

## **Heritability of fear of humans in urban and rural populations of a bird species**

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## Appendix 1

We ran MCMCglms with different priors (ie, different V and nu values) to test the sensitivity of our heritability estimates to them. Each group of models (ie, models sharing the same prior) were built considering the potential effects of sex and habitat on (log)FID. Models were ranked based on DIC, smaller values suggesting a better model. As commonly performed with AIC (Akaike Information Criterion),  $\Delta\text{DIC} < 2$  suggests alternative models.

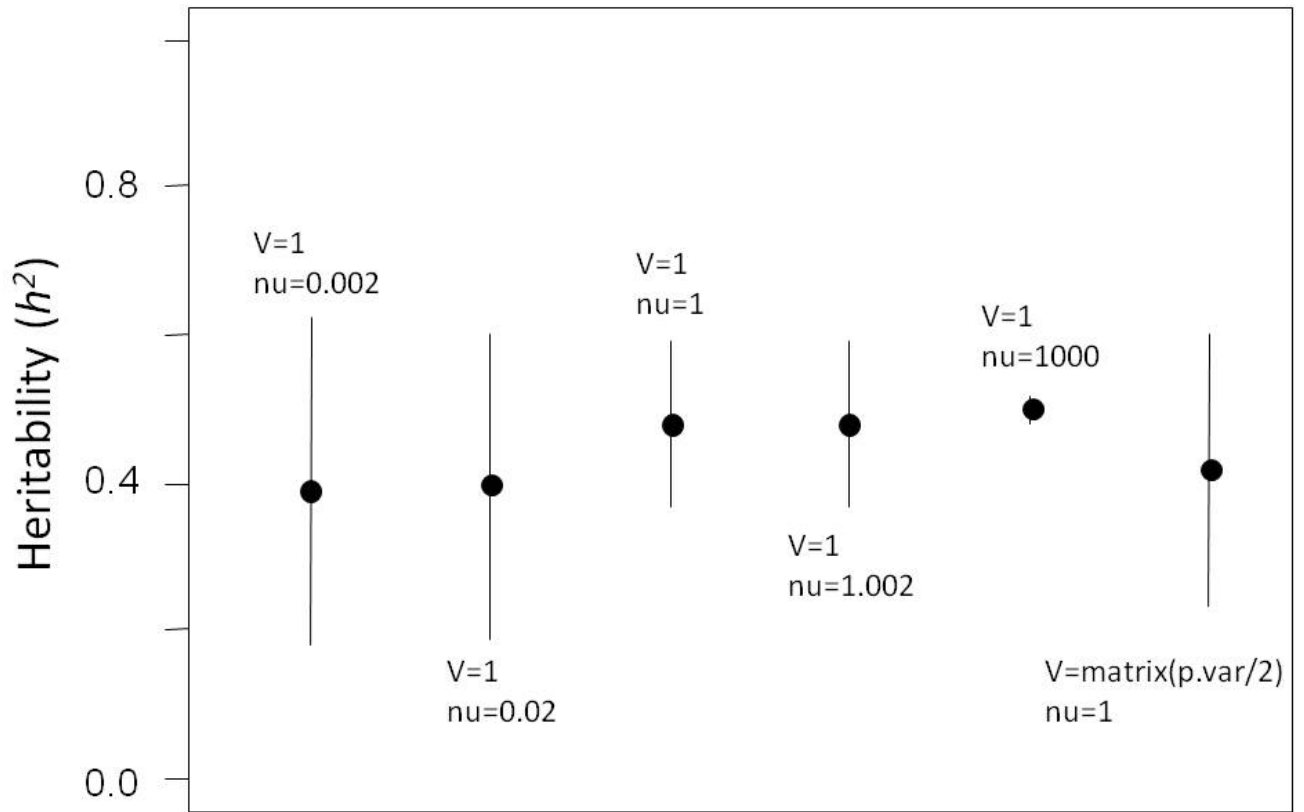
**Table S1.** MCMCglmm built to calculate heritability of fear of humans in the burrowing owl *Athene cunicularia*. Heritability ( $h^2$ ) and estimates of fixed effects ( $\beta$ ) are shown with their 95% credible intervals (95% CI) and effective sizes (ES). DIC: Deviance Information Criterion.  $\Delta\text{DIC}$ :  $\text{DIC}_{\text{model}} - \text{DIC}_{\text{best model}}$ .

Model	Prior	DIC	$\Delta\text{DIC}$	$h^2$	95% CI	ES	Fixed effects	$\beta$	95% CI	ES
(log)fid~habitat+sex	V=1, nu=0.002	205.58	0.00	0.37	0.18 - 0.62	1974	habitat(urban)	-0.42	-0.45 - -0.39	4950
							sex(female)	0.06	0.03 - 0.08	4834
(log)fid~habitat		221.83	16.26	0.39	0.17 - 0.61	2010	habitat(urban)	-0.42	-0.45 - -0.4	4950

(log)fid~sex	240.18	34.60	0.78	0.60 - 0.93	1650	sex(female)	0.06	0.03 - 0.09	4735
(log)fid~none	231.86	26.29	0.77	0.61 - 0.94	1792				
(log)fid~habitat+sex V=1, nu=0.02	202.44	0.00	0.43	0.19 - 0.60	2502	habitat(urban)	-0.42	-0.45 - -0.39	4950
						sex(female)	0.06	0.03 - 0.08	4950
(log)fid~habitat	213.97	11.53	0.41	0.21 - 0.62	2565	habitat(urban)	-0.42	-0.45 - -0.39	4950
(log)fid~sex	229.06	26.62	0.74	0.61 - 0.92	2308	sex(female)	0.06	0.02 - 0.09	4950
(log)fid~none	222.90	20.46	0.79	0.60 - 0.91	2375				
(log)fid~habitat+sex V=1, nu=1	164.89	0.00	0.47	0.37 - 0.59	4950	habitat(urban)	-0.42	-0.45 - -0.39	4950
						sex(female)	0.06	0.03 - 0.09	4950
(log)fid~habitat	178.86	13.97	0.49	0.37 - 0.59	4950	habitat(urban)	-0.42	-0.06	4950
(log)fid~sex	277.62	112.73	0.62	0.51 - 0.74	4703	sex(female)	0.06	0.03 - 0.09	4950
(log)fid~none	287.23	122.34	0.6	0.50 - 0.73	4547				
(log)fid~habitat+sex V=1, nu=1.002	164.98	0.00	0.46	0.37 - 0.59	4950	habitat(urban)	-0.42	-0.45 - -0.39	4600
						sex(female)	0.06	0.03 - 0.08	4950
(log)fid~habitat	178.97	13.99	0.48	0.36 - 0.59	4786	habitat(urban)	-0.42	-0.45 - -0.39	4950
(log)fid~sex	276.41	111.43	0.64	0.49 - 0.73	4555	sex(female)	0.06	0.03 - 0.09	5189

(log)fid~none		285.06	120.08	0.62	0.51 - 0.74	4513				
(log)fid~habitat+sex	V=1, nu=1000	3817.42	0.40	0.5	0.48 - 0.52	4950	habitat(urban)	-0.42	-0.52 - -0.31	4477
							sex(female)	0.06	-0.04 - 0.16	5165
(log)fid~habitat		3817.02	0.00	0.5	0.48 - 0.52		habitat(urban)	-0.42	-0.52 - -0.32	4677
(log)fid~sex		3873.61	56.60	0.5	0.48 - 0.52	4950	sex(female)	0.06	-0.04 - 0.16	4950
(log)fid~none		3873.23	56.21	0.5	0.48 - 0.52	4437				
	V=matrix(p.var/2),									
(log)fid~habitat+sex	n=1	195.16	0.00	0.42	0.23 - 0.60	2760	habitat(urban)	-0.42	-0.45 - -0.39	5269
							sex(female)	0.06	0.03 - 0.08	4689
(log)fid~habitat		210.10	14.94	0.41	0.22 - 0.61	2927	habitat(urban)	-0.42	-0.45 - -0.39	4950
(log)fid~sex		229.56	34.40	0.78	0.60 - 0.90		sex(female)	0.06	0.03 - 0.09	4950
(log)fid~none		214.52	19.35	0.78	0.58- 0.89					

Figure S1. Heritabilities ( $h^2$ ) of fear of humans in burrowing owls and their credible intervals obtained using different priors.



Considering that priors have no significant effects on heritability estimates, we calculate the additive genetic and the phenotypic variance ( $V_A$  and  $V_P$ , respectively) of fear of humans. Models were run for all birds together and for urban and rural birds separately (Table S2).

Table S2. Models ran to estimate the additive genetic and the phenotypic variance ( $V_A$  and  $V_P$ , respectively) of fear of humans for all birds together and separately for urban and rural birds, using an uninformative prior for the fixed and random variances ( $V=1$ ,  $\nu=0.02$ ).

Model	$V_A$	95%CI	$V_P$	95%CI
All bird	0.03	0.02 – 0.05	0.08	0.07 – 0.08
Urban birds	0.04	0.01 - 0.05	0.07	0.07 - 0.08
Rural birds	0.05	0.02 - 0.08	0.08	0.07 - 0.09

Figure S2. FID measured on offspring and parent (father and mother) burrowing owls.

White and black dots represent urban and rural birds, respectively.

