

Experimental evidence for opposing effects of high deer density on tick-borne disease pathogen prevalence and hazard

Sara Gandy^{1,2*}, Elizabeth Kilbride¹, Roman Biek¹, Caroline Millins^{1,3*}, Lucy Gilbert¹

¹Institute of Biodiversity, Animal Health and Comparative Medicine, University of Glasgow, Glasgow, UK

²The James Hutton Institute, Craigiebuckler, Aberdeen, UK

³Institute of Infection, Veterinary and Ecological Sciences, University of Liverpool, Liverpool, UK.

*Correspondence: sara38.gandy@gmail.com

Additional file 3: GLMM for the density of infected nymphs with *B. afzelii*

The mixed effect model used to investigate the effect of fencing, habitat, month and year on Lyme disease hazard for *B. burgdorferi* s.l. was conducted for *B. afzelii* infections only. As seen from Table 7, results are similar to the other model and Lyme disease hazard is predicted to be higher in high deer density plots (predicted DIN=1.18, 95%CI: 0-6.24) compared to deer exclusion plots (predicted DIN=2.26,95%CI: 0-18.50).

Table S6 Results from the selected model to explain what causes variations in the density of infected nymphs for *B. afzelii*. Δ AICc indicates the increase in AICc after dropping each variable from the model

	Estimate (Log)	Std Error	z-value	p-value	Δ AICc
Conditional part					
Intercept	-4.49	0.36	-17.48	<0.001	
Deer treatment: deer exclusion	-1.46	0.19	-7.64	<0.001	18.6
Habitat					9.2
Heather	-0.20	0.32	-0.60	0.55	
Pine	0.89	0.27	3.23	0.001	
Zero inflation part					
Intercept	-1.14	1.14	-1.00	0.32	
Deer treatment: deer exclusion	-1.16	0.73	-1.60	0.11	
Ground wet: Yes	3.44	1.21	2.86	0.004	