



Supplementary Materials: Does Functionality Condition the Population Structure and Genetic Diversity of Endangered Dog Breeds under Island Territorial Isolation?

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Table S1. International Society of Animal Genetics (ISAG) Dog core STR panel with 21 markers showing homozygosity (Ho) and heterozygosity (He) values for each marker (ISAG, 2016).

Locus	Homozygosity (Ho)	Heterozygosity (He)
UK109	0.468	0.552
AHT126	0.526	0.662
AHT125	0.541	0.758
UK133	0.547	0.64
UK111	0.603	0.751
CXX_403	0.63	0.747
LEI007	0.646	0.746
UK118	0.654	0.807
CPH3	0.655	0.776
1_9A	0.694	0.825
UK101	0.703	0.834
CXX2137	0.753	0.893
PEZ5	0.444	0.488
PEZ20	0.456	0.492
FHC2010	0.475	0.508
PEZ1	0.515	0.566
PEZ6	0.604	0.653
PEZ12	0.639	0.649
PEZ8	0.64	0.689
PEZ13	0.663	0.684
PEZ11	0.718	0.720

ISAG Workshop: Applied Genetics of Companion Animals. In: Proceedings of the 35th International Conference on Animal Genetic, Salt Lake City, Utah, USA, 16-21 July, 2017.

Table S2. Generation intervals (years) and mean age (years) of the parents at the birth of their offspring for the four gametic routes in the Ca de Bestiar and Ca Rater dog breeds.

Parameter Population set	Gametic route	Male to son	Female to son	Male to daughter	Female to daughter	To tal	
Ca de Bestiar	N	16	29	15	29	89	
	Mean	3.51	2.71	3.51	3.02	3.09	
	Standard deviation	2.79	2.10	1.81	2.34	2.26	
	Standard error of the mean	0.70	0.39	0.47	0.44	0.24	
	N	9	14	9	15	47	
	Mean	5.20	3.79	4.02	3.60	4.04	
	Standard deviation	2.61	2.41	1.44	2.65	2.38	
	Standard error of the mean	0.87	0.80	0.48	0.88	0.35	
	N	59	108	55	107	329	
	Mean	3.77	4.33	3.78	3.74	3.94	
Ca Rater	Standard deviation	2.45	2.95	1.96	2.08	2.45	
	Standard error of the mean	0.32	0.28	0.26	0.20	0.14	
	N	53	88	50	87	278	
	Mean	3.79	4.48	3.64	3.64	3.93	
	Standard deviation	2.42	3.02	1.92	1.99	2.45	
	Standard error of the mean	0.33	0.42	0.26	0.27	0.15	
	Parameter	Mean age of the parents at the birth of their offspring	Male to son	Female to son	Male to daughter	Female to daughter	Total
	Population set	N	92	98	89	98	377
	Mean	4.52	3.83	4.80	3.72	4.20	4.20
	Standard deviation	2.73	2.85	3.82	1.98	2.92	2.92
Ca de Bestiar	Standard error of the mean	0.28	0.29	0.41	0.20	0.15	
	N	79	77	75	78	309	
	Mean	5.01	4.42	5.10	4.06	4.64	
	Standard deviation	2.61	2.90	4.01	1.85	2.95	
	Standard error of the mean	0.29	0.33	0.45	0.21	0.17	
	N	691	725	684	713	2813	
	Mean	4.06	4.27	3.84	3.86	4.01	
	Standard deviation	2.55	2.61	2.38	2.28	2.46	
	Standard error of the mean	0.10	0.10	0.09	0.09	0.05	
	N	612	641	607	632	2492	
Ca Rater	Mean	4.06	4.27	3.75	3.87	3.99	
	Standard deviation	2.54	2.60	2.28	2.25	2.43	

Standard error of the mean	0.10	0.11	0.09	0.09	0.05
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Table S3. Summary of the descriptive statistics of genetic diversity population parameters for Ca de Rater and Ca de Bestiar breeds.

Breed	Parameter	F, %	ΔR, %	C, %	NR M	Maximum Generations	Complete Generations	Equivalent Generations	ΔF, %	GCI
Ca de Rater	Mean	0.0 1	0.02	0.0 1	0.0 0	2.35	1.04	1.50	0.0 1	2.98
	Std. Error of Mean	0.0 0	0.00	0.0 0	0.0 0	0.05	0.02	0.03	0.0 0	0.05
	Median	0.0 0	0.02	0.0 1	- 0.0 1	2.00	1.00	1.50	0.0 0	2.29
	Mode	0.0 0	0.00	0.0 0	0.0 0	1.00	1.00	1.00	0.0 0	2.00
	Std. Deviation	0.0 4	0.02	0.0 1	0.0 4	2.09	0.79	1.09	0.0 5	1.96
	IQR	0.2 6	0.08	0.0 4	0.2 9	8.00	4.00	5.04	0.4 4	10.8 0
	Minimum	0.0 0	0.00	0.0 0	- 0.0 4	0.00	0.00	0.00	0.0 0	1.00
	Maximum	0.2 6	0.08	0.0 4	0.2 5	8.00	4.00	5.04	0.4 4	11.8 0
	Sum	20. 82	45.0 5	22. 52	- 1.7 7	4248.00	1890.00	2722.77	16. 65	5385 .98
	Percentile 25	0.0 0	0.01	0.0 0	- 0.0 2	1.00	1.00	1.00	0.0 0	1.78
Percentile 75	0.0 0	0.04	0.0 2	0.0 0	3.00	1.00	2.13	0.0 0	3.62	
Ca de Bestiar	Mean	0.0 0	0.02	0.0 1	- 0.0 1	1.72	0.53	0.89	0.0 0	1.99
	Std. Error of Mean	0.0 0	0.00	0.0 0	0.0 0	0.11	0.03	0.05	0.0 0	0.06
	Median	0.0 0	0.01	0.0 1	0.0 0	1.00	0.00	0.50	0.0 0	1.33
	Mode	0.0 0	0.00	0.0 0	0.0 0	0.00	0.00	0.00	0.0 0	1.00
	Std. Deviation	0.0 2	0.02	0.0 1	0.0 2	2.21	0.62	0.98	0.0 1	1.25
	IQR	0.1 3	0.06	0.0 3	0.1 4	7.00	2.00	3.72	0.0 5	5.94
	Minimum	0.0 0	0.00	0.0 0	- 0.0 3	0.00	0.00	0.00	0.0 0	1.00
	Maximum	0.1 3	0.06	0.0 3	0.1 1	7.00	2.00	3.72	0.0 5	6.94
	Sum	1.0 4	6.65	3.3 2	- 2.3 2	663.00	205.00	341.69	0.4 9	767. 92
	Percentile 25	0.0 0	0.00	0.0 0	- 0.0 1	0.00	0.00	0.00	0.0 0	1.00

Table S4. Summary of the results of Mann Whitney's U test and Independent Median test to detect differences in the median of genetic diversity population parameters between both breeds/functionalities.

Items	F, %	ΔR, %	C, %	NR M	Maximum Generation ns	Complete Generations	Equivalent Generation ns	ΔF, %	GCI
Total N	2195 .000	2195 .000	2195 .000	2195 .000	2195.000	2195.000	2195.000	2195 .000	2195 .000
Mann-Whitney U test									
Mann-Whitney U	3158 46.5 00	2826 42.0 00	2826 42.0 00	3707 79.0 00	266547.00 0	224355.00 0	242971.00 0	3159 67.5 00	2413 74.5 00
Wilcoxon W	3901 51.5 00	3569 47.0 00	3569 47.0 00	4450 84.0 00	340852.00 0	298660.00 0	317276.00 0	3902 72.5 00	3156 79.5 00
Test Statistic	3158 46.5 00	2826 42.0 00	2826 42.0 00	3707 79.0 00	266547.00 0	224355.00 0	242971.00 0	3159 67.5 00	2413 74.5 00
Standard Error	6452 .936	1128 5.12 3	1128 5.12 3	1128 5.12 3	11100.848	10411.539	11152.646	6452 .992	1115 9.83 4
Standardized Test Statistic	- 5.04 9	- 5.82 9	- 5.82 9	1.98 1	-7.376	-11.917	-9.456	- 5.03 0	- 9.59 2
Asymptotic P-value (2-sided test)	0.00 1	0.00 1	0.00 1	0.04 8	0.001	0.001	0.001	0.00 1	0.00 1
Total N	2195 .000	2195 .000	2195 .000	2195 .000	2195.000	2195.000	2195.000	2195 .000	2195 .000
Independent Median test									
Median	0.00 1	0.02 1	0.01 1	- 0.00 8	2.000	1.000	1.500	0.00 1	2.28 6
Test Statistic	25.3 87	29.1 04	29.1 04	16.4 81	10.783	61.473	27.804	25.3 87	17.3 59
Degree Of Freedom	1.00 0	1.00 0	1.00 0	1.00 0	1.000	1.000	1.000	1.00 0	1.00 0
Asymptotic P-value (2-sided test)	0.00 1	0.00 1	0.00 1	0.00 1	0.001	0.001	0.001	0.00 1	0.00 1
Yates's Continuity Correction Chi-Square	24.5 34	28.5 02	28.5 02	16.0 29	10.404	60.404	27.199	24.5 34	16.8 94
Yates's Continuity Correction Degree Of Freedom	1.00 0	1.00 0	1.00 0	1.00 0	1.000	1.000	1.000	1.00 0	1.00 0
Yates's Continuity Correction Asymptotic Sig.(2-sided test)	0.00 1	0.00 1	0.00 1	0.00 1	0.001	0.001	0.001	0.00 1	0.00 1

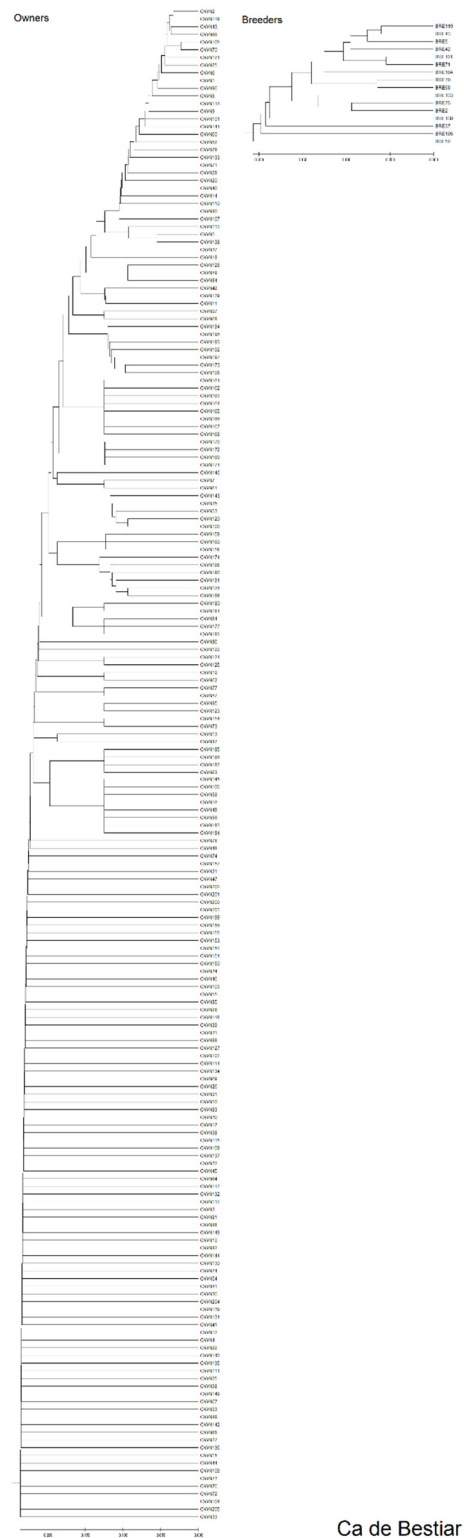


Figure S1. Dendrograms constructed from Nei's genetic distances between owners and breeders in Ca de Bestiar breed.



Figure S2. Dendrograms constructed from Nei's genetic distances between owners and breeders in Ca de Rater breed.