

SUPPLEMENTARY DATA

TABLE S1. Primers and references for amplification of chloroplast loci.

| | | Primer names and sequences | Reference |
|-----------|-------|----------------------------|-------------------------------|
| MatK | 390F | GATCTATTCATTCAATATTTTC | Cuenoud <i>et al.</i> , 2002 |
| | 1440R | GTGTTTACGAGCYAAAGTTC | |
| TrnK-MatK | 3914F | GGGGTTGCTAACTCAACGG | Schmitz-Linneweber, 2001 |
| | 1110R | TATTCTGTTGATAACATTCG | |
| TrnL-trnF | e | GGTTCAAGTCCCTCTATCCC | Taberlet <i>et al.</i> , 1991 |
| | f | ATTTGAACTGGTGACACGAG | |
| TrnT-L | a | CATTACAAATGCGATGCTCT | Taberlet <i>et al.</i> , 1991 |
| | b | TCTACCGATTTTCGCCATATC | |

TABLE S2. Genbank accession number of the 28 haplotypes of *Arenaria provincialis* and the outgroup.

| Haplotype | Accession numbers of the four chloroplastic regions | | | |
|-----------|---|----------|----------|----------|
| H1 | JX475969 | JX475952 | JX475928 | JX475938 |
| H2 | JX475969 | JX475952 | JX475936 | JX475938 |
| H3 | JX475978 | JX475952 | JX475928 | JX475938 |
| H4 | JX475971 | JX475956 | JX475931 | JX475950 |
| H5 | JX475971 | JX475956 | JX475931 | JX475942 |
| H6 | JX475974 | JX475958 | JX475933 | JX475945 |
| H7 | JX475976 | JX475960 | JX475933 | JX475945 |
| H8 | JX475976 | JX475960 | JX475933 | JX475946 |
| H9 | JX475976 | JX475960 | JX475933 | JX475945 |
| H10 | JX475976 | JX475960 | JX475933 | JX475945 |
| H11 | JX475977 | JX475960 | JX475933 | JX475945 |
| H12 | JX475976 | JX475958 | JX475933 | JX475945 |
| H13 | JX475976 | JX475964 | JX475933 | JX475945 |
| H14 | JX475980 | JX475958 | JX475934 | JX475945 |
| H15 | JX475975 | JX475959 | JX475933 | JX475945 |
| H16 | JX475970 | JX475953 | JX475929 | JX475939 |
| H17 | JX475970 | JX475954 | JX475929 | JX475939 |
| H18 | JX475970 | JX475953 | JX475929 | JX475941 |
| H19 | JX475970 | JX475955 | JX475930 | JX475940 |
| H20 | JX475982 | JX475966 | JX475935 | JX475949 |
| H21 | JX475972 | JX475957 | JX475932 | JX475943 |
| H22 | JX475973 | JX475957 | JX475932 | JX475944 |
| H23 | JX475979 | JX475957 | JX475932 | JX475943 |
| H24 | JX475981 | JX475957 | JX475932 | JX475947 |
| H25 | JX475981 | JX475957 | JX475932 | JX475948 |
| H26 | JX475981 | JX475957 | JX475932 | JX475943 |
| H27 | JX475972 | JX475965 | JX475932 | JX475943 |

| | | | | |
|-------------------------|----------|----------|----------|----------|
| H28 | JX475972 | JX475967 | JX475932 | JX475943 |
| <i>Arenaria cinerea</i> | JX475968 | JX475951 | JX475927 | JX475937 |
| <i>Arenaria ciliata</i> | KC524727 | KC524729 | KC524730 | KC524732 |
| <i>Arenaria hispida</i> | GU732828 | KC524728 | KC524731 | KC524733 |

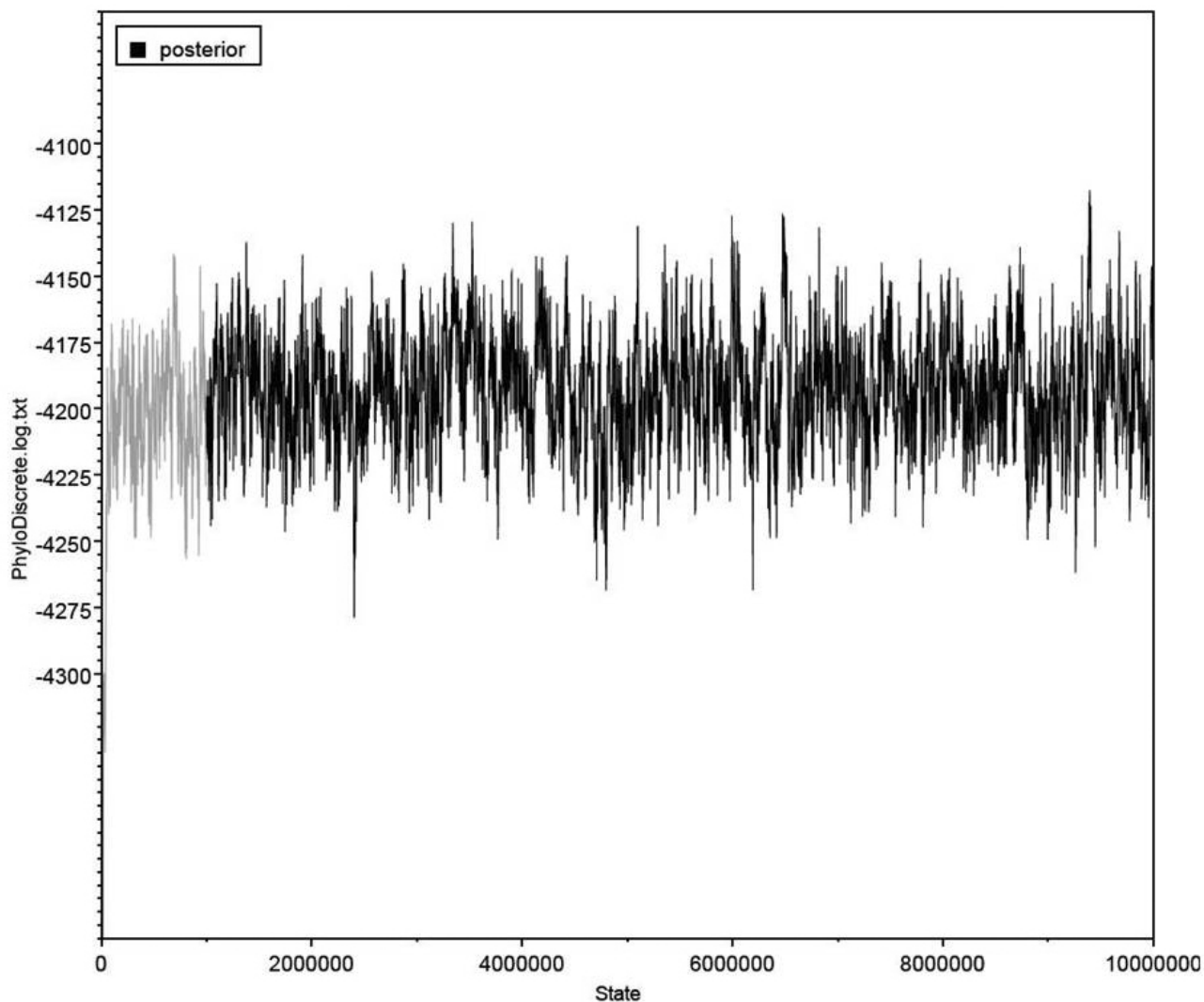
TABLE S3. Cycling conditions of the PCR.

| Chloroplast sequence | | | |
|----------------------|---------------|---------------|---------------|
| matK | trnT-trnL | trnK-matK | trnL-trnF |
| 94°C 2 min | 94°C 2 min | 94°C 30s | 94°C 2 min |
| 94°C 45s | 94°C 45s | 94°C 30s | 94°C 45s |
| 48°C 45s | 52°C 45s | 48°C 30s | 52°C 45s |
| 72°C 2 min | 72°C 2 min | 72°C 2 min | 72°C 2 min |
| go to 2 rep29 | go to 2 rep31 | go to 2 rep29 | go to 2 rep31 |
| 72°C 5 min | 72°C 5 min | 72°C 5 min | 72°C 5 min |

TABLE S4. Phylogenetic autocorrelation results from Abouheif tests showing significance on the two ecological gradients provided by the OMI analysis for all haplotypes and the two phylogroups independently.

| | | Obs | Std.Obs | Alter | Pvalue |
|---------------|-------|-------|---------|---------|--------|
| All haplotype | Axis1 | 0.745 | 10.615 | greater | 0.001 |
| | Axis2 | 0.571 | 7.982 | greater | 0.001 |
| phylogroup 1 | Axis1 | 0.525 | 5.539 | greater | 0.001 |
| | Axis2 | 0.587 | 6.284 | greater | 0.001 |
| phylogroup 2 | Axis1 | 0.659 | 6.434 | greater | 0.001 |
| | Axis2 | 0.575 | 5.576 | greater | 0.001 |

FIG. S1. Posterior trace of Bayesian analysis in BEAST (Tracer software); sampled values are plotted against the step in the MCMC chain.



REFERENCES

Cuenoud P, Savolainen V, Chatrou LW, Powell M, Grayer RJ, Chase MW. 2002. Molecular phylogenetics of Caryophyllales based on nuclear 18S rDNA and plastid *rbcL*, *atpB*, and *matK* DNA sequences. *American Journal of Botany* **89**: 132–144.

Taberlet P, Gielly L, Patou G, Bouvet J. 1991. Universal primers for amplification of three non-coding regions of chloroplast DNA. *Plant Molecular Biology* **17**:1105–1109.

Schmitz-Linneweber C, Maier RM, Alcaraz JP, Cottet A, Hermann RG, Marche R. 2001. The plastid chromosome of spinach (*Spinacia oleracea*): complete nucleotide sequence and gene organization. *Plant Molecular Biology* **45**:307–315.