

Pairwise correlations among climate variables at 14 sites sampled for *P. nigra*. Significance determined using one-tailed tests.

	MAPpt	VarPpt	MaxPpt	MinPpt	MATemp	SDTemp	MaxTemp	MinTemp	MaxDay
MAPpt	---	-0.462*	0.878***	0.881***	-0.291	0.270	-0.185	-0.604*	0.298
VarPpt		---	-0.028	-0.716**	0.803***	0.479*	0.745**	0.429	-0.653**
MaxPpt			---	0.665**	0.131	0.582*	0.205	-0.411	0.003
MinPpt				---	-0.503*	0.074	-0.416	-0.584*	0.513*
MATemp					---	0.524*	0.939***	0.515*	-0.885***
SDTemp						--	0.724**	-0.405	-0.490*
MaxTemp							--	0.217	-0.925***
MinTemp								---	-0.307
MaxDay									---

*** P<0.001

** P<0.01

* P<0.05

Per-locus F_{ST} estimates for nine microsatellite loci examined in 13 populations of *Populus nigra*.

Locus	F_{ST}
PMGC_14	0.075
PMGC_486	0.062
PMGC_2088	0.088
PMGC_2163	0.063
PMGC_2818	0.069
PMGC_2879	0.044
WPMS_14	0.072
WPMS_18	0.058
WPMS_20	0.118

Population means (standard errors)

Population	N	LA	LL	LW	LL_LW	SLA	Stomata	SD	SI	CA	CNPL	Height	Diameter
FR1	61.9	4474.6 (202.8)	79.5 (1.9)	71.8 (1.9)	37.7 (4.9)	1081.3 (54.4)	22.4 (0.443)	158.4 (4.4)	7.674 (0.251)	6.430 (0.054)	1.451 (0.084)	188.8 (5.07)	11.1 (0.48)
FR2	61.8	5827.5 (253.2)	87.9 (1.8)	85.9 (2.3)	32.7 (6.9)	1323.7 (72.7)	23.8 (0.446)	167.7 (5.0)	8.362 (0.252)	6.250 (0.053)	2.123 (0.118)	214.9 (5.53)	14.8 (0.60)
FR3	11.5	3905.4 (478.4)	71.0 (3.8)	67.3 (3.6)	17.8 (4.7)	554.5 (129.1)	24.0 (1.731)	174.0 (16.6)	8.834 (0.680)	6.315 (0.150)	1.420 (0.337)	157.0 (12.37)	7.2 (1.22)
FR4	24.6	4434.3 (341.8)	73.9 (2.5)	73.2 (3.2)	28.9 (6.9)	864.7 (91.0)	24.9 (0.782)	228.6 (29.4)	8.367 (0.513)	6.457 (0.153)	1.585 (0.290)	185.6 (9.37)	9.1 (0.78)
FR5	20.6	5709.7 (373.4)	83.4 (2.5)	84.4 (3.1)	21.3 (6.4)	1240.3 (136.0)	23.2 (0.840)	180.8 (9.1)	8.158 (0.363)	6.288 (0.118)	1.985 (0.199)	203.0 (11.16)	12.5 (1.20)
GE	53.8	9405.4 (264.9)	112.7 (1.7)	107.0 (1.4)	20.8 (3.4)	2539.4 (64.1)	26.8 (0.602)	196.7 (5.3)	9.152 (0.256)	6.213 (0.050)	3.259 (0.146)	253.3 (4.85)	20.5 (0.42)
IT1	61.3	12243.6 (306.2)	124.2 (1.8)	122.9 (1.6)	10.6 (2.1)	2873.0 (61.0)	29.2 (0.539)	216.5 (6.4)	9.254 (0.278)	6.081 (0.048)	4.534 (0.155)	283.8 (4.65)	21.5 (0.46)
IT2	43.8	12225.5 (373.9)	123.2 (2.1)	123.0 (2.1)	10.6 (1.9)	2856.5 (83.1)	28.3 (0.655)	227.3 (21.1)	8.722 (0.285)	6.144 (0.073)	4.526 (0.229)	278.5 (6.68)	21.4 (0.50)
NE1	30.2	11506.7 (518.4)	123.7 (2.4)	116.3 (3.0)	24.5 (5.4)	2805.3 (79.5)	26.3 (0.759)	189.8 (6.6)	9.246 (0.415)	6.331 (0.077)	3.655 (0.226)	255.4 (7.02)	19.6 (0.61)
NE2	6.7	9886.3 (313.8)	116.1 (2.8)	107.5 (1.3)	18.3 (7.8)	2622.3 (100.1)	27.1 (0.552)	185.7 (7.2)	8.309 (0.740)	6.088 (0.229)	3.834 (0.409)	270.7 (14.15)	22.1 (1.30)
NE3	11.9	10505.7 (591.7)	118.3 (2.0)	113.3 (4.0)	23.5 (10.9)	2631.6 (129.0)	26.8 (0.652)	193.8 (7.6)	9.540 (0.635)	5.990 (0.080)	3.886 (0.380)	262.6 (4.20)	20.2 (0.73)
SP1	48.7	3212.7 (311.1)	63.5 (2.4)	64.5 (2.4)	35.6 (8.4)	689.3 (51.0)	25.6 (0.701)	183.5 (7.6)	8.834 (0.396)	6.388 (0.070)	1.045 (0.133)	182.7 (6.11)	10.4 (0.45)
SP2	55.4	2643.9 (163.7)	58.8 (1.7)	57.9 (1.7)	27.0 (5.3)	630.4 (45.2)	24.4 (0.675)	174.1 (5.9)	9.141 (0.296)	6.380 (0.061)	0.889 (0.066)	163.4 (5.34)	9.6 (0.39)

N = mean number of samples per trait

LA = leaf area (square mm)

LL = leaf length (mm)

LW = leaf width (mm)

LL_LW = ratio of leaf length to width ($\times 10^4$)

SLA = specific leaf area (mg/sq. mm)

Stomata = number of stomata observed on abaxial leaf surface

SD = abaxial stomatal density (number per sq. mm)

SI = abaxial stomatal index (# stomata / total # epidermal cells)

CA = average area of 10 pavement cells ($\times 10^4$, sq. mm)CNPL = calculated number of cells per leaf ($\times 10^{-7}$)

Height = Height of ramet, cm

Circum = circumference of ramet (mm)

Pairwise correlations among 12 morphological traits assessed in a common garden study of *P. nigra*. Significance determined using one-tailed tests.

	Leaf length	Leaf width	LL:LW	Specific leaf area	Cell area	Cell number	Stomatal number	Stomatal density	Stomatal index	Height	Circ.
Leaf area	0.962***	0.964***	-0.236***	0.913***	-0.195***	0.894***	0.363***	0.321***	0.123**	0.736***	0.793***
Leaf length	---	0.938***	-0.201***	0.893***	-0.200***	0.872***	0.351***	0.316***	0.121**	0.733***	0.790***
Leaf width		---	-0.280***	0.899***	-0.209***	0.859***	0.339***	0.277***	0.085*	0.744***	0.815***
Length:width			---	-0.235***	-0.206***	-0.170***	-0.075	-0.159**	-0.161**	-0.312***	0.234***
Specific leaf area				---	-0.197***	0.836***	0.363***	0.315***	0.144**	0.769***	0.839***
Cell area					---	-0.404***	-0.455***	-0.297***	-0.090*	-0.089*	0.192***
Cell number						---	0.483***	0.449***	0.192***	0.686***	0.732***
Stomatal number							---	0.724***	0.402***	0.282***	0.320***
Stomatal density								---	0.579***	0.300***	0.279***
Stomatal index									---	0.124**	0.110*
Height										---	0.880***
Circ.											---

*** P<0.001

** P<0.01

* P<0.05

Table 5. Correlations between genetic (Rousset 1997), morphological (from DFA), and log geographic (km) distances among 13 populations of *P. nigra* tested with simple and partial Mantel tests.

Comparison	<i>r</i>	P-value
<i>Simple Mantel tests</i>		
Genetic, Geographic	0.577	<0.001
Morphological, Genetic	0.476	<0.001
<i>Partial Mantel tests</i>		
Genetic, Geographic Morphological (IBD)	0.440	<0.001
Morphological, Genetic Geographic (IBA)	0.257	0.012