

**Table S1.** Red deer pedigree summary statistics, obtained using the R package Pedantics [39]. ‘pairwise relatedness  $\geq \dots$ ’ gives the fraction of pairwise relationships above the indicated threshold. Individuals born before 1981 are included in these statistics, but excluded everywhere else

records	4134
maternities	3911
paternities	2444
full sibs	241
maternal sibs	11257
maternal half sibs	11016
paternal sibs	15907
paternal half sibs	15666
maternal grandmothers	3517
maternal grandfathers	2861
paternal grandmothers	1553
paternal grandfathers	1757
maximum pedigree depth	9
founders	154
mean maternal sibship size	4.7
mean paternal sibship size	6.5
non-zero F	936
F $\geq 0.125$	22
mean pairwise relatedness	0.0120
pairwise relatedness $\geq 0.125$	0.0199
pairwise relatedness $\geq 0.25$	0.0053
pairwise relatedness $\geq 0.5$	0.0008