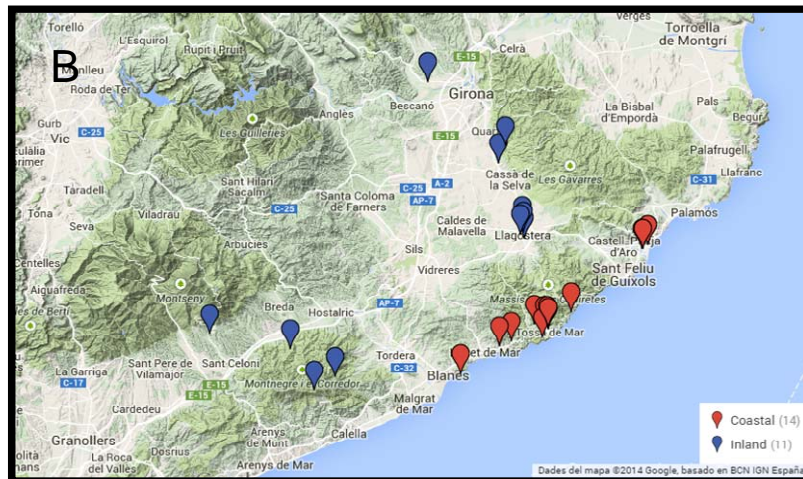
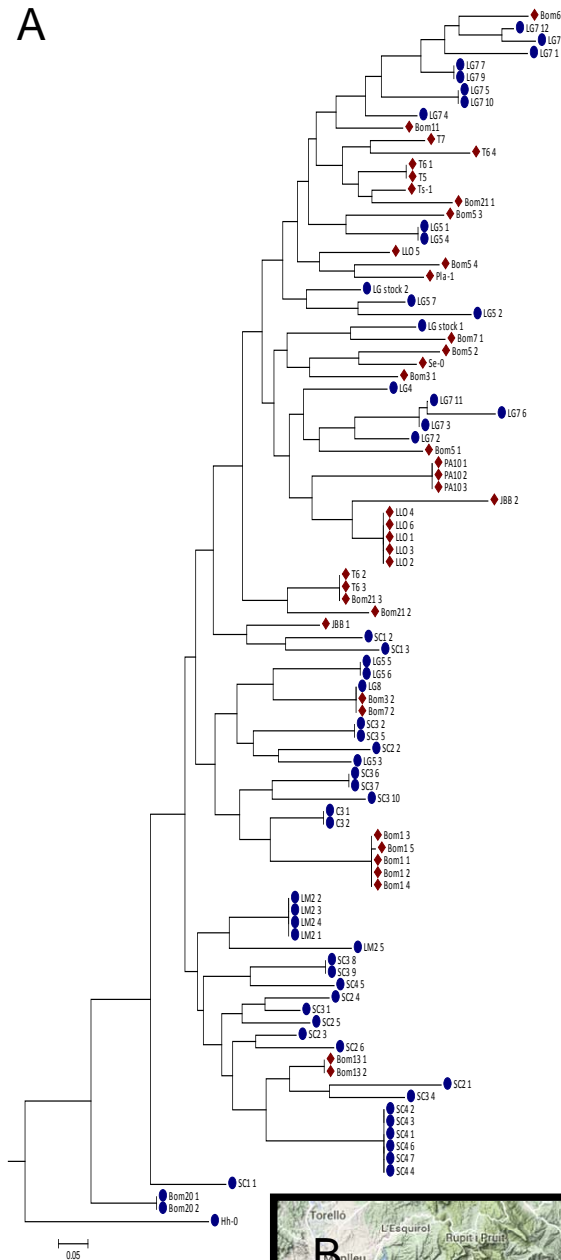
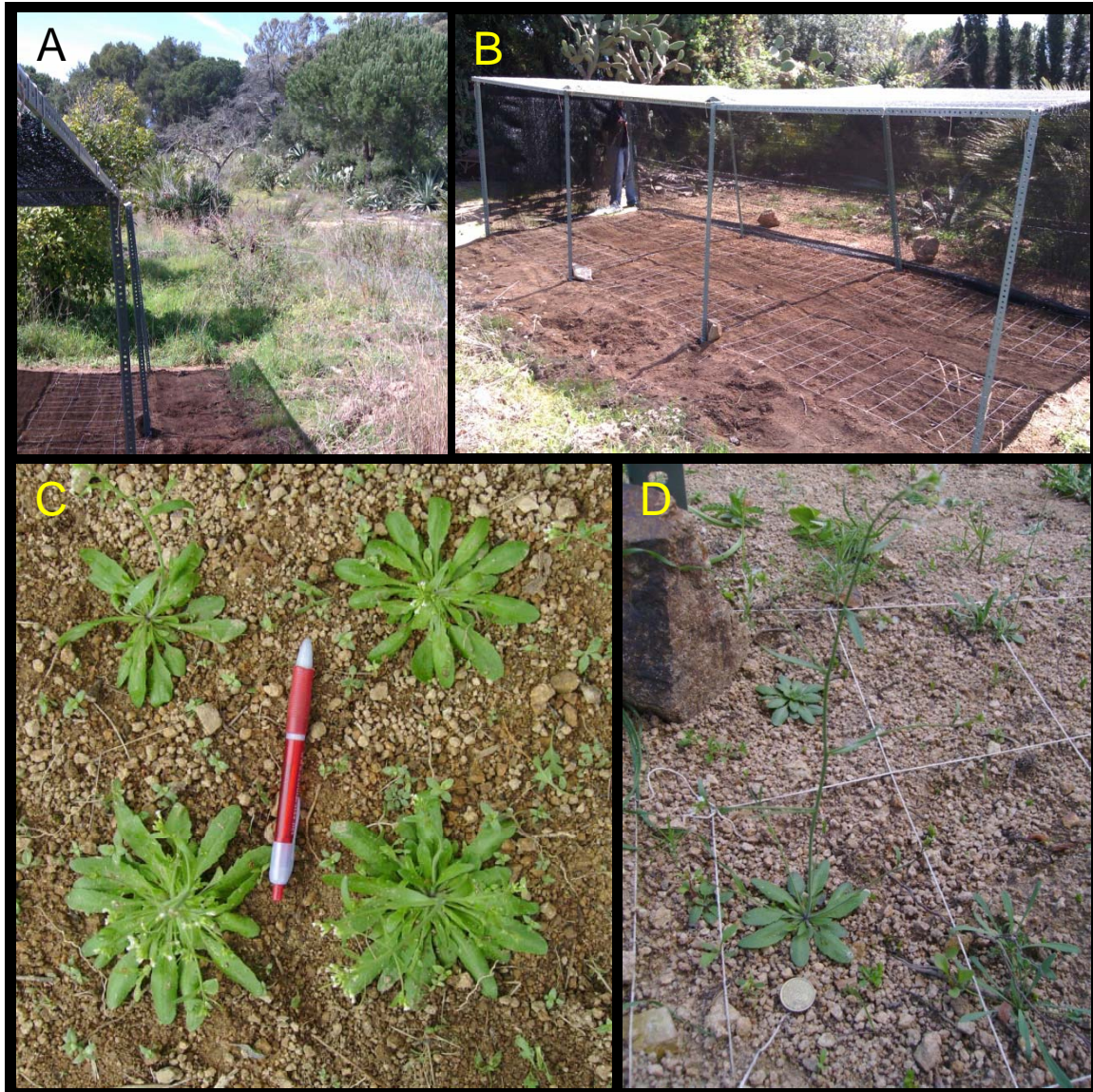


**Supplementary Figure S1.** Estimation of genetic structure within the Catalonian *A. thaliana* population using STRUCTURE and InStruct. Each vertical bar represents an individual plant genotyped at 425 genome-wide SNP markers, and each bar is divided into  $K$  coloured sections that indicate the fractional membership of an individual in  $K$  clusters based on its genotype. The figure of each  $K$  is based on the analysis with highest probability for that value of  $K$ . Vertical white line divides demes of coastal and inland origins. See Table S2 for details of which demes were genotypes.

A



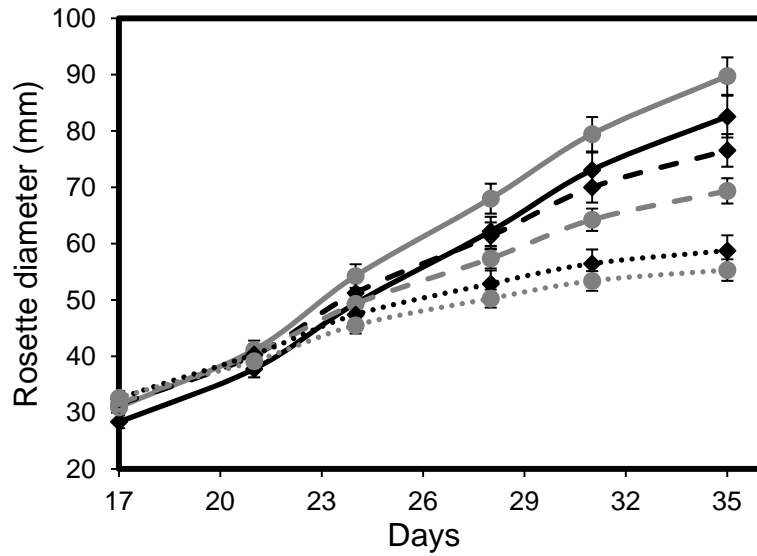
**Supplemental Figure S2.** Clustering of individual plants from coastal and inland demes by genotype. (A) Cladogram of 98 plants from 17 coastal (40 plants, red rhombus) and 13 inland (58 plants, blue circles) demes using 425 SNP markers aligned in ClustalX2 and performed using *MEGA 6.0*. (B) Map of north-eastern Catalonia, Spain with the location of *A. thaliana* demes used for the genetic clustering, reference: <https://www.google.com/maps/d/edit?mid=zK9pJcdixO40.kQSYnAmGzdr0> for Google map. Pictures of representative *A. thaliana* growing in inland (C) and coastal habitats (D).



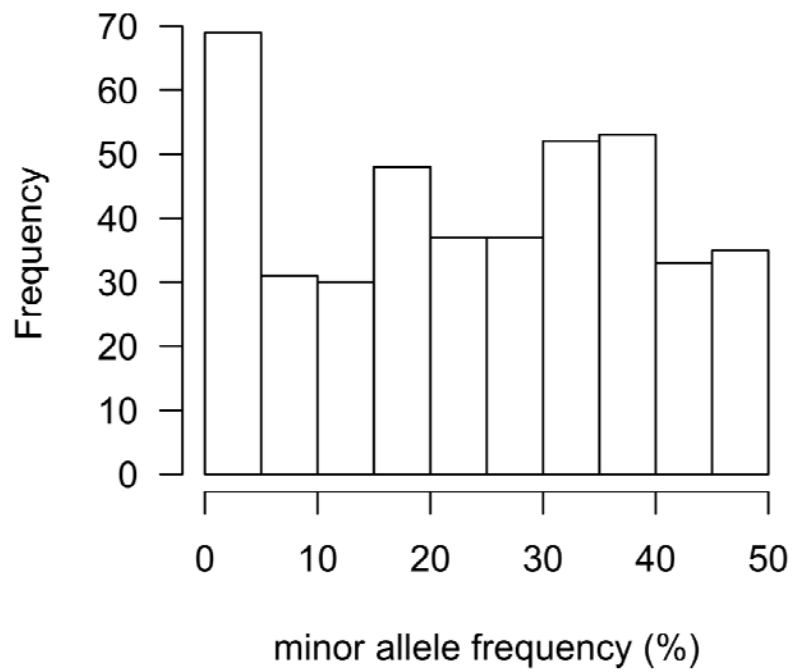
**Supplemental Figure S3.** Pictures of common garden plots used in the reciprocal transplant experiments in Marimurtra Botanical Garden, Blanes (A – D) and the School of Forestry and Agricultural Training at Santa Coloma de Farners (E – H). Picture illustrate the frame and cloth used to shade the plots and plants growing in grids within the plots.

continued





**Supplemental Figure S4.** Effects of NaCl treatments on growth of *A. thaliana* plants from coastal and inland demes. Growth of plants was measured as rosette diameter in plants from coastal (black diamonds) and inland (grey circles) demes after exposed to either 0 mM (solid lines), 50 mM (dashed lines) or 100 mM (dotted lines) NaCl in the hydroponic growth solution. Data represents the mean  $\pm$  SE ( $n = 6$  plants per deme and 13 demes from coastal and inland habitats, see Table S2 for details). Leaf tissue from these plants was used to measure leaf concentration of  $\text{Na}^+$  and  $\text{K}^+$  shown in Fig. 6, C to E.



**Supplemental Figure S5.** Distribution of the minor allele frequency of 425 genome-wide single nucleotide polymorphism (SNP) markers across 98 *A. thaliana* individuals.

**Supplemental Table 1.** Summary of 20 ecological variables tested to perform the distribution map of *A. thaliana* in NE of Catalonia. Factors in bold had a significant influence.

<b>Variable</b>	<b>Source</b>	<b>Scale/Grid resolution</b>	<b>% of selected classes (*)</b>
<b>Altimetry (hypsoetry, m)</b>	<b>Gencat (ICC)</b>	<b>DMA (5 x 5 m )</b>	<b>&lt; 50 %</b>
Soil covers 2007(MCSC-3v2)	Gencat (CREAF)	2 x 2 m	> 50 %
<b>Land uses 2002(LANDSAT-TM)</b>	<b>Gencat</b>	<b>30 x 30 m</b>	<b>&lt; 50 %</b>
<b>Geological base 2006</b>	<b>Gencat (ICC)</b>	<b>1 : 50.000</b>	<b>&lt; 50 %</b>
Habitats of Catalonia 2005	Gencat (ICC, UB)	1 : 50.000	> 50 %
Annual temperature range (°C)	Gencat (ACDC)	1 x 1 km	> 50 %
Potential Evapotranspiration	Gencat (ACDC)	1 x 1 km	> 50 %
Climatic water deficit (CWD)	Gencat (ACDC)	1 x 1 km	> 50 %
Daily global radiation, mean annual	Gencat (ACDC)	1 x 1 km	> 50 %
Average annual precipitation (mm)	Gencat (ACDC)	1 x 1 km	> 50 %
Average monthly precipitation (mm)	Gencat (ACDC)	1 x 1 km	> 50 %
Seasonal precipitation (mm)	Gencat (ACDC)	1 x 1 km	> 50 %
Average annual temperature (°C)	Gencat (ACDC)	1 x 1 km	> 50 %
Average monthly temperature (°C)	Gencat (ACDC)	1 x 1 km	> 50 %
Mean diurnal range	WorldClim	30 asec (1 km)	> 50 %
Isothermality	WorldClim	30 asec (1 km)	> 50 %
Maximum temperature of warmest month (°C)	WorldClim	30 asec (1 km)	> 50 %
Minimum temperature of coldest month (°C)	WorldClim	30 asec (1 km)	> 50 %
Precipitation of wettest month (mm)	WorldClim	30 asec (1 km)	> 50 %
Precipitation of driest month (mm)	WorldClim	30 asec (1 km)	> 50 %

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2 (\*) Percentage of classes for a given ecological variable across known locations of *A. thaliana*.

1 Table S3: The mean logarithmic likelihood of 10 runs at each K and the  
2 corresponding  $\Delta K$  statistic (peak value in bold).  
3

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K	LnP(K)	$\Delta K$
1	-34817.11	-
2	-33102.57	2.78
3	-31280.89	1.95
4	-30105.85	0.09
5	-28905.22	0.48
6	-27477.83	3.40
7	-26551.27	<b>4.14</b>
8	-25712.01	0.64
9	-25102.48	0.91
10	-24176.93	0.21
11	-23098.28	1.44
12	-22277.81	-

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4



**Supplemental Table 4.** Concentration of selected plant mineral nutrients in soil from the habitat of coastal and inland *A. thaliana* demes.

Element	Year	Location	N	Mean (mg·g <sup>-1</sup> )	Std Error	DF	F Ratio	Prob > F
Ca <sup>2+</sup>	2013	Coastal	34	620.41	23.78	1	0.14	0.7132
		Inland	28	633.49	26.21			
	2014	Coastal	114	706.65	7.58	1	1.25	0.2644
		Inland	90	719.42	8.53			
Ca <sup>2+</sup> /Mg <sup>2+</sup>	2013	Coastal	34	5.78	0.58	1	4.91	0.0305
		Inland	28	7.68	0.64			
	2014	Coastal	114	5.54	0.46	1	42.26	<0.0001
		Inland	90	10.03	0.52			
K <sup>+</sup>	2013	Coastal	34	102.97	15.07	1	2.07	0.1556
		Inland	28	135.21	16.60			
	2014	Coastal	114	125.21	9.01	1	2.20	0.1399
		Inland	90	145.31	10.14			
Mg <sup>2+</sup>	2013	Coastal	34	143.02	10.44	1	9.89	0.0026
		Inland	28	94.16	11.51			
	2014	Coastal	114	151.14	5.93	1	24.40	<0.0001
		Inland	90	107.04	6.68			
Na <sup>+</sup>	2013	Coastal	34	59.82	2.79	1	24.73	<0.0001
		Inland	28	39.16	3.08			
	2014	Coastal	114	72.79	2.95	1	28.66	<0.0001
		Inland	90	48.99	3.32			
Na <sup>+</sup> /K <sup>+</sup>	2013	Coastal	34	1.59	0.25	1	4.70	0.0341
		Inland	28	0.78	0.28			
	2014	Coastal	114	0.90	0.07	1	10.55	0.0014
		Inland	90	0.56	0.08			
Cl <sup>-</sup>	2013	Coastal	34	1.87	0.06	1	45.41	<0.0001
		Inland	28	1.26	0.06			
	2014	Coastal	114	1.68	0.02	1	77.67	<0.0001
		Inland	90	1.40	0.02			
SO <sub>4</sub> <sup>-</sup>	2013	Coastal	34	49.71	2.00	1	67.67	<0.0001
		Inland	28	26.42	2.00			
	2014	Coastal	114	62.21	2.49	1	137.92	<0.0001
		Inland	90	18.85	2.73			

**Supplemental Table 5.** Concentration of selected mineral nutrients in leaves from *A. thaliana* plants growing in the field in both coastal and inland habitats.

Element	Year	Location	N	Mean (mg·g <sup>-1</sup> )	Std Error	DF	F Ratio	Prob > F
Ca <sup>2+</sup>	2013	Coastal	30	27.41	1.06	1	16.34	0.0002
		Inland	26	34.87	1.56			
	2014	Coastal	120	28.74	0.83	1	28.72	<0.0001
		Inland	107	36.31	1.17			
Ca <sup>2+</sup> /Mg <sup>2+</sup>	2013	Coastal	30	7.03	0.50	1	19.41	<0.0001
		Inland	26	11.38	0.89			
	2014	Coastal	120	7.60	0.29	1	48.99	<0.0001
		Inland	107	10.92	0.39			
K <sup>+</sup>	2013	Coastal	30	22.64	1.14	1	6.28	0.0152
		Inland	26	28.17	1.98			
	2014	Coastal	120	25.35	0.73	1	0.01	0.9429
		Inland	107	25.27	0.76			
Mg <sup>2+</sup>	2013	Coastal	30	4.44	1.14	1	8.66	0.0048
		Inland	26	3.32	1.98			
	2014	Coastal	120	4.08	0.73	1	10.63	0.0013
		Inland	107	3.54	0.76			
Na <sup>+</sup>	2013	Coastal	30	1.26	0.20	1	19.89	<0.0001
		Inland	26	0.29	0.04			
	2014	Coastal	120	0.71	0.07	1	49.15	<0.0001
		Inland	107	0.19	0.02			
Na <sup>+</sup> /K <sup>+</sup>	2013	Coastal	30	0.06	0.011	1	17.45	0.0001
		Inland	26	0.01	0.002			
	2014	Coastal	120	0.03	0.003	1	17.15	<0.0001
		Inland	107	0.01	0.003			

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**Supplemental Table 5.** Model specification including the fixed and random effects, error structure and inclusion of a variance covariate for each response variable analysed during the study. A ‘/’ denotes a nested random effect structure and ‘individual’ represents an observation level random effect.

response variable	fixed effects	random intercept	random slope	variance covariate	error structure
<b>Field based reciprocal transplant experiments</b>					
<i>Home vs away, local vs foreign</i>					
number of siliques	transplant habitat x native habitat	native hab/deme individual	-	-	Poisson log-normal
<i>sympatric vs allopatric</i>					
number of siliques	native habitat + deme + sympatric	native hab/deme individual	-	-	Poisson log-normal
<i>plant growth</i>					
rosette diameter	days <sup>2</sup> x native habitat x transplant habitat	Deme/plant	day <sup>2</sup>	$\sigma^2 \cdot e^{2\delta \cdot \text{day}^2}$	Gaussian
<b>Controlled environment common garden experiments</b>					
<i>Home vs away, local vs foreign</i>					
number of siliques	transplant habitat x native habitat	native hab/deme individual	-	-	Poisson log-normal
<i>sympatric vs allopatric</i>					
number of siliques	native habitat + deme + sympatric	native hab/deme individual	-	-	Poisson log-normal
<i>plant growth</i>					
rosette diameter	days <sup>2</sup> x native habitat x transplant habitat	deme/plant	day <sup>2</sup>	$\sigma^2 \cdot e^{2\delta \cdot \text{day}^2}$	Gaussian
<b>Salinity tolerance assays</b>					
<i>Plants grown in soil</i>					
number of siliques	native habitat x NaCl treatment	native hab/deme	-	-	Poisson
rosette diameter	days <sup>2</sup> x native habitat x NaCl treatment	deme/plant	day <sup>2</sup>	$\sigma^2 \cdot e^{2\delta \cdot \text{day}^2}$	Gaussian
<i>Plants grown hydroponically</i>					
rosette diameter	days <sup>2</sup> x native habitat x NaCl treatment	deme/plant	day <sup>2</sup>	$\sigma^2 \cdot e^{2\delta \cdot \text{day}^2}$	Gaussian
Na <sup>+</sup>	native habitat x NaCl treatment	native hab/deme	-	$\sigma_{NaCl,habitat}^2$	Gaussian
K <sup>+</sup>	native habitat x NaCl treatment	native hab/deme	-	-	Gaussian
NA <sup>+</sup> /K <sup>+</sup>	native habitat x NaCl treatment	native hab/deme	-	$\sigma_{NaCl,habitat}^2$	Gaussian