Table S1 Inference from INLA for synthetic Poisson data. Simulated under model $\mathbf{y_i} \mid \lambda_\mathbf{i} \sim \mathbf{Pois(n_i}, \lambda_\mathbf{i})$, $\eta_\mathbf{i} = \mathbf{log}(\lambda_\mathbf{i}) = \beta_\mathbf{0} + \mathbf{u_i}$, with $\beta_\mathbf{0} = \mathbf{0}$, levels of σ_u^2 ranging from 0 to 1, and missing pattern similar to the house sparrow Poisson case study. $\hat{\sigma}_\mathbf{u}^\mathbf{2}$ is the posterior mean additive genetic variance with standard deviations (sd), and 95% credible interval (CI).

σ_u^2	$\hat{\sigma}_u^2$ (sd)	95% CI
0	0.08 (0.02)	(0.05,0.13)
0.05	0.09 (0.02)	(0.05,0.13)
0.1	0.12 (0.03)	(0.07,0.18)
0.15	0.14 (0.03)	(0.09,0.21)
0.2	0.20 (0.04)	(0.13,0.27)
0.3	0.33 (0.05)	(0.25,0.43)
0.4	0.43 (0.05)	(0.33,0.54)
0.5	0.53 (0.06)	(0.43,0.65)
0.6	0.60 (0.06)	(0.49,0.73)
0.7	0.68 (0.06)	(0.56,0.81)
0.8	0.84 (0.08)	(0.69,1.00)
0.9	0.91 (0.08)	(0.77, 1.08)
1	0.99 (0.09)	(0.83,1.17)