

Appendix S2. Proportion of phenotypic variance after having accounted for fixed effects (V_p) explained by additive genetic (h^2), year, year of birth, and permanent environmental effects in the Ram Mountain bighorn sheep population for adult horn volume (cm^3), horn length (cm), horn base circumference (cm) and body mass (kg) based on the restricted QTL mapping dataset. Standard errors generated by ASReml are presented in parentheses. Number of individuals and observations included in each analysis as well as trait means (standard deviation in parentheses) prior and following data transformation (see methods) are also presented. Significance of ratios was assessed using likelihood ratio tests ($*p < 0.05$, $**p < 0.01$, $***p < 0.001$).

trait	ind.	obs.	trait mean (sd)	transformed data mean (sd)	V_p	h^2	year	year of birth	perm. env
<i>Male traits</i>									
Horn volume	86	863	1538 (1036)	3.34 (1.57)	0.83 (0.13)	0.36 (0.20)*	0.11 (0.03)***	0.25 (0.11)**	0.16 (0.18)
Horn length	86	866	52.33 (18.37)	7.47 (2.49)	0.84 (0.13)	0.50 (0.21)*	0.14 (0.04)***	0.19 (0.10)**	0.07 (0.18)
Horn base circ.	86	865	30.58 (6.77)	10.24 (3.96)	0.81 (0.12)	0.42 (0.18)**	0.09 (0.03)***	0.25 (0.10)**	0.09 (0.15)
Body mass	86	868	72.72 (16.6)	6.67 (1.29)	0.54 (0.07)	0.38 (0.17)**	0.16 (0.05)***	0.06 (0.08)	0.23 (0.16)*
<i>Female traits</i>									
Horn volume	154	3121	114.2 (31.53)	4.70 (1.34)	0.94 (0.10)	0.34 (0.13)***	0.07 (0.02)***	0.16 (0.07)***	0.27 (0.11)**
Horn length	154	3146	22.91 (4.15)	8.18 (1.65)	1.03 (0.12)	0.32 (0.15)*	0.05 (0.02)***	0.17 (0.08)**	0.36 (0.14)**
Horn base circ.	156	3356	13.61 (1.05)	14.96 (2.29)	0.90 (0.08)	0.41 (0.10)***	0.10 (0.03)***	0.11 (0.05)***	0.13 (0.08)*
Body mass	156	3741	61.01 (9.15)	8.54 (1.52)	0.51 (0.04)	0.22 (0.09)**	0.16 (0.04)***	0.00 (0.00)	0.26 (0.08)***
<i>Sexes combined</i>									
Horn volume	240	3984	-	-	0.89 (0.08)	0.27 (0.09)***	0.06 (0.02)***	0.13 (0.05)***	0.37 (0.08)***
Horn length	240	4012	-	-	0.95 (0.09)	0.29 (0.10)***	0.06 (0.02)***	0.13 (0.06)***	0.40 (0.09)***
Horn base circ.	242	4221	-	-	0.89 (0.07)	0.29 (0.08)***	0.09 (0.02)***	0.11 (0.05)***	0.27 (0.07)***
Body mass	242	4609	-	-	0.56 (0.04)	0.21 (0.07)***	0.15 (0.03)***	0.04 (0.03)	0.29 (0.06)***