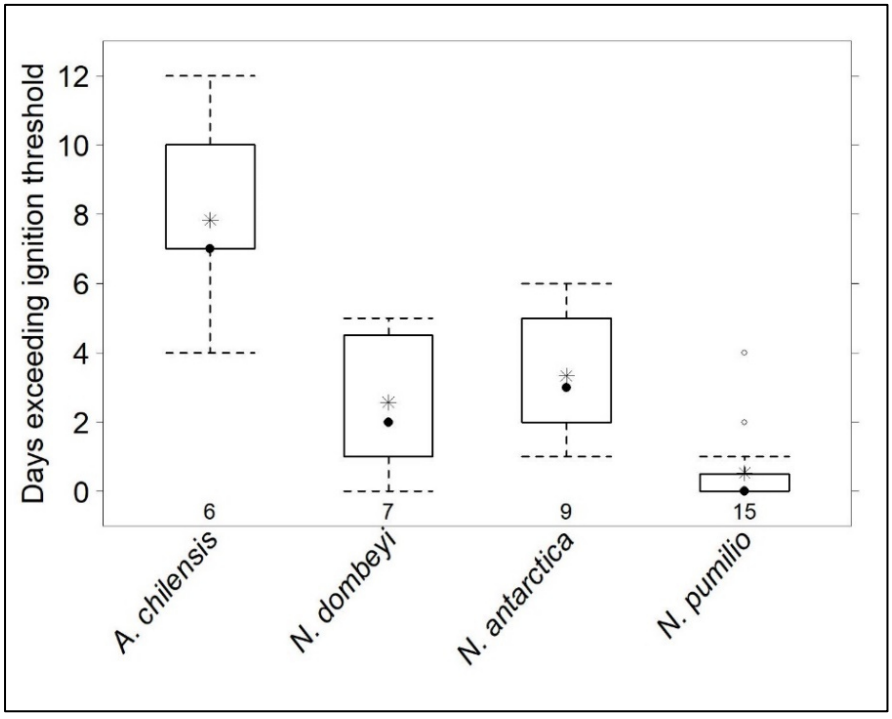


Figure SF6: Number of days with maximum daily temperature >25°C and minimum relative humidity <25% as threshold for increased forest fire ignition according to Sagarzazu and Defossé (2009). points: median, asterisk: mean; whisker: maximum of 1.5xinterquartile range, numbers indicate count of recordings.