Supporting information S2 for:

A camera trap based assessment of climate-driven phenotypic plasticity of seasonal moulting in an endangered carnivore.

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Table S2. Best fitted models based on p-values from type II Wald χ^2 from analyses of deviance, for the Linear Mixed Models (LMMs) used to investigate the effect of snow cover duration (snow_cover), mean seasonal temperature (temperature) and snow depth (snow_depth) on spring moult phenology in arctic foxes. The models included effects of the two morphs (white, blue), individual ID, site of observation, year (2011-2018), and rodent phase (4 levels). Intercepts refer to blue morph arctic foxes under rodent cycle phase 1 where relevant. Continuous variables are centred around the mean, so that the value of date on intercepts is set to June 13th, the number of days with continuous snow to 159 days, snow depth to 87 cm and temperature to 5.7°C. Values of estimates reflect standardized data.

Model	Explanatory variables	Estimate	Std. error	t value	Wald χ^2	P-value
snow_cover	(Intercept)	-0.35850	0.34152	-1.050		
	date	-2.90328	0.06035	-48.108	2311.338	< 2.2e-16 ***
*moult_score ~date*snow_cover+morph +(1+date|indiv_ID)+(1|site) +(1|year))*	snow_cover	1.12996	0.18568	6.086	32.756	1.045e-08 ***
	morph_White	-0.59030	0.25104	-2.351	5.529	0.0187 *
	date:snow_cover	-0.59030	0.25104	-2.351	24.003	9.620e-07 ***
temperature	(Intercept)	-0.37215	0.39139	-0.951		
	date	-2.90383	0.06256	-46.419	2154.231	< 2.2e-16 ***
*moult_score ~date*temperature+morph +(1+date|indiv_ID)+(1|site) +(1|year))*	temperature	-1.14937	0.32037	-3.588	10.8757	0.0009743 ***
	morph_White	-0.58961	0.25019	-2.357	5.5538	0.0184407 *
	date:temperature	-0.19488	0.05276	-3.693	13.6410	0.0002213 ***
snow_depth	(Intercept)	1.50149	0.59428	2.527		
	date	-2.91333	0.06471	-45.025	2028.486	< 2.2e-16 ***
*moult_score ~date*snow_depth+morph +rodent+(1+date|indiv_ID) +(1|site)+(1|year)*	snow_depth	0.02071	0.18515	0.112	0.0328	0.8562583
	rodent2	-1.82514	0.74911	-2.436	18.7405	0.0003093 ***
	rodent3	-2.46646	0.74384	-3.316	"	"
	rodent4	-3.22333	0.80231	-4.018	"	"
	morph_White	-0.57817	0.25399	-2.276	5.1817	0.0228265 *
	date:snow_depth	0.07609	0.05400	1.409	1.9859	0.1587668

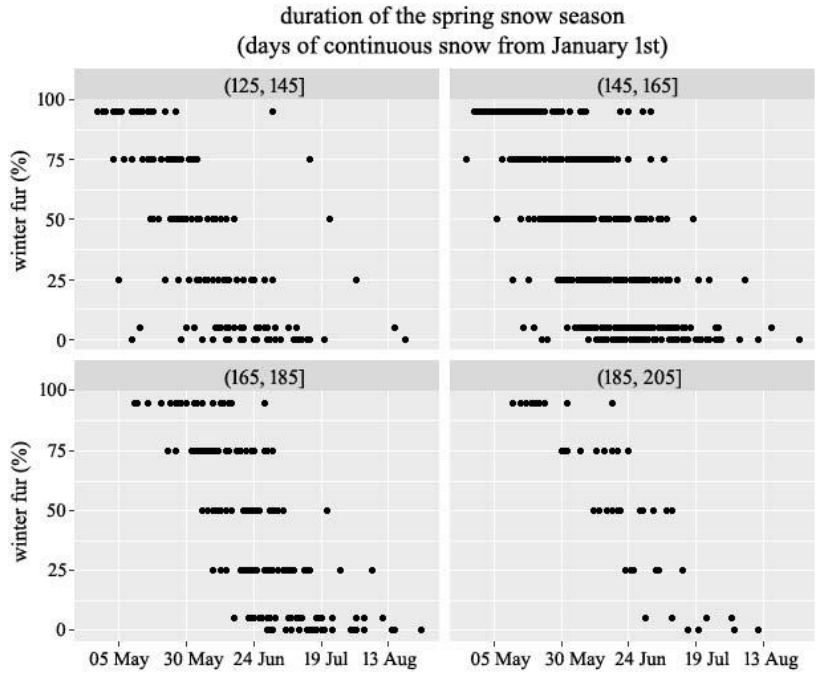

Figure S2. Moult progression scores (expressed in % winter fur) of spring moult phenology of Arctic foxes for seasons 2011-2018, under increasing values of duration of the spring snow season. The number of days with continuous snow on the ground from January 1st is given on top of each plot, with values ranging from 125 to 205 days, by increments of 20 days. Each point aligned along the same moulting stage corresponds to a single individual fox.

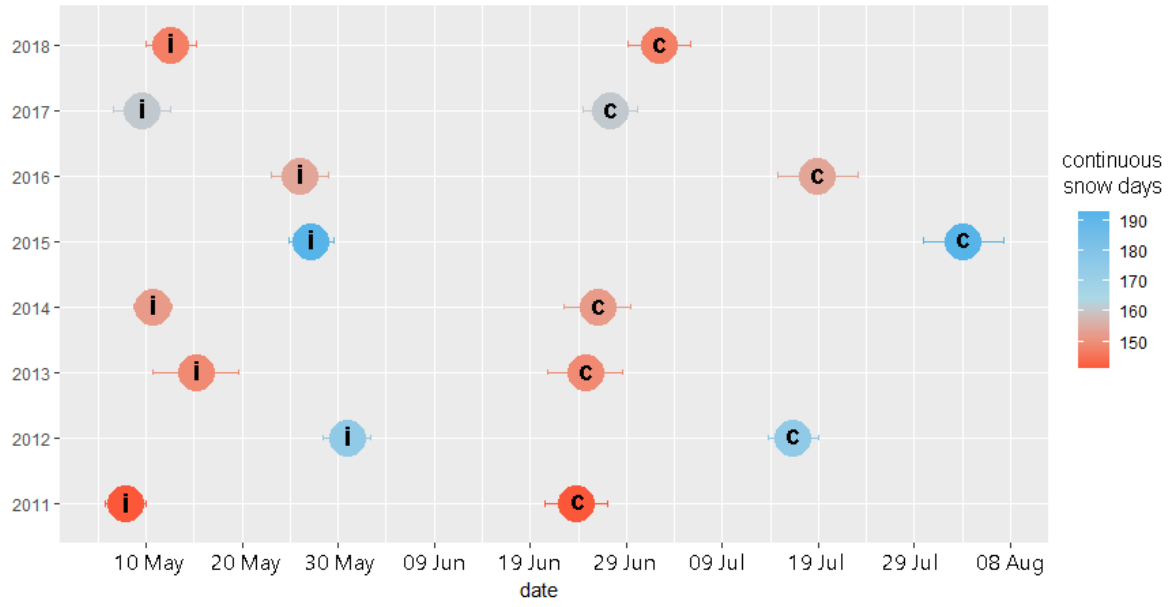

Figure S3. Annual initiation (i) and completion (c) dates for the spring moult of the Snøhetta Arctic fox population between 2011 and 2018. Points represent the mean date and horizontal bars give the calculated standard error. The colour indicates the average duration of snow season for each year, with colder colours (blue) representing longer snow seasons, and warmer colours (red) representing shorter snow seasons.