Table S4-1: Number of alleles, genetic diversity and demographic signatures in the two Mediterranean white oaks. Analyses were carried out separately for datasets with all neutral markers, and for datasets with 2 bp and 3-6 bp EST-SSRs. *K*, number of alleles and its standard deviation (SD); *He* (SD), gene diversity; T_2, bottleneck statistic under the two-phase (TPM) model with different proportions of strict stepwise mutations. Significant values of the Wilcoxon signed rank tests are underlined.

				TPM 90%			TPM 70%		
	SSRs[a]	*K*	*He*	T_2	*P* (*He* excess)	*P* (*He* deficiency)	T_2	*P* (*He* excess)	*P* (*He* deficiency)
Q. faginea	All	11.013 (5.398)	0.722 (0.179)	-14.991	1,000	<u>0,000</u>	-8.091	0.999	<u>0.001</u>
Q. pyrenaica	All	11.089 (5.592)	0.733 (0.169)	-12.453	1,000	<u>0,000</u>	-6.137	0.998	<u>0.002</u>
Q. faginea	2 bp	13.625 (4.971)	0.796 (0.118)	-11.443	1,000	<u>0,000</u>	-6.441	0.985	<u>0.015</u>
Q. pyrenaica	2 bp	14.174 (4.986)	0.806 (0.116)	-11.196	1,000	<u>0,000</u>	-5.985	0.999	<u>0.001</u>
Q. faginea	3-6 bp	6.909 (2.951)	0.609 (0.192)	-9.241	1,000	<u>0,000</u>	-4.972	0.995	<u>0.005</u>
Q. pyrenaica	3-6 bp	6.788 (2.913)	0.631 (0.180)	-6.175	0.997	<u>0.002</u>	-2.424	0.825	0.178

[a]: SSRs showing evidence of selection in the multilocus scan tests were discarded from all datasets.

Table S4-2: Estimates of the population parameter θ and of the imbalance index β, based on data from the two hybridizing oak species. The analyses were carried out with all neutral markers and separately for di- and tri/hexa-nucleotide repeat motifs SSRs. θ_V and θ_P, the θ estimates based on the genetic variance (V, average variance in the number of repeats) and in the homozygosity (P_0, average homozygosity); β, imbalance index; lnβ, estimator of the imbalance index β.

	Quercus faginea			*Quercus pyrenaica*		
	All	Di-nucleotide	Tri/Hexa-nucleotide	All	Di-nucleotide	Tri/Hexa-nucleotide
$\theta_{V=V}$	9.01	13.97	2.09	9.97	15.49	2.28
P_0	0.27	0.20	0.36	0.25	0.20	0.32
θ_P	17.42	24.00	8.25	20.21	26.33	11.67
β	0.41	0.54	0.29	0.38	0.55	0.22
lnβ	-0.88	-0.61	-1.24	-0.98	-0.60	-1.49