

SUPPLEMENTARY DATA

Table S1. General characteristics of the study provenances. Description of provenances which form the provenance-progeny trial, including: geographical co-ordinates (latitude, longitude), elevation (m), percentage of serotiny (*S*; proportion of closed cones in relation to total cones of all trees that at least had one closed cone in total; mean \pm s.d.), total open cones (number of total open cones), total closed cones (number of total closed cones), mean height (cm), winter rainfall: December, January and February (Winter R; mm), spring rainfall: March, April and May (Spring R; mm), summer rainfall: June, July and August (Summer R; mm), fall rainfall: September, October and November (Fall R; mm), average annual temperature (AAT), mean temperature of the warmest month (MTWM), mean temperature of the coldest month (MTCM) and daily average of thermal oscillation in °C (DATO) by provenance.

Code	Province	Provenance	Longitude	Latitude	Elevation	<i>S</i>	Total open cones	Total closed cones	Mean height
11	Girona	Cabanellas	2.78	42.25	232	24.59 \pm 32.49	311	73	473.08
21	Tarragona	Tivissa	0.76	41.06	336	47.87 \pm 38.19	174	136	461.60
31	Barcelona	Sant Salvador de Guardiola	1.76	41.67	377	39.11 \pm 32.47	348	178	468.52
51	Zaragoza	Sierra de Luna	-0.96	42.23	664	75.31 \pm 28.95	203	410	419.13
61	Zaragoza	Zuera	-0.92	41.92	576	69.87 \pm 29.88	263	453	403.23
62	Zaragoza	Villanueva de Huerva	-1.05	41.35	619	44.67 \pm 36.76	409	249	431.68
71	Teruel	Hijar	-0.42	41.10	489	39.14 \pm 30.82	379	263	426.72
72	Teruel	Monroyo	0.03	40.80	628	40.02 \pm 36.34	285	121	441.81
81	Guadalajara	Valtrabado del Rio	-2.39	40.74	849	30.93 \pm 30.10	468	194	413.24
82	Guadalajara	Valdeconcha	-2.87	40.45	758	41.85 \pm 33.21	393	189	398.93
92	Valencia	Tuéjar	-1.16	39.82	729	67.79 \pm 31.74	298	571	453.69
101	Alicante	Tibi	-0.65	38.52	976	80.10 \pm 24.13	152	471	447.91
102	Castellon	Altura	-0.61	39.79	640	60.90 \pm 33.84	617	605	453.66
103	Albacete	Villa de Ves	-1.25	39.18	864	68.17 \pm 30.43	281	737	468.19
111	Castellon	Benicasim	0.03	40.08	468	64.05 \pm 41.35	46	101	442.19
131	Alicante	Villajoyosa	-0.30	38.50	126	57.64 \pm 37.62	239	317	416.00
141	Murcia	Ricote	-1.43	38.14	688	84.36 \pm 20.38	201	775	439.07
144	Albacete	Paterna	-2.28	38.63	1028	35.77 \pm 29.16	497	219	425.74
152	Granada	Benamaurel	-2.74	37.70	908	72.66 \pm 22.63	280	602	453.74
153	Almeria	Velez Blanco	-2.02	37.79	848	53.48 \pm 33.87	411	380	438.40

154	Jaen	Santiago de la Espada	-2.47	38.23	842	60.39 ± 29.42	601	645	465.79
155	Jaen	Quesada	-3.15	37.74	673	87.07 ± 23.51	165	692	408.97
161	Jaen	Cazorla	-2.79	38.11	636	71.65 ± 26.29	475	927	461.54
171	Granada	Lentegi	-3.69	36.82	363	81.04 ± 24.94	177	448	433.40
172	Malaga	Carratraca	-4.83	36.84	635	90.69 ± 16.87	119	786	376.75
173	Malaga	Frigiliana	-3.92	36.82	595	85.92 ± 18.11	245	674	457.38
181	Baleares	Escorca	2.88	39.81	546	68.76 ± 22.99	290	499	469.84
182	Baleares	Palma de Mallorca	2.65	39.57	62	33.76 ± 38.97	252	127	408.17
183	Baleares	Ses Salines	3.13	39.36	19	47.32 ± 38.32	264	124	417.03

Code	Province	Provenance	Winter R	Spring R	Summer R	Fall R	AAT	MTWM	MTCM	DATO
11	Girona	Cabanellas	221	273	219	263	13.7	21.4	6.9	14.5
21	Tarragona	Tivissa	133	159	75	199	15.3	25.1	6.9	18.1
31	Barcelona	Sant Salvador de Guardiola	101	154	123	191	13.9	23.4	5.5	18.0
51	Zaragoza	Sierra de Luna	146	159	119	163	13.2	23.2	4.7	18.5
61	Zaragoza	Zuera	120	145	95	128	12.9	23.4	4.2	19.2
62	Zaragoza	Villanueva de Huerva	78	131	91	110	13.4	23.5	5.1	18.5
71	Teruel	Hijar	85	116	82	126	14.1	23.9	5.7	18.2
72	Teruel	Monroyo	106	167	112	163	13.6	22.9	6.0	16.9
81	Guadalajara	Valtrabado del Rio	185	219	111	186	11.4	21.3	3.8	17.5
82	Guadalajara	Valdeconcha	180	157	80	162	12.7	23.0	4.0	18.9
92	Valencia	Tuéjar	103	138	102	140	14.0	23.7	6.3	17.4
101	Alicante	Tibi	144	137	58	164	13.0	22.2	6.1	16.1
102	Castellon	Altura	132	138	77	203	14.1	22.7	7.5	15.2
103	Albacete	Villa de Ves	126	125	82	156	13.5	23.0	5.9	17.1
111	Castellon	Benicasim	110	120	77	220	15.4	23.3	9.2	14.1
131	Alicante	Villajoyosa	99	94	42	156	16.7	24.7	10.0	14.7
141	Murcia	Ricote	70	101	44	106	15.8	24.9	8.6	16.4
144	Albacete	Paterna	180	166	67	139	13.2	24.1	4.5	19.6
152	Granada	Benamaurel	134	109	44	107	14.3	24.1	6.5	17.6
153	Almeria	Velez Blanco	68	113	43	105	14.2	23.8	6.8	17.1
154	Jaen	Santiago de la Espada	201	190	71	152	14.1	24.9	6.1	18.8

155	Jaen	Quesada	164	131	39	109	15.7	25.9	7.5	18.4
161	Jaen	Cazorla	366	284	60	201	14.4	25.0	6.0	19.0
171	Granada	Lentegi	298	163	31	223	15.9	22.9	10.3	12.6
172	Malaga	Carratraca	244	154	31	196	15.4	24.6	8.2	16.4
173	Malaga	Frigiliana	286	183	26	201	15.2	23.9	8.5	15.4
181	Baleares	Escorca	-	-	-	-	-	-	-	-
182	Baleares	Palma de Mallorca	-	-	-	-	-	-	-	-
183	Baleares	Ses Salines	-	-	-	-	-	-	-	-

Table S2. Overview of Q_{ST} estimates of various studies on pine species. Q_{ST} estimates for different traits provided by various pine species studies, including the present study.

Family	Species	Q_{ST}	Trait	Reference
Pinaceae	<i>Pinus contorta ssp. latifolia</i>	0.006	Branch angle	1
Pinaceae	<i>Pinus pinaster</i>	0.010	Wood density (max)	2
Pinaceae	<i>Pinus pinaster</i>	0.020	Wood density (mean)	2
Pinaceae	<i>Pinus pinaster</i>	0.027	Cavitation resistance	3
Pinaceae	<i>Pinus pinaster</i>	0.030	Wood density (min)	2
Pinaceae	<i>Pinus contorta ssp. latifolia</i>	0.057	Branch diameter	1
Pinaceae	<i>Pinus brutia</i>	0.065	Diameter	4
Pinaceae	<i>Pinus canariensis</i>	0.077	Height	12
Pinaceae	<i>Pinus brutia</i>	0.095	Height	4
Pinaceae	<i>Pinus albicaulis</i>	0.110	Late winter cold hardiness	5
Pinaceae	<i>Pinus brutia</i>	0.119	Diameter	4
Pinaceae	<i>Pinus halepensis</i>	0.120	Early reproductive allocation	6
Pinaceae	<i>Pinus halepensis</i>	0.120	Volume over bark	6
Pinaceae	<i>Pinus albicaulis</i>	0.120	Height	5
Pinaceae	<i>Pinus halepensis</i>	0.120	Height growth	7
Pinaceae	<i>Pinus contorta ssp. latifolia</i>	0.133	Specific gravity	1
Pinaceae	<i>Pinus pinaster</i>	0.140	Total above-ground biomass	2
Pinaceae	<i>Pinus contorta ssp. latifolia</i>	0.161	Branch length	1
Pinaceae	<i>Pinus contorta ssp. latifolia</i>	0.166	Stem diameter	1
Pinaceae	<i>Pinus brutia</i>	0.170	Height	4
Pinaceae	<i>Pinus brutia</i>	0.182	Height	4
Pinaceae	<i>Pinus pinaster</i>	0.188	Annual increase in height	3
Pinaceae	<i>Pinus contorta ssp. latifolia</i>	0.195	Stem height	1
Pinaceae	<i>Pinus pinaster</i>	0.197	Carbon isotope ratio	3
Pinaceae	<i>Pinus sylvestris</i>	0.200	Height growth	8
Pinaceae	<i>Pinus halepensis</i>	0.210	Early reproductive allocation	6
Pinaceae	<i>Pinus brutia</i>	0.214	Diameter	4
Pinaceae	<i>Pinus pinaster</i>	0.220	Total leaf area	2
Pinaceae	<i>Pinus canariensis</i>	0.225	Survival	12
Pinaceae	<i>Pinus albicaulis</i>	0.250	Survival	5
Pinaceae	<i>Pinus brutia</i>	0.281	Height	4
Pinaceae	<i>Pinus halepensis</i>	0.290	Volume over bark	6
Pinaceae	<i>Pinus halepensis</i>	0.320	Serotiny	Present study
Pinaceae	<i>Pinus sylvestris</i>	0.364	Budset	9
Pinaceae	<i>Pinus brutia</i>	0.384	Diameter	4
Pinaceae	<i>Pinus pinaster</i>	0.470	Collar diameter	2
Pinaceae	<i>Pinus pinaster</i>	0.730	Survival	10
Pinaceae	<i>Pinus sylvestris</i>	0.770	Timing of terminal budset	11
Pinaceae	<i>Pinus pinaster</i>	0.790	Total height	10
Pinaceae	<i>Pinus pinaster</i>	0.970	Stem form	10

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