

SUPPLEMENTARY DATA

Table S1. Additional information for the sampled populations.

Population number	Year of sampling	Country	Latitude (°)	Longitude (°)	Elevation (m above sea level)	Number of sampled shrubs	Number of sampled SP2 seeds	Number of sampled SP3 seeds	Weather station	Source weather data
1	2010	Poland	54.196	17.965	190	6	148	116	Limnological Station, Borucino	http://www.ug.gda.pl ⁽¹⁾
2	2010	France	44.032	5.349	810	5	191	100	Saint Christol	www.meteofrance.com
3	2010	France	44.101	5.450	1007	5	162	118	Saint Christol	www.meteofrance.com
4	2010	France	43.979	5.473	1100	5	166	121	Saint Christol	www.meteofrance.com
5	2010	Ireland	54.456	-8.374	19	5	171	104	Ballyshannon	http://eca.knmi.nl/ ⁽²⁾
6	2010	Italy	43.456	11.417	358	5	171	117	Gaiole in Chianti	NA ^(*)
7	2010	Sweden	64.233	19.785	179	5	115	62	Vindeln-Sunnansjönäs	http://www.smhi.se/
8	2010	France	43.760	6.369	1285	5	167	97	Comps-sur-Artuby	http://france.meteofrance.com/
9	2010	France	43.815	6.246	692	5	122	84	Aiguines	http://france.meteofrance.com/
10	2010	UK	51.142	-1.643	120	5	162	139	Boscombe down	http://eca.knmi.nl/ ⁽²⁾
11	2010	Spain	43.020	-6.228	1420	5	149	73	Leon Virgen del Camino	http://eca.knmi.nl/ ⁽²⁾
12	2010	Sweden	59.848	17.778	36	5	126	122	Uppsala	http://www.smhi.se/
13	2010	Italy	43.232	11.176	320	5	173	124	Siena Orto Botanico	http://www.biometeo.it
14	2010	Austria	47.272	11.265	805	5	105	159	Innsbruck-Flughafen	ZAMG Tirol und Vorarlberg
15	2010	France	49.786	2.305	100	5	142	123	Glisy	http://france.meteofrance.com/
16	2010	Germany	49.973	11.308	450	5	163	109	Bamberg	http://www.dwd.de/
17	2010	Switzerland	46.861	9.229	2128	3	69	63	Crap Masegn - Schneestation	http://www.slf.ch/ ⁽³⁾
18	2010	Germany	52.929	9.353	40	5	162	130	Rotenburg	http://www.dwd.de/
19	2010	Germany	50.755	8.320	419	5	174	122	Dillenburg	http://www.dwd.de/
20	2010	Sweden	59.184	18.375	4	5	165	97	Stockholm	http://www.smhi.se/

21	2010	Sweden	56.537	16.474	45	5	157	128	Ölandsbron	http://www.smhi.se/
22	2010	France	43.260	0.870	300	5	167	122	Toulouse-Blagnac	http://eca.knmi.nl/ ⁽²⁾
23	2010	Norway	62.225	9.548	1030	5	144	105	Fokstugu	http://met.no/
24	2010	Sweden	55.665	13.371	70	5	147	122	Lund	http://www.smhi.se/
25	2010	UK	51.226	-0.437	175	5	117	171	Mickleham	http://www.metoffice.gov.uk/
26	2010	Germany	51.948	13.491	115	5	143	140	Baruth	http://www.dwd.de/
27	2010	Spain	41.790	-2.839	1240	5	176	52	Soria	http://eca.knmi.nl/ ⁽²⁾
28	2010	Netherlands	51.549	6.012	50	5	175	112	Arcen	http://eca.knmi.nl/ ⁽²⁾
29	2010	Belgium	50.443	5.868	535	5	161	95	Mont-Rigi	http://www.kmi.be
30	2010	Germany	50.211	6.384	595	5	191	106	Schneifelforsth us	http://www.dwd.de/
31	2010	Belgium	50.100	5.185	345	5	173	116	Humain	http://www.kmi.be
32	2010	France	44.864	5.479	1500	5	224	9	IIserech2	http://eca.knmi.nl/ ⁽²⁾
33	2010	Italy	45.871	11.653	619	5	163	80	Pove del Grappa loc. Pra' Gollin	http://www.arpa.veneto.it ⁽⁴⁾
34	2010	Italy	45.888	11.474	1095	5	163	99	Asiago (aeroporto)	http://www.arpa.veneto.it ⁽⁴⁾
35	2008	Sweden	56.576	16.604	45	8	287	55	Ölandsbron	http://www.smhi.se/
36	2008	Poland	52.594	23.343	100	7	131	228	Brest	http://eca.knmi.nl/ ⁽²⁾
37	2008	Germany	50.021	11.085	440	8	153	260	Bamberg	http://www.dwd.de/
38	2008	Germany	47.863	11.508	550	7	126	173	Muenchen	http://eca.knmi.nl/ ⁽²⁾
39	2008	Belgium	50.920	5.554	80	7	155	197	Ell	http://eca.knmi.nl/ ⁽²⁾
40	2008	Belgium	51.017	5.577	75	8	168	277	Ell	http://eca.knmi.nl/ ⁽²⁾
41	2008	Netherlands	52.280	6.520	50	8	126	246	Hupsel	http://eca.knmi.nl/ ⁽²⁾
42	2008	Netherlands	52.792	6.625	50	8	159	260	Hoogeveen	http://eca.knmi.nl/ ⁽²⁾

(*) No data available

(1) Limnological Station, Borucino - Meteorology and Climatology Department - University of Gdansk, Poland

(2) Klein Tank, A.M.G. and Coauthors, 2002. Daily dataset of 20th-century surface air temperature and precipitation series for the European Climate Assessment. Int. J. of Climatol., 22, 1441-1453.

(3) Données du SLF © 2012, SLF

(4) Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto, Dipartimento per la Sicurezza del Territorio, Centro Meteorologico - Ufficio Validazione Dati e Climatologia

Table S2. Detail of the seasons that were taken into account for calculation the $GDD_{>0^{\circ}C}$ of the spring of pollination, the summer of fertilization and the year of embryo development for SP2-seeds with a ripen time of three years (SP2RT3) and two years (SP2RT2) and for SP3-seeds with a ripen time of three years (SP3RT3) and two years (SP3RT2).

	Season (*)	SP2RT3	SP2RT2	SP3RT3	SP3RT2
Year of sampling	Winter				
	Autumn			embryo development	embryo development
	Summer	fertilization	fertilization	embryo development	embryo development
	Spring		pollination	embryo development	embryo development
	Winter			embryo development	embryo development
1 year before sampling	Winter			embryo development	embryo development
	Autumn			embryo development	embryo development
	Summer			fertilization	fertilization
	Spring	pollination			pollination
	Winter				
2 years before sampling	Winter				
	Autumn				
	Summer				
	Spring			pollination	
	Winter				

(*) Winter (20/12-20/3); Autumn (21/9-20/12); Summer (21/6-20/9); Spring (21/3-20/6).

Table S3. Pearson's correlation between three environmental variables. All of the correlations had a *P*-value higher than 0.05.

	Growing degree-days year before sampling	Potentially acidifying deposition
Potentially acidifying deposition	0.222	
Annual precipitation	-0.301	0.126

Fig. S1. Location and population number of the sampled juniper populations.

