Supplementary material

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Fig. S1: Principal Coordinates Analysis (PCoA) generated in GENALEX using Nei's genetic distance matrix between individuals sampled in 2019 and individuals sampled in 2020. Coordinate axis 1 explains 1.75% of total variation, and coordinate axis 2 explains 1.53% of total variation.

Fig. S2: Relatedness estimator comparison obtained from the R package *related* (Pew *et al*, 2015). L & L, L & R, Q & G and W refer to the Lynch-Li, Lynch-Ritland, Queller-Goodnight and Wang estimators respectively. Boxes range from the first (Q1) to the third quartile (Q3) of the distribution of relatedness values, and the horizontal bar across the box corresponds to median relatedness. Whiskers extend to calculated minimum and maximum relatedness (Q1 – 1.5*Interquartile Range; Q3 + 1.5*Interquartile Range), and dots represent outliers beyond calculated minima and maxima.

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Fig. S6: Average relatedness for four common estimators according to geographic distance. R^2 and p-values correspond to linear regressions.

Table S1: Sensitivity analysis details for log-likelihood varying between 1 and 6. FNR and FPR respectively correspond to false negative and false positive rates and were computed using the R package *CKMRsim* (Anderson 2023).

Log-likelihood	FNR	FPR	Number of large-scale relationships	Number of small-scale relationships
1	0.0312	7.60E-03	25	10
2	0.0423	3.58E-03	17	9
3	0.0648	1.67E-03	12	6
4	0.0925	8.20E-04	9	5
5	0.1331	3.53E-04	6	3
6	0.1859	1.56E-04	2	1

Table S2: Characterization of the 27 microsatellite loci used for this study. T_a: primer annealing temperature; N_a: number of alleles; H_o: observed heterozygosity; H_e: expected heterozygosity; F_{IS}: inbreeding coefficient.

Locus	**Primer sequence**	**Repeat motif**	T_a **(°C)**	N_a	H_e	H_o	F_{IS}	**Accession number**
AAAC45	F:GGTTAAAGTCCAGTCTTGATGCC R:ATCACCTGTGAGCCACATGTT	$(TGTT)_{14}$	53	16.8	0.888	0.897	0.01157	OL690375
AAC46	F:ACCAGATTAAACTGTGACCAGCA R:CCTGAGCTTCAGTCTCCAGC	$(TTG)_{14}$	53	11.9	0.759	0.737	0.05012	OL690376
AAG27	F:TCCTTGAGAAGTGGGAATGGT R:TGGACAAGAACCAAGTGATGAG	$(AAG)_{21}$	53	12.9	0.801	0.812	0.00128	OL690377
AC23	F:CTTGACACTCTGGTCGCTGG R:CGGATTCTATATCAATGCGATGGC	$(TG)_{24}$	53	8.9	0.788	0.796	0.01156	OL690378
AGC06	F:TACCTTTCCTGCTCCCTGTCT R:AATCAGCTTCCATCTGAGAACT	$(TGC)_{32}$	53	23.9	0.939	0.963	-0.00978	OL690379
ATCC29	F:AGTCATCACACCAGTGCAGAA	$(CCAT)_{20}$	53	14.4	0.896	0.899	0.01223	OL690380

	R:GCCTGGAACTTAGGGACACA							
ACAT28	F:GCATGAAGGCCCACTGGT R:TAGTTGAGAGTCACCTGGGA	$(ACAT)_{21}$	55	15.4	0.861	0.872	0.00041	OL690381
AC15	F:ACACTCTGTCCTCAGCTTGG R:ACAGAAACTCAAGTTGCCGC	$(GT)_{27}$	55	21.9	0.906	0.891	0.03509	OL690382
ATC31	F:GAGGAAGAAGATCGAGCCGG R:TGAGACAAAGCTGCTGGAGG	$(TGA)_{19}$	55	15.6	0.901	0.921	0.00074	OL690383
AT43	F:TTCTTGCTCTCGGAATCGGG R:CAAATGCACTCACCAGAGGT	$(TA)_{14}$	55	13.8	0.810	0.821	-0.00191	OL690384
AC41	F:ACGACATGTGTACTTCCTGCA R:GGTTTCATTCACAGCCGCAG	$(AC)_{16}$	57	19.9	0.890	0.858	0.05370	OL690385
AGAT02	F:TGATCCATATTGCATGCACATG R:AGAAATTGCTGATGTCCGGT	$(ATCT)_{37}$	57	23.1	0.938	0.902	0.05651	OL690386
AGC25	F:TGACACATGTGCTCCAGTGG R:GGACACGGAGACATGCTCAT	$(AGC)_{24}$	57	21.1	0.922	0.942	-0.00528	OL690387
AG11	F:CGCAGCGCTCTGGATTAAAC R:GCTTCAGTAACAGGTCGCCT	$(TC)_{29}$	57	23.1	0.938	0.949	0.00489	OL690388
AG16	F:GTCGGCATTAGCACACGTTG R:AACTGAAAGCCTGCTGTGGT	$(AG)_{27}$	57	21.6	0.929	0.932	0.01231	OL690389
ATCC40	F:ATGTTCAGAGGCTCCATCGC R:AAGTACGAGCCAGTGAGTGT	$(GGAT)_{16}$	57	16.4	0.862	0.857	0.01616	OL690390
AGAT09	F:GACGCACCCTAACAGCTCTG R:GGAAGGAGACCAAGGACAGC	$(GATA)_{29}$	60	28.8	0.949	0.946	0.02299	OL690391
AGG49	F:TCAGACGAACTCGGAGGTCC R:TTGCCCTGACATCCATCTGG	$(GAG)_{12}$	60	8.1	0.756	0.669	0.13322	OL690392
ATC30	F:CTGACGCACCCTCACTATGT R:AGCTGCTATACCCTAGTATTGAGA	$(ATC)_{19}$	60	14.9	0.848	0.866	0.00220	OL690393
ATC44	F:AGAAACCTGCCTTGCTTCAT	$(CAT)_{14}$	60	14.9	0.893	0.889	0.02069	OL690394

	R:CCACCAACCCAAACTCCCAT							
AT50	F:ACAAGGCATGAAATTGAGTTCCC R:TGACTGTATGGGAGAATATTGGCA	$(AT)_{12}$	60	7.4	0.635	0.640	0.00598	OL690395
AGAT04	F:TCATTGCATTTATCATCTTTGGAATTT R:GACCGCCTGACCGATAACAA	$(TAGA)_{34}$	63	23.9	0.939	0.920	0.03733	OL690396
AGC33	F:GTTCCTCGGCTCAGAGCTTT R:AGGAGGGACAATTTGGACGC	$(CTG)_{18}$	63	24.4	0.938	0.934	0.02203	OL690397
AG20	F:GAAGAGACGCCGGAGTGAAG R:ACGCTCCTCCTGGAAGTCTT	$(CT)_{25}$	63	13.4	0.858	0.850	0.02354	OL690398
ATCC38	F:GTCCATGTCCATCCAGCCAT R:GCGACATGTCCTGGGTGTAT	$(CATC)_{17}$	63	11.4	0.766	0.787	-0.01955	OL690399
AG22	F:TCCTTAACTGAATCCATATGACTGT R:CACTGAAGGCGGTACTCAGG	$(CT)_{25}$	63	26.3	0.927	0.918	0.02744	OL690400
AG10	F:ACCTCAAATACACCGTGCTTCA R:CTCCTGCGTGCACTCATTGA	$(CT)_{29}$	63	30.8	0.951	0.909	0.05546	OL690401

Table S3: F_{IS} values of pairwise comparisons between sample sites. * represents significant values ($p < 0.05$). Sites are ordered from North to South and correspond to the following locations: Corrubedo, Sálvora, O Grove, Ons Island, Couso Cape, Cies Island North, Cies Island South, Silleiro Cape, Viana Castelo, Esposende, Figueira de Foz, Berlengas Islands, Ericeira, Avencas, Sesimbra-Arrábida, and Sines.

	AGC06	ATCC29	AAC46	AAG27	AAAC45	AC23	AT43	ACAT28	AC15	ATC31	AGC25	AG16	AC41	ATCC40
Cor	0.01443	-0.05511	-0.08227	-0.09007	0.06661	0.04707	0.00153	-0.0068	0.04697	0.0586	0.06437	0.00486	-0.02778	-0.00042
Salv	-0.01211	0.05137	0.06196	0.11153	-0.02423	0.05512	0.01195	-0.03015	0.00498	-0.03448	-0.05701	-0.01461	0.03663	0.08088
Grove	-0.04225	0.03007	0.05172	0.01121	-0.02069	0.0776	-0.05096	0.12017	0.04985	-0.03176	0.01708	-0.02881	0.07428	0.11869
Ons	-0.04425	0.06047	0.02439	-0.04946	-0.01979	-0.00432	-0.00076	0.02192	0.07316	-0.02433	0.00929	-0.03049	-0.03514	-0.03004
Cous	0.03185	0.00857	**0.16826***	-0.04519	0.02269	0.10173	-0.05515	-0.04187	-0.0031	0.017	0.01618	**0.09504***	**0.13669***	**0.13472***
CiesN	0.01441	0.04634	0.06714	0.02195	0.05601	-0.05754	-0.02874	-0.04948	0.09635	**-0.09197***	0.03759	0.06574	0.24758	0.07573
CiesS	-0.05523	-0.0259	0.12651	0.06809	-0.02331	-0.02128	0.039	0.03209	0.07819	-0.04602	0.03808	0.01291	-0.04774	-0.0525

Sil	-0.00621	0.03035	-0.05488	-0.12033	0.05055	0.00087	-0.02326	-0.03159	0.07143	0.07296	-0.02748	0.06935	**0.13285***	0.02913
Via	0.00087	0.03385	-0.01333	0.01941	-0.08169	-0.06667	0.08204	0.05085	0.00181	-0.10803	-0.00787	0.03327	0.01429	0.11198
Espo	0.00597	0.01859	0.07594	0.03377	**0.1173***	-0.05714	-0.0622	0.01292	-0.02108	0.00277	-0.03165	-0.01183	**0.1277***	-0.00159
Fig	0.06125	0.04557	-0.03188	0.14646	0.0076	0.00287	-0.07484	-0.05729	0.02369	-0.0087	-0.01264	0.02073	0.00855	-0.08267
Ber	-0.06751	0.05681	-0.04289	0.04578	0.05882	0.13407	-0.03896	0.11508	-0.03974	0.05681	-0.01255	0.05714	0.22807	-0.0165
Eri	0.06933	-0.04305	-0.00977	-0.07514	-0.05238	0.03743	-0.06029	-0.09137	-0.02015	0.03178	-0.00369	-0.05705	-0.00435	-0.06013
Ave	-0.0237	-0.00741	0.1018	-0.01547	-0.01799	-0.09038	**0.14134***	-0.00605	0.01568	0.0499	-0.00639	-0.00378	0.04425	0.10037
Ses	-0.05647	0.01385	0.14903	-0.03056	-0.07407	-0.10515	-0.04334	0.09004	0.08575	0.03154	-0.06552	-0.04213	-0.07339	0.04788
Sin	-0.03619	-0.04703	0.14667	0.00665	0.02637	0.05239	**0.21604***	-0.07143	0.06433	-0.07298	-0.0449	0.04762	-0.04277	-0.10108
Cor	-0.00113	0.04499	**0.18134***	-0.03964	-0.00625	0.01333	-0.00319	-0.03025	-0.02164	-0.08824	0.00708	0.05768	0.00204	0.00586
Salv	-0.01237	-0.01318	0.05544	0.00081	-0.03172	0.07206	0.00535	0.00816	0.05319	0.06511	0.08583	-0.03567	0.02743	0.01934
Grove	0.00597	**0.12264***	0.13059	0.14913	0.01734	**0.11695***	**0.21341***	**0.12121***	**0.09287***	-0.09275	0.00826	0.03682	0.04337	0.0497
Ons	-0.04826	0.02559	**0.14183***	0.05789	0.01914	-0.01556	-0.08444	0.04537	-0.01004	0.12657	0.0163	0.02559	0.02909	0.01036
Cous	0.06634	0.21901	-0.01287	0.08018	-0.03167	-0.0278	-0.12039	-0.0033	0.00495	0.04682	0.00846	0.04728	0.05	0.03387
CiesN	0.01146	-0.02071	0.02913	**0.18017***	-0.01049	0.03524	-0.04241	0.17962	-0.04033	-0.02123	**0.1143***	0.01047	-0.08031	0.03133
CiesS	0.00976	**0.13122***	0.05542	0.02027	0.0065	**0.13991***	0.19391	0.03704	0.07711	-0.01532	0.03103	-0.03956	0.0118	0.02896
Sil	0.10946	**0.14944***	**0.24077***	-0.02613	-0.00222	-0.07048	-0.04814	**0.11864***	**0.10682***	0.14221	0.08861	-0.04292	0.03001	0.03666
Via	0.00346	0.03497	0.10559	0.06537	0.00346	0.04828	-0.09506	**0.17174***	-0.00174	0.09718	0.02988	-0.00217	0.06593	0.02214
Espo	-0.0152	0.08264	**0.20391***	-0.073	-0.01898	-0.03533	-0.04269	**0.1405***	-0.01407	-0.077	-0.01747	0.02314	0.02133	0.01434
Fig	-0.05136	-0.00779	0.0849	-0.09716	0.06396	0.01323	-0.03709	-0.03242	-0.01082	-0.13725	-0.05391	-0.04819	-0.02463	-0.01073
Ber	0.00718	0	0.39801	-0.03835	0.05133	-0.03419	-0.07442	0.05906	-0.01468	0.01531	0.05133	0.0484	-0.05721	0.03504
Eri	0.06309	-0.00989	0.02928	-0.02735	**0.1087***	0.06922	0.07574	-0.0272	-0.02289	**-0.13521***	0.00592	0.07581	-0.01124	-0.00536
Ave	0.02664	0.0391	**0.16418***	0.00747	0.15666	**-0.09174***	0	**0.10822***	**0.09291***	-0.10934	**0.09112***	0.08207	-0.06897	0.02891
Ses	-0.05009	**0.09646***	-0.01137	-0.03469	-0.00598	0.08228	-0.10804	0.06675	0.02169	-0.05531	0.02871	0.08317	**0.1839***	0.00833
Sin	-0.04817	-0.01186	**0.30769***	-0.06991	0.02846	0.04328	0.10538	0.04051	0.01538	0.04239	0.09434	0.08745	**0.19643***	0.03611

Table S4: Pairwise F_{ST} values for pairwise comparison (Raufaste and Hill estimator for F_{ST} corrected by Raufaste and Bonhomme) between the 16 sites where shanny specimens were collected. No value was significant after Holm-Bonferroni sequential correction. Sites are ordered from North to South and correspond to the following locations: Corrubedo, Sálvora, O Grove, Ons Island, Couso Cape, Cies Island North, Cies Island South, Silleiro Cape, Viana Castelo, Esposende, Figueira de Foz, Berlengas Islands, Ericeira, Avencas, Sesimbra-Arrábida, and Sines.

	Salv	Grove	Ons	Couso	CiesN	CiesS	Sil	Via	Espo	Fig	Ber	Eri	Ave	Ses	Sin
Cor	0.00833	0.00397	0.00515	0.00592	0.01492	0.00822	0.01082	0.00805	0.00545	0.00916	0.00705	0.00771	0.00824	0.0047	0.01783
Salv		0.00947	0.00951	0.00401	0.00793	0.00531	0.00644	0.00409	0.00378	0.00532	0.00697	0.01154	0.00785	0.01084	0.01029
Grove			0.00706	0.00657	0.00947	0.00796	0.00467	0.01029	0.01084	0.00802	0.00839	0.00719	0.01011	0.01314	0.0144
Ons				0.0026	0.00518	0.00832	0.00836	0.00797	0.00737	0.00643	0.00985	0.00798	0.00898	0.00495	0.01092
Couso					0.01036	0.00588	0.00893	0.00681	0.00379	0.00473	0.00972	0.004	0.00695	0.0067	0.0101
CiesN						0.00949	0.01271	0.00804	0.00532	0.00607	0.01131	0.00513	0.00928	0.01077	0.01084
CiesS							0.00789	0.00702	0.00931	0.00607	0.00776	0.00979	0.00589	0.01211	0.01369
Sil								0.01328	0.01036	0.01489	0.02063	0.00906	0.00856	0.01211	0.01333
Via									0.01068	0.00517	0.00798	0.00621	0.01196	0.0078	0.00293
Espo										0.00691	0.00599	0.00477	0.00521	0.01292	0.0156
Fig											0.0068	0.00946	0.00808	0.00872	0.01153
Ber												0.01163	0.00607	0.00666	0.00962
Eri													0.00932	0.01435	0.01154
Ave														0.01074	0.00589
Ses															0.00519

Table S5: Distance Generalized Linear Model results. LC-distance and SL-distance refer to least-cost path distance and straight-line distance, respectively. * represents $p < 0.05$.

Log-likelihood	Scale	Model		Estimate	Standard Error	z value	p-value
1	Large	L_LC	(Intercept)	-1.274	0.256	-4.968	6.76×10^{-7}
			LC-distance	-0.003	0.001	-2.024	**0.043***
		L_SL	(Intercept)	-1.272	0.257	-4.954	7.27×10^{-7}
			SL-distance	-0.003	0.001	-2.051	**0.04***
		Null	(Intercept)	-1.694	0.2	-8.469	$< 2 \times 10^{-16}$
	Small	S_LC	(Intercept)	-1.235	0.539	-2.292	0.022
			LC-distance	-0.003	0.024	-0.11	0.913
		S_SL	(Intercept)	-1.221	0.544	-2.241	0.025
			SL-distance	-0.003	0.024	-0.14	0.889
		Null	(Intercept)	-1.281	0.341	-3.751	1.76×10^{-4}
2	Large	L_LC	(Intercept)	-1.43	0.302	-4.737	2.17×10^{-6}
			LC-distance	-0.005	0.002	-2.422	**0.015***
		L_SL	(Intercept)	-1.422	0.303	-4.702	2.57×10^{-6}
			SL-distance	-0.005	0.002	-2.43	**0.015***
		Null	(Intercept)	-2.079	0.258	-8.063	7.41×10^{-16}
	Small	S_LC	(Intercept)	-1.406	0.613	-2.29	0.022
			LC-distance	0.001	0.026	0.04	0.968
		S_SL	(Intercept)	-1.368	0.062	-2.219	0.0265
			SL-distance	-0.001	0.027	-0.037	0.97
		Null	(Intercept)	-1.386	0.376	-3.685	2.29×10^{-4}
3	Large	L_LC	(Intercept)	-1.736	0.354	-4.907	9.24×10^{-7}
			LC-distance	-0.005	0.003	-2.116	**0.034***
		L_SL	(Intercept)	-1.729	0.355	-4.875	1.09×10^{-6}
			SL-distance	-0.006	0.003	-2.123	**0.034***
		Null	(Intercept)	-2.428	0.301	-8.062	7.50×10^{-16}

	Small	S_LC	(Intercept)	-1.724	0.716	-2.41	0.016
			LC-distance	-0.004	0.032	-0.12	0.905
		S_SL	(Intercept)	-1.678	0.719	-2.334	0.02
			SL-distance	-0.006	0.033	-0.197	0.844
		Null	(Intercept)	-1.792	0.45	-3.984	6.76×10^{-5}
4	Large	L_LC	(Intercept)	-1.768	0.425	-4.162	3.16×10^{-5}
			LC-distance	-0.01	0.005	-1.89	0.059
		L_SL	(Intercept)	-1.752	0.428	-4.099	4.14×10^{-5}
			SL-distance	-0.011	0.006	-1.886	0.059
		Null	(Intercept)	-2.715	0.362	-7.491	6.86×10^{-14}
	Small	S_LC	(Intercept)	-1.826	0.837	-2.182	0.029
			LC-distance	-0.009	0.039	-0.222	0.825
		S_SL	(Intercept)	-1.745	0.839	-2.087	0.037
			SL-distance	-0.013	0.04	-0.329	0.742
		Null	(Intercept)	-1.974	0.52	-3.795	1.48×10^{-4}
5	Large	L_LC	(Intercept)	-2.281	0.478	-4.773	1.81×10^{-6}
			LC-distance	-0.008	0.005	-1.612	0.107
		L_SL	(Intercept)	-2.264	0.479	-4.723	2.32×10^{-6}
			SL-distance	-0.009	0.005	-1.616	0.106
		Null	(Intercept)	-3.121	0.408	-7.645	2.10×10^{-14}
	Small	S_LC	(Intercept)	-2.119	0.807	-2.625	0.009
			LC-distance	-0.024	0.043	-0.551	0.582
		S_SL	(Intercept)	-2.063	0.804	-2.565	0.01
			SL-distance	-0.028	0.044	-0.623	0.533
		Null	(Intercept)	-2.485	0.577	-4.304	1.68×10^{-5}
6	Large	L_LC	(Intercept)	-3.299	0.826	-3.992	6.54×10^{-5}
			LC-distance	-0.01	0.01	-0.922	0.356
		L_SL	(Intercept)	-3.292	0.83	-3.966	7.30×10^{-5}

			SL-distance	-0.01	0.011	-0.924	0.356
		Null	(Intercept)	-4.22	0.707	-5.967	2.41×10^{-9}
	Small	S_LC	(Intercept)	-3.565	1.533	-2.325	0.02
			LC-distance	-0.001	0.065	-0.016	0.988
		S_SL	(Intercept)	-3.516	1.536	-2.289	0.022
			SL-distance	-0.004	0.068	-0.056	0.955
		Null	(Intercept)	-3.583	1	-3.584	3.39×10^{-4}

Table S6: Difference in kilometers between straight-line distances computed using the Haversine method, and least-cost path distances. Sites are ordered from North to South and correspond to the following locations: Corrubedo, Sálvora, O Grove, Ons Island, Couso Cape, Cies Island North, Cies Island South, Silleiro Cape, Viana Castelo, Esposende, Figueira de Foz, Berlengas Islands, Ericeira, Avencas, Sesimbra-Arrábida, and Sines.

	Cor	Salv	Grove	Ons	Cous	CiesN	CiesS	Sil	Via	Espo	Fig	Ber	Eri	Ave	Ses	Sin
Cor	0.00	2.18	0.73	0.59	1.41	2.52	1.33	3.55	8.25	8.18	5.13	19.30	16.18	26.76	33.81	54.54
Salv	2.18	0.00	0.09	1.67	0.77	0.24	1.02	1.02	5.43	5.42	1.70	22.33	19.42	30.15	37.54	58.56
Grove	0.73	0.09	0.00	1.04	0.22	0.27	1.67	0.05	4.22	4.37	0.09	26.98	24.30	35.16	42.91	64.25
Ons	0.59	1.67	1.04	0.00	0.72	0.75	0.65	1.04	5.21	5.39	0.81	27.59	24.99	35.91	43.79	65.22
Cous	1.41	0.77	0.22	0.72	0.00	1.04	2.24	0.58	3.83	4.16	0.77	25.31	22.92	33.97	42.12	63.79
CiesN	2.52	0.24	0.27	0.75	1.04	0.00	1.40	0.25	4.44	4.64	0.04	26.35	23.91	34.93	42.98	64.52
CiesS	1.33	1.02	1.67	0.65	2.24	1.40	0.00	1.63	5.85	6.04	1.35	27.62	25.22	36.27	44.37	65.93
Sil	3.55	1.02	0.05	1.04	0.58	0.25	1.63	0.00	4.16	4.29	0.28	25.97	23.62	34.69	42.81	64.36
Via	8.25	5.43	4.22	5.21	3.83	4.44	5.85	4.16	0.00	0.16	2.88	27.86	26.05	37.45	46.10	67.94
Espo	8.18	5.42	4.37	5.39	4.16	4.64	6.04	4.29	0.16	0.00	2.15	26.00	24.62	36.25	45.34	67.53
Fig	5.13	1.70	0.09	0.81	0.77	0.04	1.35	0.28	2.88	2.15	0.00	17.27	20.54	33.73	44.09	65.90
Ber	19.30	22.33	26.98	27.59	25.31	26.35	27.62	25.97	27.86	26.00	17.27	0.00	3.11	5.13	6.74	23.00
Eri	16.18	19.42	24.30	24.99	22.92	23.91	25.22	23.62	26.05	24.62	20.54	3.11	0.00	10.03	10.66	26.78
Ave	26.76	30.15	35.16	35.91	33.97	34.93	36.27	34.69	37.45	36.25	33.73	5.13	10.03	0.00	1.59	15.30
Ses	33.81	37.54	42.91	43.79	42.12	42.98	44.37	42.81	46.10	45.34	44.09	6.74	10.66	1.59	0.00	16.11
Sin	54.54	58.56	64.25	65.22	63.79	64.52	65.93	64.36	67.94	67.53	65.90	23.00	26.78	15.30	16.11	0.00

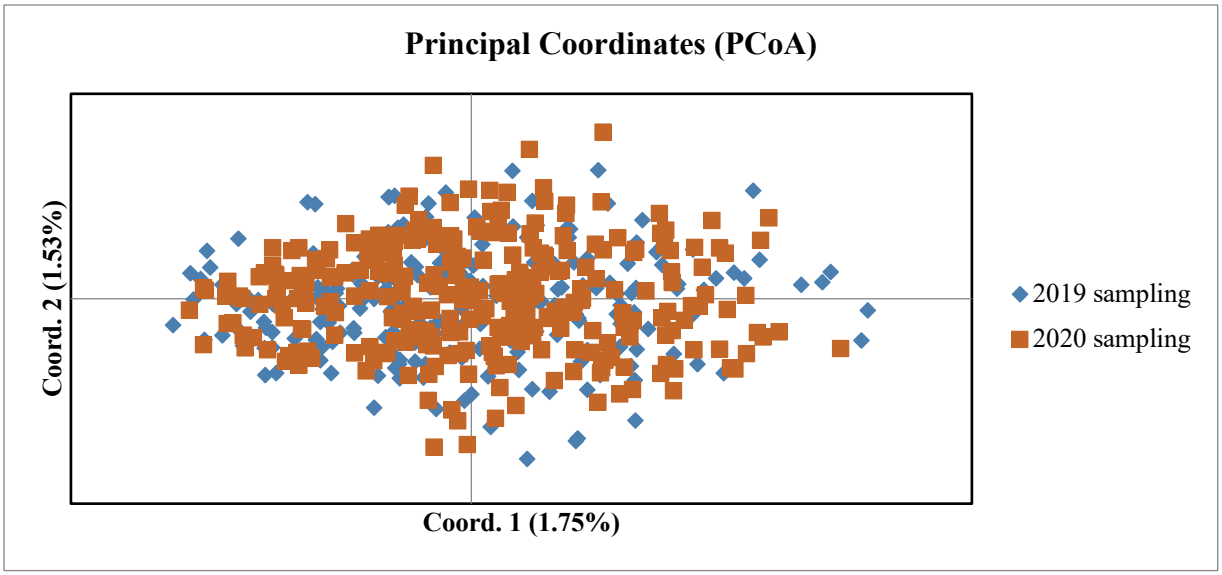

Fig. S1: Principal Coordinates Analysis (PCoA) generated in GENALEX using Nei's genetic distance matrix between individuals sampled in 2019 and individuals sampled in 2020. Coordinate axis 1 explains 1.75% of total variation, and coordinate axis 2 explains 1.53% of total variation.

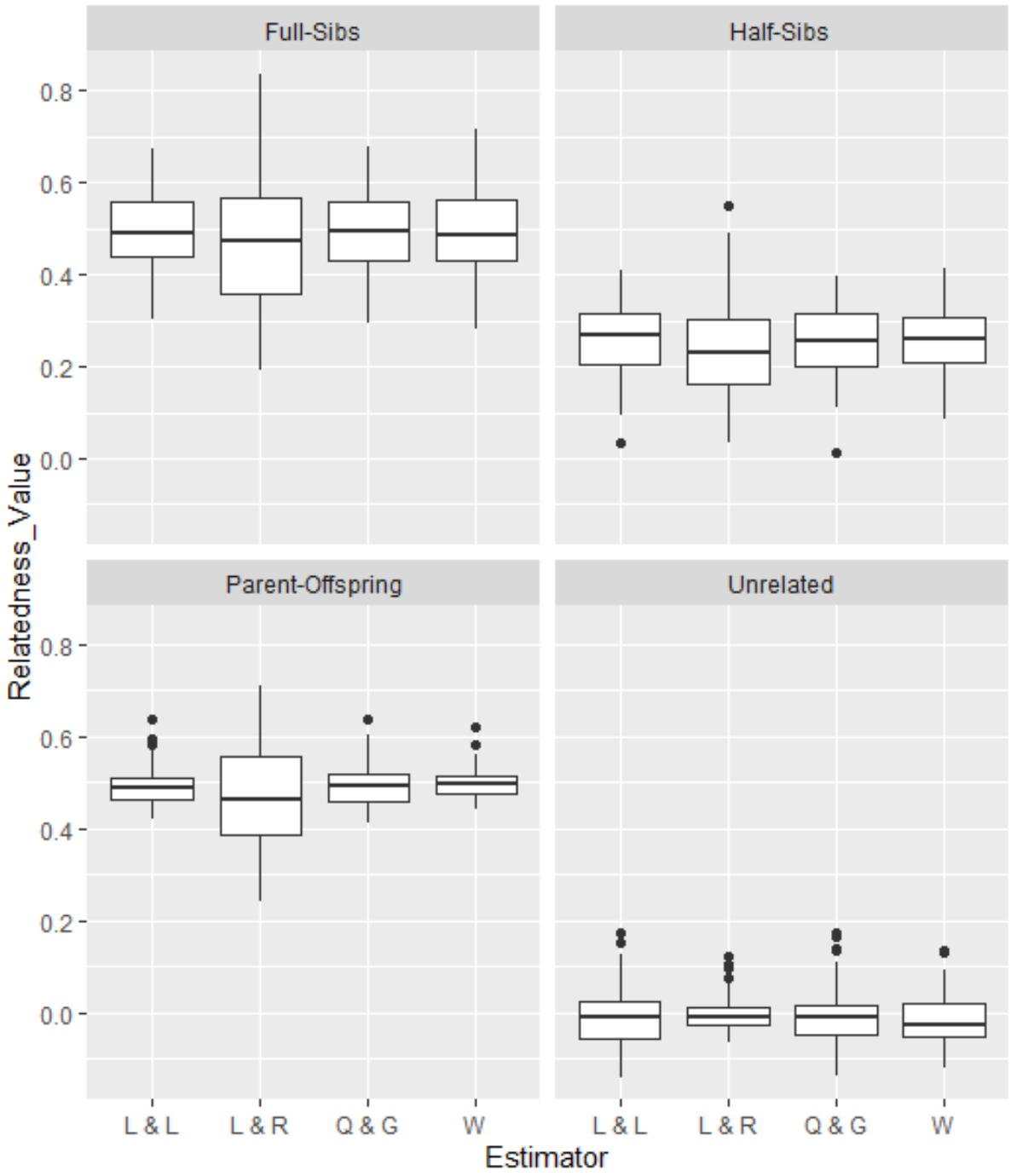

Fig. S2: Relatedness estimator comparison obtained from the R package *related* (Pew et al. 2015). L & L, L & R, Q & G and W refer to the Lynch-Li, Lynch-Ritland, Queller-Goodnight and Wang estimators respectively. Boxes range from the first (Q1) to the third quartile (Q3) of the distribution of relatedness values, and the horizontal bar across the box corresponds to median relatedness. Whiskers extend to calculated minimum and maximum relatedness (Q1 – 1.5*Interquartile Range; Q3 + 1.5*Interquartile Range), and dots represent outliers beyond calculated minima and maxima.

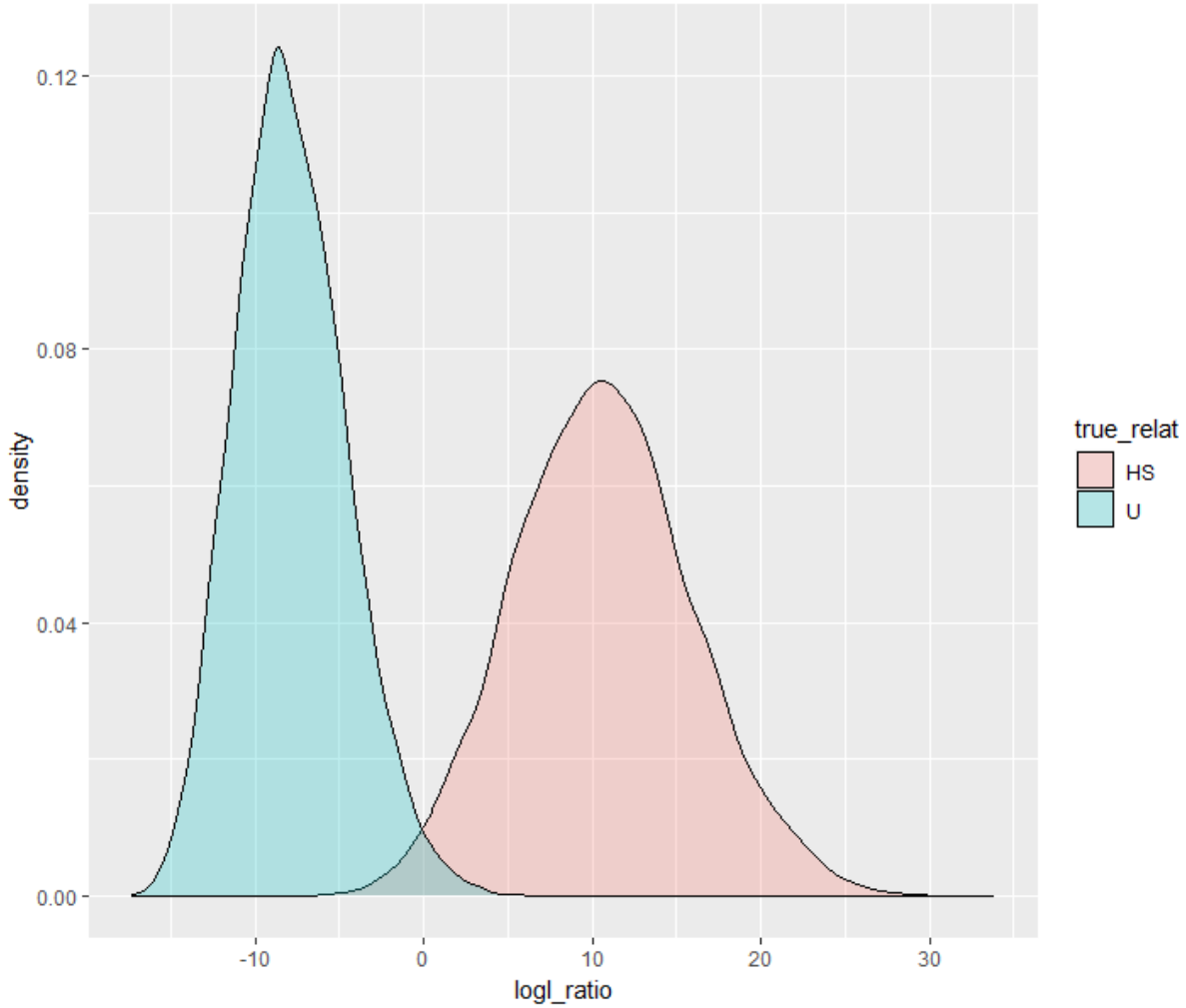

Fig. S3: Expected density plots of log-likelihood ratios according to relationship type obtained with *CKMRsim* (Anderson 2023). HS correspond to half-siblings and U to unrelated individuals.

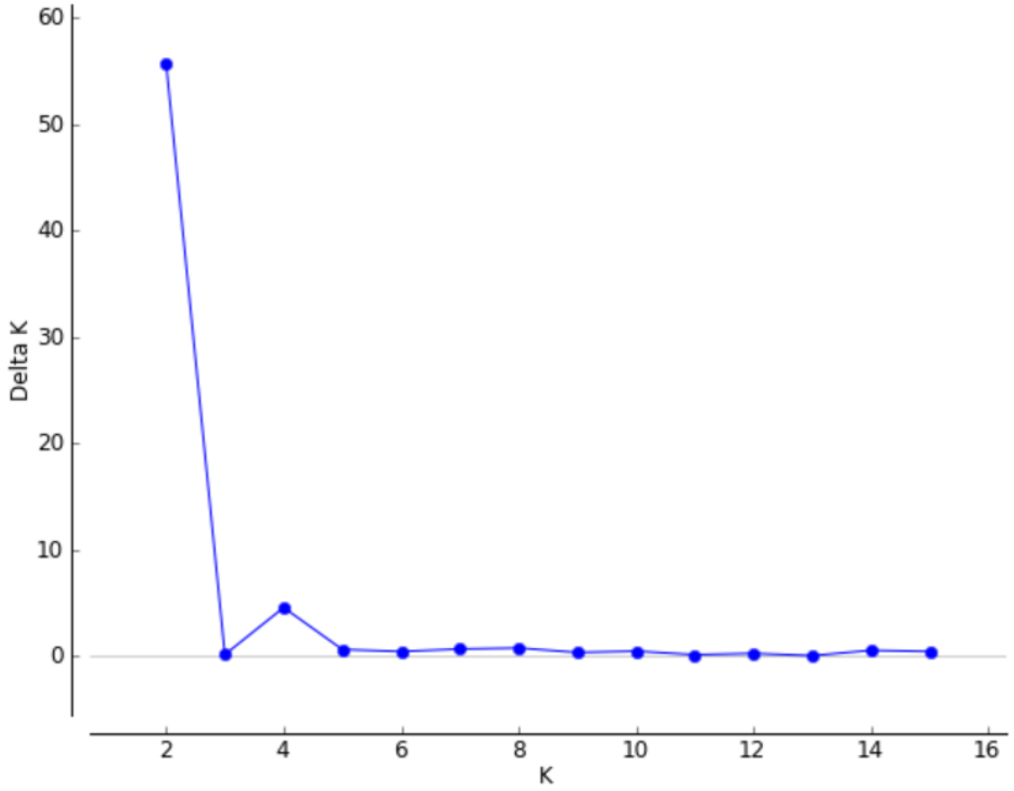

Fig. S4: Plot from STRUCTURE HARVESTER performed with Evanno's method (Evanno et al. 2005). Highest value of ΔK is for K = 2.

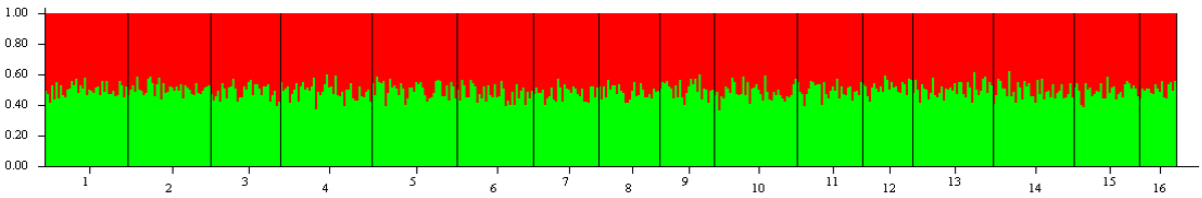

Fig. S5: Cluster analysis obtained from the software STRUCTURE v2.3.4 (Pritchard et al. 2000) with the most likely number of clusters (K = 2) using the method from Evanno et al. (2005) Evanno et al. (2005). Numbers from 1 to 16 correspond to each sample site in the following order: Corrubedo, O Grove, Sálvora, Ons Island, Couso Cape, Cies Island North, Cies Island South, Silleiro, Viana Castelo, Esposende, Figueira de Foz, Berlengas Islands, Ericeira, Avencas, Sesimbra-Arrábida, Sines.

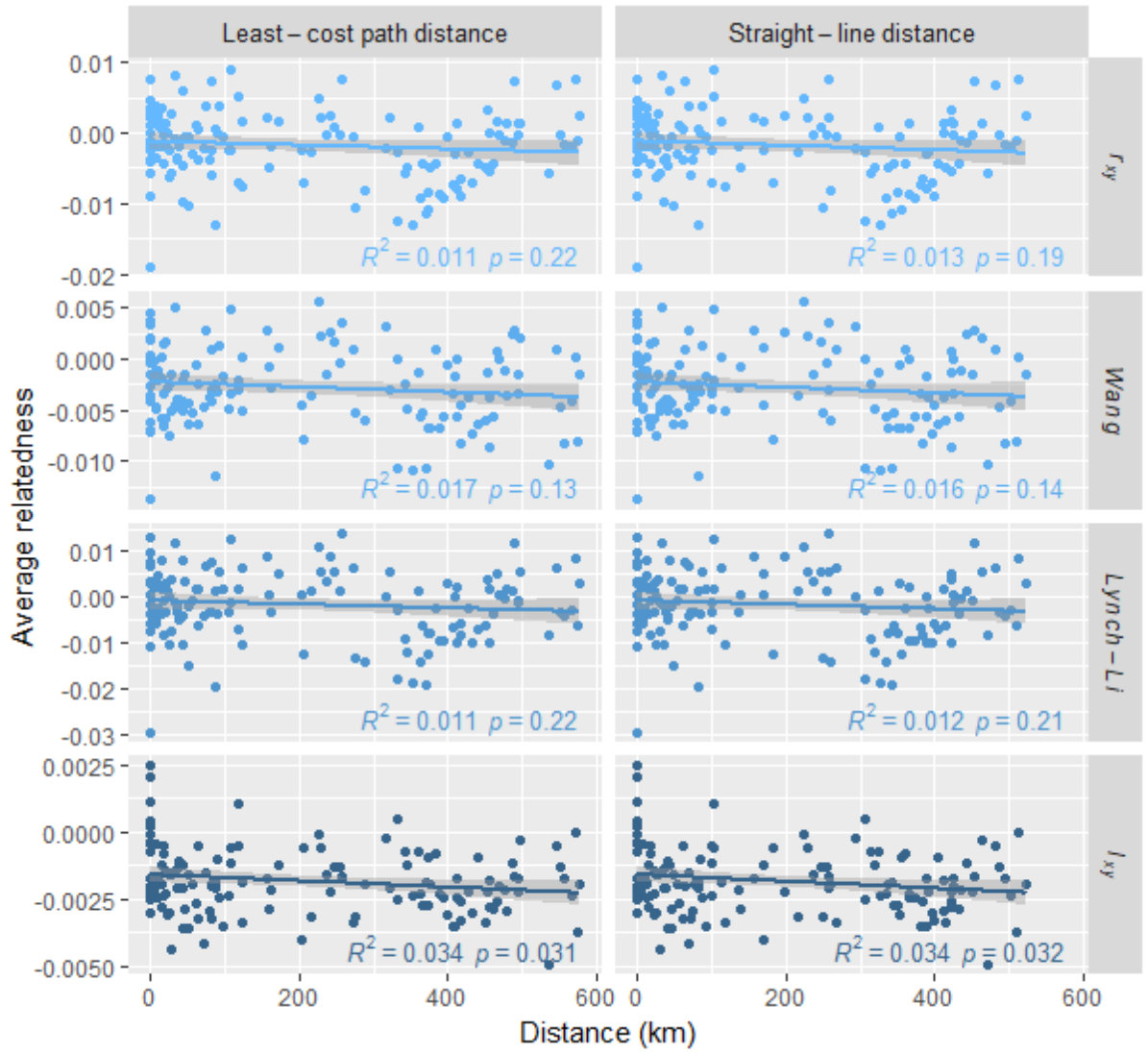

Fig. S6: Average relatedness for four common estimators according to geographic distance. R^2 and p-values correspond to linear regressions.

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