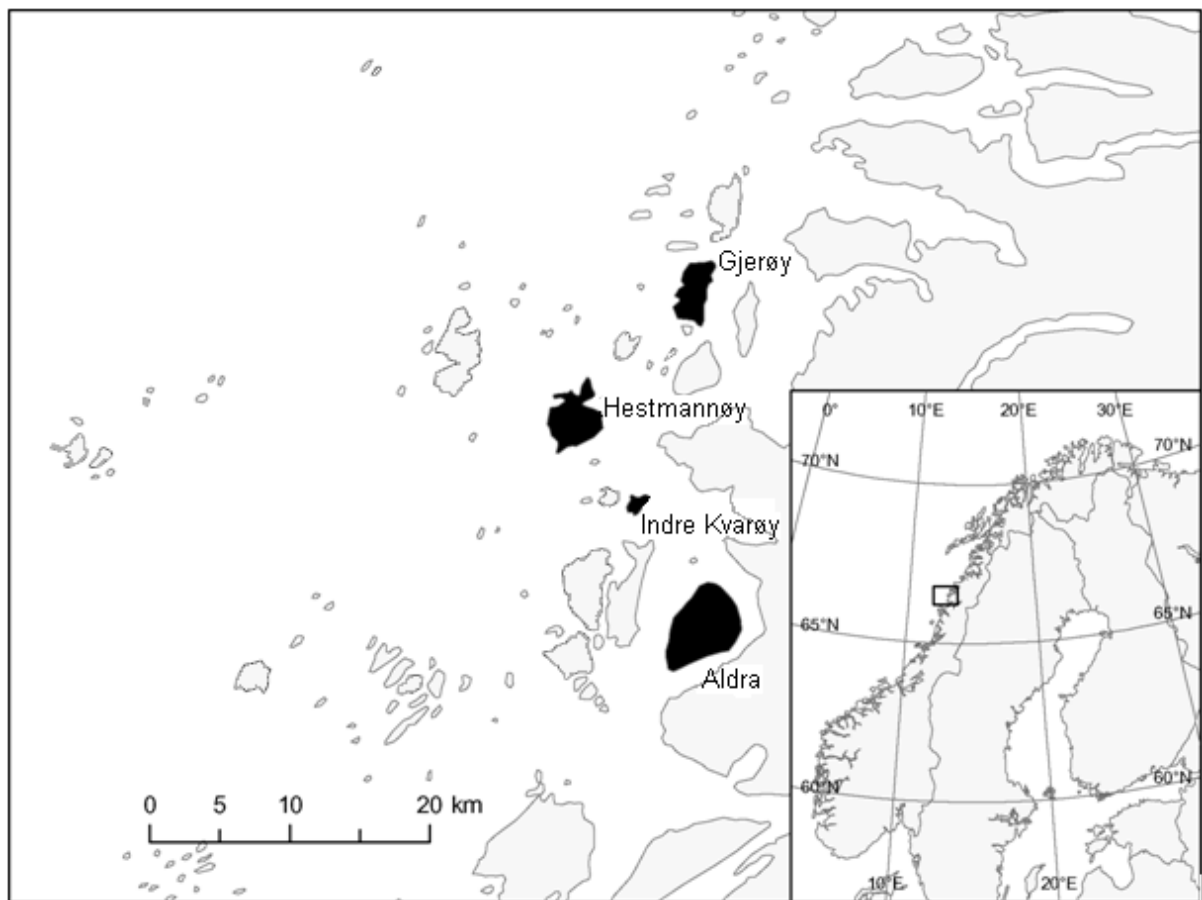


Supplementary material

Appendix 1

Map showing the study area used to investigate the effects of the parasite *Syngamus trachea* on survival probability of house sparrows (*Passer domesticus*) on the coast of Helgeland in northern Norway. The 4 islands which are marked in black and named featured in the study.



Appendix 2

Table B1: Parameter estimates of a Multievent Multistate Capture-Mark-Reencounter model where the annual survival probability (S) between house sparrows not infected (1) and infected (2) by the parasite *Syngamus trachea* was estimated separately for adults (A) and juveniles (J), respectively. Infection status was determined by feces examination of data collected from a metapopulation of 4 islands on the coast of Helgeland, Norway in the years 2007 - 2011. This model also estimated the effect of body condition index (BC) and population density (PD) on survival probability separately for non-infected and infected individuals, respectively. Reencounter probability (p) was modeled with the main effect of year and infection status (Logit (p) = $INFECTION + YEAR$). Where Ψ was transition probability from the two states given that the individual survives to the next time step, δ the probability that the state of an individual is observed given that it is in state 1 or 2 and is encountered, π^1 the probability that an individual encountered for the first time is in state 1, respectively. All posterior distributions of parameters are presented with mean and lower/upper values of the 95% credibility interval. All estimates are given on a probability scale (0,1), except for the slope parameters of BC and PD (logit scale).

Parameter	Mean	Bayesian Credible Interval	
		2.50 %	97.50 %
S^{J1}	0.49	0.44	0.54
S^{J2}	0.58	0.47	0.69
S^{A1}	0.56	0.50	0.63
S^{A2}	0.67	0.40	0.90
p^1_{2008}	0.93	0.82	0.99
p^1_{2009}	0.86	0.74	0.95
p^1_{2010}	0.83	0.73	0.91
p^1_{2011}	0.99	0.96	1.00
p^2_{2008}	0.97	0.81	1.00
p^2_{2009}	0.95	0.69	1.00
p^2_{2010}	0.93	0.62	1.00
p^2_{2011}	1.00	0.97	1.00
Ψ^{12}	0.06	0.04	0.09
Ψ^{21}	0.99	0.95	1.00
δ^1	0.75	0.72	0.78
δ^2	0.99	0.96	1.00
π^1	0.79	0.75	0.82
BC^1	0.11	0.04	0.18
BC^2	0.26	0.09	0.44
PD^1	-0.23	-0.43	-0.02
PD^2	-0.52	-1.08	0.00

Table B2: Parameter estimates of a Multievent Multistate Capture-Mark-Reencounter model where the annual survival probability (S) between house sparrows not showing symptoms (1) and showing symptoms (2) of infection by the parasite *Syngamus trachea* was estimated separately for adults (A) and juveniles (J), respectively. Symptom status was determined from capture-data collected from a metapopulation of 4 islands on the coast of Helgeland, Norway in the years 2004 - 2011. This model also estimated the effect of body condition index (BC) and population density (PD) on survival probability separately for non-symptomatic and symptomatic individuals, respectively. Reencounter probability (p) was modeled with the main effect of symptoms, island and year (Logit (p) = $SYMP + ISLAND + YEAR$). Where Ψ was transition probability from the two states given that the individual survives to the next time step, δ the probability that the state of an individual is observed given that it is in state 1 or 2 and is encountered, π^1 the probability that an individual encountered for the first time is in state 1, respectively. All posterior distributions of parameters are presented with mean and lower/upper values of the 95% credibility interval. All estimates are given on a probability scale (0,1), except for estimates for each level of p and the slope parameters of BC and PD (logit scale).

Parameter	Mean	Bayesian Credibility Interval	
		2.50 %	97.50 %
S^{J1} Hestmannøy	0.58	0.52	0.64
S^{J1} Gjerøy	0.55	0.48	0.61
S^{J1} Aldra	0.54	0.44	0.65
S^{J1} Indre Kvarøy	0.50	0.43	0.59
S^{J2} Hestmannøy	0.54	0.38	0.70
S^{J2} Gjerøy	0.64	0.47	0.79
S^{J2} Aldra	0.54	0.31	0.77
S^{J2} Indre Kvarøy	0.42	0.25	0.61
S^{A1} Hestmannøy	0.69	0.63	0.76
S^{A1} Gjerøy	0.66	0.59	0.74
S^{A1} Aldra	0.66	0.55	0.76
S^{A1} Indre Kvarøy	0.62	0.54	0.71
S^{A2} Hestmannøy	0.36	0.28	0.44
S^{A2} Gjerøy	0.46	0.36	0.56
S^{A2} Aldra	0.37	0.21	0.55
S^{A2} Indre Kvarøy	0.26	0.16	0.38
p intercept	3.50	2.51	4.38
p^2	-4.58	-4.99	-3.79
p Gjerøy	0.56	0.00	1.12
p Aldra	0.92	-0.16	2.19
p Indre Kvarøy	0.49	-0.31	1.33
p 2006	-0.05	-0.94	0.83
p 2007	1.00	0.18	1.82
p 2008	0.93	0.10	1.75
p 2009	0.60	-0.21	1.41
p 2010	0.57	-0.20	1.32
p 2011	4.31	3.00	4.98
Ψ^{12}	0.46	0.42	0.50
Ψ^{21}	0.29	0.23	0.36
δ^1	1.00	1.00	1.00
δ^2	0.26	0.22	0.30

π^1	0.94	0.93	0.96
BC^1	0.11	0.06	0.17
BC^2	0.02	-0.07	0.11
PD^1	-0.23	-0.38	-0.09
PD^2	0.19	-0.10	0.45
