

Supplemental Materials

Table S1. Means and standard deviations of diameter at breast height, tree height and tree age of *Pinus latteri* at Ban Watchan (BWJ), Khong Jiam (KJ) and Nong Koo site (NK) in Thailand.

Site	Species	Diameter at breast (cm)	at height (m)	Tree age (year)
BWJ	<i>Pinus latteri</i>	58.8±10.6	22±2.7	153±73
KJ	<i>Pinus latteri</i>	62.8±16.5	28±1.7	86±31
NK	<i>Pinus latteri</i>	50.0±9.5	22±2.1	74±15

Table S2. Statistic of long-term trends of mean temperature, precipitation and self-calibrated Palmer drought severity index (scPDSI) for the transition season (April-June) for two periods (1951-1984 and 1985-2017) at Mae Hong Son, Ubon Ratchathani and Surin station in Thailand. Linear regressions were performed with climate factor as dependent variable and year as predictor. Bold values are significant at $p < 0.05$ level.

Climate factor	Station	Period	Estimate	SE	<i>t</i> -statistic	<i>p</i>
Mean temperature	Mae Hong Son	1951-1984	0.02	0.01	1.38	0.177
		1985-2017	0.04	0.01	3.01	0.005
		1951-2017	0.03	0.00	5.93	0.000
	Ubon Ratchathani	1951-1984	0.00	0.01	0.34	0.733
		1985-2017	0.01	0.01	1.04	0.305
		1951-2017	0.01	0.00	2.75	0.008
	Surin	1951-1984	0.01	0.02	0.85	0.403
		1985-2017	0.01	0.01	1.14	0.262
		1951-2017	0.02	0.01	3.39	0.001
Precipitation	Mae Hong Son	1951-1984	0.04	0.72	0.06	0.954
		1985-2017	-0.85	0.69	-1.23	0.229
		1951-2017	0.08	0.25	0.32	0.752
	Ubon Ratchathani	1951-1984	2.32	0.91	2.54	0.016
		1985-2017	0.86	1.10	0.78	0.439
		1951-2017	0.18	0.37	0.48	0.635
	Surin	1951-1984	0.71	0.66	1.07	0.291
		1985-2017	-1.99	0.93	-2.14	0.040
		1951-2017	0.38	0.30	1.27	0.208
Relative humidity	Mae Hong Son	1951-1984	-0.06	0.06	-0.90	0.377
		1985-2017	0.05	0.06	0.72	0.475
		1951-2017	0.02	0.02	0.88	0.382
	Ubon Ratchathani	1951-1984	0.05	0.06	0.89	0.378
		1985-2017	-0.05	0.06	-0.88	0.387
		1951-2017	0.01	0.02	0.66	0.509
	Surin	1951-1984	0.11	0.05	2.38	0.024
		1985-2017	-0.10	0.06	-1.69	0.101
		1951-2017	0.02	0.02	1.03	0.305
scPDSI	Mae Hong Son	1951-1984	-0.04	0.03	-1.47	0.152
		1985-2017	-0.01	0.03	-0.24	0.808
		1951-2017	0.00	0.01	0.22	0.826
	Ubon Ratchathani	1951-1984	0.01	0.03	0.20	0.843
		1985-2017	0.00	0.03	0.11	0.915
		1951-2017	0.01	0.01	0.96	0.342
	Surin	1951-1984	0.02	0.02	0.62	0.539
		1985-2017	-0.01	0.04	-0.39	0.698
		1951-2017	0.01	0.01	0.75	0.455

Figure S1. Long-term trends of mean temperature (a), precipitation (b), relative humidity (c) and self-calibrated Palmer drought severity index (d, scPDSI) during the transition season (April to June) for the period 1951-1984 and 1985-2017 at Mae Hong Son, Ubon Ratchathani and Surin station in Thailand.

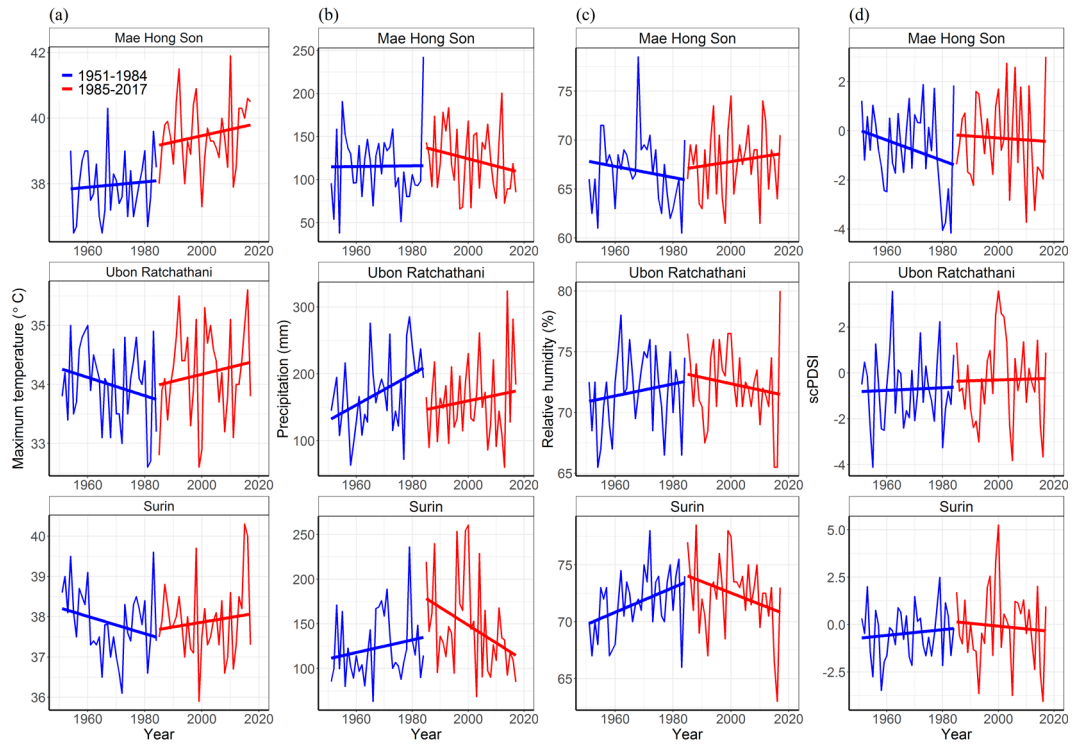


Figure S2. Tree-ring width residual index (blue lines), number of cores (green dashed lines), inter-series correlation (Rbar, green dot-lines) and expressed population signal (EPS, purple dot-lines) of *Pinus latteri* during 1900-2017 at (a) Ban Watchan site (BWJ), (b) Khong Jiam site (KJ) and (c) Nong Koo site (NK) in Thailand. Grey shaded area shows the standard deviation among cores. Rbar and EPS were calculated for 30-year window with 15-year overlaps.

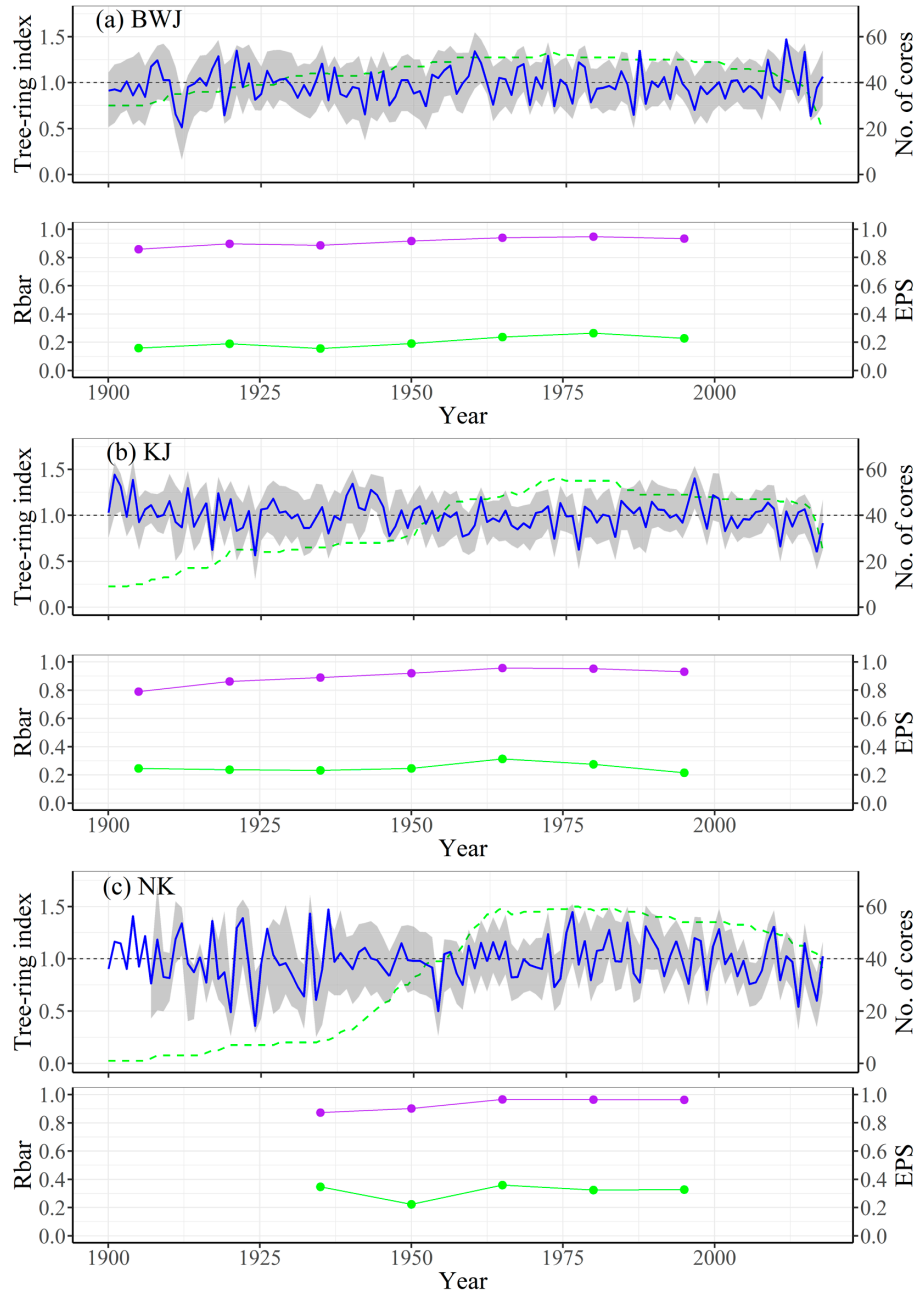


Figure S3. Basal area increment (BAI, blue lines) chronologies of *Pinus latteri* during 1900-2017 at Ban Watchan site (BWJ), Khong Jiam site (KJ) and Nong Koo site (NK) in Thailand. Shade areas represent 95% confidence intervals, and red lines are 15 years cubic splines.

