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Supplementary material

Appendix 1. Statistical Analysis of Nest and Arthropod Data

Nest Data:

Time: In the case of first time observations, time is calculated as days since incubation onset and if the first observation date is the same date as incubation onset then this value is assigned to 0.25 (model sensitivity to this assumption was tested and extreme values did not affect results).

Clutch Initiation: Clutch initiation was rarely observed directly in our dataset, meaning that most dates are estimated using lay sequence, hatch date, or nestling growth. Typically both Gambel's white-crowned sparrows and Lapland longspurs lay one egg per day early in the morning during the laying period (Chilton 1995). This means if we found a nest during the lay sequence, the clutch initiation date was assigned by assuming that one egg had been laid that morning and then subtracting the remaining number of eggs in the nest from the current date (e.g. a nest with 3 eggs found on June 3rd would be assigned a clutch initiation date of June 1st.) Nests that were found after clutch completion were assigned a clutch initiation date based on hatch date. Both species typically incubate for 12 days starting on the day the final egg was laid (Chilton 1995; Hussell 2002). However, unlike previous studies, we did not see hatching asynchrony greater than 24 hours in first clutches for Lapland longspurs (Hussell 2002).Therefore a nest of 5 eggs that hatched on June 17th would assume to have had the last egg laid on June 5th and had a clutch initiation date of June 1st. For nests that were detected after hatch date, age was assigned based on nestling physiology and morphology (e.g. mass, featheration) and growth rates (Pérez et al. 2016). For some observations (approximately 5.4%), neither lay sequence nor hatch were observed because nests failed prior to hatch. This sample of nests was biased towards nests that were laid very early in the season. To avoid systematically excluding these nests from our sample, we calculated a conservative clutch initiation date that minimized clutch initiation variation by assuming that the nests were first observed on the date that the final egg

was laid. Given that nests that fall into this category tend to overwhelmingly represent early nests, we think that it is most appropriate to include them in analyses; however the effect of clutch initiation date on daily reproductive success does decrease when these nests are excluded.

Nest Age: Since eggs were not individually numbered during lay, nest age at observation was assigned as days since incubation onset in the same manner described above for clutch initiation date. In the case of eggs that failed on an unknown date during incubation, the probability of failure was assigned to the entire preceding 12 days: this was commonly the case for eggs that failed to hatch.

Arthropod Biomass Data:

Following the approach of Høye and Forchhammer (2008), we used Generalized Additive Models (GAMs) to estimate arthropod biomass throughout the growing season. GAMs are extensions of generalized linear models that allow for one or more "smooth parameters" for which the shape of the response is unknown (Wood 2006). In this way, a GAM smooth is ideal for estimating phenological (seasonal) trends in arthropod biomass, which is nonlinear, especially when aggregating multiple taxa. We created our GAM in R package mgcv (Wood 2016).

The response variable in our GAM for pitfall biomass was arthropod biomass per trap-day. To arrive at this measure, we averaged the arthropod biomass collected by the 20 traps in each plot and site (2 plots in each of four traps), then divided this value by two (the number of days for which traps were active). The response variable in our GAM for sweep-net biomass was average also arthropod biomass per-trap day. This measure was calculated by averaging the

biomass of arthropods collected from 10 sweep-net samples at each of the two plots (shrub and open) at each of the 4 sites.

Our initial GAM for both pitfall and sweep-net biomass included a smooth term for cumulative thawing degree days, which was calculated as the sum of daily average temperatures greater than zero from snowmelt until the date of pitfall trap collection. “Snowmelt” was defined as the date on which 50% or more of the ground in a site was snow-free as determined by landscape-level photographs (Asmus *et al*., in prep). Our GAM also included linear effects for average temperature, total precipitation, average wind speed, and the total number of hours during which it was raining or snowing (hourly precipitation total > 1 mm) or windy (average hourly wind speed > 3 m/sec) during the 48-hour sampling interval. We also included a linear effect for plot type (shrub or open) to account for expected differences of habitat on arthropod density. We included site and year as random effect smooth terms (random effect basis). To avoid transforming the response variable (biomass), our model assumed a Tweedie distribution with a log link, which resulted in normally distributed residuals. We checked our model for temporal autocorrelation in residuals, and finding none, proceeded without adjustments. To achieve a parsimonious predictive model, we removed weather terms in a stepwise fashion, dropping the term with the highest P-value obtained by Wald tests of significance until all terms were significant ($P < 0.05$). The final model for pitfall biomass included the smooth term for TDD, average temperature, total precipitation, number of hours which it was raining and plot type (Supplementary Table 1). This model had an adjusted R^2 of 0.71, and explained 66.2% of deviance.

Table A1.1: Results from GAM of pitfall trap arthropod biomass.

Parametric coefficients	Est	SE	t	Pr(>|t|)
(Intercept)	2.68	0.22	12.1	<0.001

Average Temperature	0.07	0.01	5.9	<0.001
Total Precip	0.36	0.15	2.5	0.015
Precip Hours	-0.03	0.02	-2.0	0.042
Plot (Shrub)	-0.27	0.08	-3.3	0.001
Smooth terms	edf	Ref.df	F	Approx. P
s(cumtdd)	5.58	6.7	26.0	<0.001
s(year, random)	3.45	4	12.3	<0.001
s(site, random)	1.87	3	2.6	0.020
	R-sq.(adj) = 0.709			
	Deviance explained = 66.2%			
	n = 227			

The final model for sweep-net biomass included the smooth term for TDD, average temperature and plot type. This model had an adjusted R^2 of 0.41 and explained 68% of deviance.

Table A1.2: Results from GAM of sweep-net biomass.

Parametric coefficients	Est	SE	t	Pr(>|t|)
(Intercept)	1.76	0.20	8.9	<0.001
Average Temperature	0.04	0.01	4.4	<0.001
Plot (Shrub)	0.48	0.08	6.3	<0.001
Smooth terms	edf	Ref.df	F	Approx. P
s(cumtdd)	6.54	7.68	83.1	<0.001
s(year, random)	5.08	6.00	8.1	<0.001
s(site, random)	2.54	3.00	6.3	<0.001
	R-sq.(adj) = 0.41			
	Deviance explained = 67.7%			
	n = 365			

Next, we used the predict() function in mgcv to predict arthropod biomass per trap-day for pitfall at sweep-nets every day in the 2012-2016 growing seasons. As input, we used daily weather

conditions at each site. The resulting daily arthropod biomass estimates were used in our final model of nest success as an average biomass over the interval of time between nest checks.

Appendix 2: Model Code

Example model code (in Stan) for including fixed effects for all environmental factors and random effects for species, site, year, and age.

```
model_code20 <- '
data{

//level 1 observations
int N;
int alive[N];
real interval[N];

real rain[N];
real temp[N];
real wind[N];
real food[N];
real ci[N];
real sweepfood[N];
real snow [N];

// Random Effects
int <lower=0>N_age;
int <lower=0> N_species;
int<lower=0>N_nest;
int<lower=0>N_year;
int<lower=0> N_site;

//Cluster IDs
int<lower=1, upper=N_nest> nest[N];
int<lower=1, upper=N_year> nest_year[N];
int<lower=1, upper=N_age> age[N];
int<lower=1, upper=N_species> species[N];
int<lower=1, upper=N_site> site[N];
}
transformed data{
vector[N_age] zeros;
zeros = rep_vector(0,N_age);
}

parameters{
real a;

real brain;
real btemp;
```

```
real bwind;
real bfood;
real bsweepfood;
real bci;
real bsnow;

real bfoodrain;
real bfoodtemp;
real bfoodraintemp;
real bsweepfoodrain;
real bsweepfoodraintemp;
real bsweepfoodtemp;
real btemprain;


vector[N_age] dev_age;
real<lower=0> eta2_age;
real<lower=0> inv_rho2_age;

real dev_species[N_species];
real<lower=0> sigmaspecies;

real dev_site[N_site];
real<lower=0>sigmasite;

// level 2
real dev_nest[N_nest];
vector<lower=0>[N_year] sigmanest; // stddev among nests in a given year
real<lower=0> scale_sigmanest; // scale of cauchy dist of sigmanest values

// level 3
real dev_year[N_year];
real<lower=0> sigmayear;
}

model{
real log_theta[N];
real s;
real rho2_age;
matrix[N_age,N_age] SIGMA_age;
matrix[N_age,N_age] L_age;

a ~ normal(0,1);
brain~ normal(0,1);
btemp~ normal (0,1);
bwind~ normal (0,1);
bfood ~ normal (0,1);
bsweepfood ~normal (0,1);
bci~ normal(0,1);
bsnow ~ normal (0,1);
```

```
btemprain ~ normal (0,1);
bfoodrain ~ normal(0,1);
bfoodtemp ~ normal(0,1);
bfoodraintemp ~normal(0,1);
bsweepfoodrain ~ normal (0,1);
bsweepfoodtemp ~ normal (0,1);
bsweepfoodraintemp ~ normal (0,1);


eta2_age ~ cauchy(0,1);
inv_rho2_age ~ cauchy(0,1);
rho2_age = inv(inv_rho2_age);
for ( i in 1:(N_age-1) ) {
for ( j in (i+1):N_age ) {
SIGMA_age[i,j] = eta2_age * exp( -rho2_age * (i-j)^2 );
SIGMA_age[j,i] = SIGMA_age[i,j];
}//j
}//i
for ( k in 1:N_age ) SIGMA_age[k,k] = eta2_age + 0.01;
L_age = cholesky_decompose(SIGMA_age);
//dev_age ~ multi_normal( zeros , SIGMA_age );
dev_age ~ multi_normal_cholesky( zeros , L_age );


sigmayear ~ cauchy(0,1);
dev_year ~ normal(0,1);

sigmanest ~ cauchy(0,scale_sigmanest);
scale_sigmanest ~ exponential(1);
dev_nest ~ normal(0,1);

sigmaspecies~ cauchy (0,1);
dev_species ~ normal(0, 1);

sigmasite~ cauchy(0,1);
dev_site~ normal (0,1);

for ( i in 1:N ) {
s = inv_logit(
a
+ dev_year[nest_year[i]]*sigmayear
+ dev_nest[nest[i]]*sigmanest[nest_year[i]]
+ dev_age[age[i]]
+ dev_species[species[i]]*sigmaspecies
+ dev_site[site[i]]*sigmasite

+ brain *rain[i]
+ btemp*temp[i]
+ bwind*wind[i]
+ bfood*food[i]
+ bci*ci[i]
```

```
+ bsweepfood*sweepfood[i]
+ bsnow * snow[i]

+ btemprain*temp[i]*rain[i]
+ bfoodrain* food[i]*rain[i]
+ bfoodtemp*food [i]*temp[i]
+ bfoodraintemp*food[i]*rain[i]*temp[i]

+ bsweepfoodrain*sweepfood[i]*rain[i]
+ bsweepfoodtemp *sweepfood[i]*temp[i]
+ bsweepfoodraintemp*sweepfood[i]*rain[i]*temp[i]
);

if ( alive[i]==1 ) log_theta[i] = interval[i] * log(s);
if ( alive[i]==0 ) log_theta[i] = log(1 - pow(s,interval[i]));
target += log_theta[i];
}
}
'

start <- function()list( a=0, brain=0, btemp=0, bwind=0, bsnow=0,
                         bfood=0, bsweepfood=0, bci=0,
                         bfoodrain=0,
                         btemprain=0,
                         bfoodtemp=0,
                         bfoodraintemp=0,
                         bsweepfoodrain=0,
                         bsweepfoodtemp=0,
                         bsweepfoodraintemp=0,

                         dev_nest=rep(0,d$N_nest), dev_year=rep(0,d$N_year),
                         dev_age=rep(0, d$N_age), dev_species=rep (0, d$N_species),
                         dev_site= rep (0, d$N_site),

                         sigmanest=rep(1,d$N_year), sigmayear=1,
                         sigmasite=1,
                         sigmaage=1, sigmaspecies=1)

# ignite
m20<-stan( model_code = model_code20 , data=d , init=start,
        chains=3, control=list(adapt_delta=0.999, stepsize=0.001, max_treedepth=12),
        cores=3 ,
        iter= 900 )
```

Appendix 3: Full model results

Table A3.1: Full model results for yearly comparisons of weather. Hourly probability of precipitation and daily probability of snow were modeled with a binomial distribution and results are reported on a log-odds scale. Hourly temperature and hourly wind speed were modeled with a Gaussian distribution. Note, this table reports model results with posterior distributions for coefficient values. For ease of interpretation, results in text report posterior means for weather values in each year, which are calculated from model results reported here.

Hourly probability of precipitation				
	Posterior mean	*SD*	2.5%	97.5%
a	-2.6	0.279	-3.09	-2.092
byear13	0.392	0.074	0.258	0.544
byear14	0.252	0.073	0.106	0.387
byear15	-0.266	0.133	-0.522	-0.006
byear16	0.482	0.106	0.284	0.687
sigmasite	0.461	0.314	0.135	1.056
a_year[ROMO]	-0.200	0.277	-0.727	0.950
a_year[TLFS]	0.108	0.277	-0.386	0.615
a_year[IMVT]	-0.212	0.273	-0.759	0.231
a_year[SDOT]	0.326	0.278	-0.207	0.837
Hourly temperature				
	Posterior mean	*SD*	2.5%	97.5%
a	9.746	0.601	8.473	10.839
byear13	-0.638	0.129	-0.885	-0.382
byear14	-2.801	0.128	-3.055	-2.549
byear15	0.147	0.222	-0.305	0.556
byear16	-1.542	0.226	-1.955	-1.094
sigma	6.412	0.034	6.341	6.477
a_year[ROMO]	-0.465	0.601	-1.601	0.844
a_year[TLFS]	0.487	0.603	-0.501	1.926
a_year[IMVT]	0.594	0.599	-0.531	1.934
a_year[SDOT]	-0.537	0.601	-1.540	0.975
sigmasite	0.960	0.672	0.311	1.978
Hourly wind speed				
	Posterior mean	*SD*	2.5%	97.5%
a	2.621	0.223	2.143	3.096

byear13	0.075	0.03	0.019	0.137
byear14	0.032	0.03	-0.026	0.089
byear15	-0.013	0.049	-0.110	0.077
byear16	-0.307	0.051	-0.403	-0.207
sigma	1.436	0.008	1.420	1.450
a_year[ROMO]	-0.172	0.223	-0.636	0.299
a_year[TLFS]	0.173	0.224	-0.304	0.640
a_year[IMVT]	-0.133	0.224	-0.641	0.316
a_year[SDOT]	0.224	0.225	-0.276	0.671
sigmasite	0.370	0.269	0.093	0.905
Daily probability of snow				
	Posterior mean	*SD*	2.5%	97.5%
a	-2.913	0.375	-3.705	-2.227
byear13	0.126	0.444	-0.795	0.949
byear14	0.577	0.405	-0.235	1.368
byear15	0.315	0.621	-0.917	1.493
byear16	0.807	0.575	-0.398	1.82
a_year[ROMO]	0.086	0.285	-0.510	0.707
a_year[TLFS]	-0.164	0.318	-0.870	0.418
a_year[IMVT]	0.009	0.287	-0.543	0.672
a_year[SDOT]	0.015	0.284	-0.529	0.640
sigmasite	0.347	0.331	0.009	0.964

Table A3.2: Results for model predicting the effects of weather and other parameters on daily survival rates of Gambel's white-crowned sparrow and Lapland longspur offspring. Values are reported on a log-odds scale.

	Posterior mean	*SD*	2.5%	97.5%
a	0.455	1.002	-1.465	2.436
Rain	0.153	0.965	-1.726	2.034
Temperature	0.101	0.041	0.016	0.182
Wind	0.301	0.159	-0.004	0.616
Pitfall	0.021	0.008	0.006	0.037
Sweepnet	0.036	0.019	-0.001	0.073
Clutch Initiation	-0.372	0.120	-0.600	-0.131
Snow	-0.847	0.455	-1.767	0.019
Temperature * Rain	0.935	0.999	-1.043	2.948
Pitfall * Rain	-0.687	0.290	-1.227	-0.117
Pitfall * Temperature	-0.003	0.001	-0.005	-0.001
Pitfall * Rain * Temperature	0.012	0.060	-0.105	0.129
Sweep-net* Rain	1.281	0.497	0.366	2.238
Sweep-net * Temperature	0.003	0.002	-0.001	0.008
Sweep-net * Rain * Temperature	-0.496	0.136	-0.776	-0.232
Random Effects- Level 1				
dev_age[1]	8.778	1.845	5.439	12.574
dev_age[2]	10.228	1.914	6.776	14.264
dev_age[3]	6.973	1.503	4.363	10.156
dev_age[4]	5.127	1.408	2.646	8.141
dev_age[5]	4.346	1.416	1.833	7.275
dev_age[6]	5.020	1.507	2.303	8.142
dev_age[7]	3.141	1.341	0.698	6.017
dev_age[8]	0.943	1.291	-1.360	3.462
dev_age[9]	2.285	1.294	-0.020	4.966
dev_age[10]	2.712	1.475	0.115	5.645
dev_age[11]	-0.115	1.267	-2.371	2.546
dev_age[12]	0.965	1.264	-1.406	3.515
dev_age[13]	-2.552	1.247	-4.831	0.007
dev_age[14]	-1.006	1.237	-3.288	1.555
dev_age[15]	-2.849	1.254	-5.157	-0.237
dev_age[16]	-1.307	1.268	-3.712	1.257
dev_age[17]	0.049	1.343	-2.553	2.785
dev_age[18]	-2.685	1.250	-5.019	-0.079
dev_age[19]	-4.099	1.248	-6.418	-1.522

dev_age[20]	-4.504	1.250	-6.829	-1.886
dev_age[21]	-3.634	1.259	-5.977	-1.173
dev_age[22]	-5.644	1.278	-8.115	-3.071
dev_age[23]	-4.527	1.314	-7.102	-1.954
dev_age[24]	-1.679	2.076	-5.521	2.744
dev_age[25]	-3.310	1.939	-7.003	0.477
dev_age[26]	-1.803	2.835	-7.035	3.894
dev_age[27]	0.319	3.285	-5.652	7.180
dev_age[28]	0.385	3.601	-6.353	7.919
dev_age[29]	0.207	3.685	-6.564	7.614
eta2_age	15.286	6.154	6.666	31.190
inv_rho2_age	1.855	0.390	1.096	2.650
dev_species[GWCS]	1.058	0.740	-0.359	2.528
dev_species[LALO]	-0.275	0.854	-2.079	1.280
sigmaspecies	2.501	2.497	0.416	9.554
dev_site[ROMO]	-0.126	0.916	-1.997	1.710
dev_site[TLFS]	-0.132	0.856	-1.805	1.521
dev_site[IMVT]	0.253	0.957	-1.644	2.168
dev_site[SDOT]	0.258	0.945	-1.662	2.026
sigmasite	0.577	0.630	0.013	2.079
dev_nest[1]	0.494	0.724	-0.637	2.052
dev_nest[2]	0.507	0.727	-0.672	2.062
dev_nest[3]	-0.500	0.341	-1.081	0.267
dev_nest[4]	0.540	0.742	-0.682	2.165
dev_nest[5]	0.514	0.734	-0.695	2.165
dev_nest[6]	0.386	0.754	-0.848	2.078
dev_nest[7]	0.792	0.687	-0.306	2.347
dev_nest[8]	0.566	0.716	-0.574	2.157
dev_nest[9]	-0.624	0.382	-1.343	0.186
dev_nest[10]	-0.893	0.644	-2.335	0.226
dev_nest[11]	0.423	0.789	-0.899	2.197
dev_nest[12]	0.467	0.738	-0.720	2.123
dev_nest[13]	-0.653	0.278	-1.182	-0.077
dev_nest[14]	0.348	0.750	-0.866	1.969
dev_nest[15]	0.467	0.724	-0.733	2.054
dev_nest[16]	0.777	0.649	-0.290	2.207
dev_nest[17]	-1.209	0.292	-1.847	-0.682
dev_nest[18]	0.492	0.754	-0.718	2.179
dev_nest[19]	0.349	0.764	-0.871	1.990
dev_nest[20]	0.415	0.761	-0.834	2.051
dev_nest[21]	0.538	0.733	-0.631	2.142

dev_nest[22]	0.272	0.826	-1.134	1.988
dev_nest[23]	0.364	0.751	-0.915	1.989
dev_nest[24]	0.678	0.727	-0.482	2.373
dev_nest[25]	0.500	0.719	-0.695	2.073
dev_nest[26]	-1.954	0.489	-3.005	-1.129
dev_nest[27]	-1.480	0.475	-2.510	-0.673
dev_nest[28]	0.588	0.699	-0.589	2.161
dev_nest[29]	0.636	0.704	-0.565	2.181
dev_nest[30]	0.477	0.705	-0.666	2.020
dev_nest[31]	0.585	0.714	-0.639	2.178
dev_nest[32]	0.772	0.696	-0.492	2.292
dev_nest[33]	-0.488	0.373	-1.157	0.314
dev_nest[34]	-0.930	0.259	-1.409	-0.416
dev_nest[35]	0.192	0.889	-1.321	2.151
dev_nest[36]	-2.061	0.413	-2.930	-1.278
dev_nest[37]	0.378	0.762	-0.886	1.908
dev_nest[38]	0.388	0.757	-0.879	2.063
dev_nest[39]	-1.288	0.284	-1.862	-0.752
dev_nest[40]	0.808	0.663	-0.306	2.344
dev_nest[41]	-0.757	0.297	-1.339	-0.160
dev_nest[42]	-0.957	0.278	-1.501	-0.409
dev_nest[43]	-0.276	0.363	-0.909	0.529
dev_nest[44]	0.618	0.732	-0.535	2.272
dev_nest[45]	-0.449	0.299	-1.059	0.105
dev_nest[46]	0.018	0.354	-0.617	0.775
dev_nest[47]	-0.659	0.284	-1.220	-0.090
dev_nest[48]	0.812	0.624	-0.213	2.188
dev_nest[49]	0.465	0.719	-0.688	2.047
dev_nest[50]	0.674	0.662	-0.387	2.196
dev_nest[51]	0.890	0.382	0.208	1.671
dev_nest[52]	-2.573	0.481	-3.580	-1.745
dev_nest[53]	0.696	0.697	-0.414	2.256
dev_nest[54]	0.208	0.339	-0.371	1.008
dev_nest[55]	-0.524	0.363	-1.189	0.212
dev_nest[56]	-0.512	0.322	-1.143	0.167
dev_nest[57]	0.775	0.603	-0.149	2.168
dev_nest[58]	-0.721	0.278	-1.316	-0.211
dev_nest[59]	-0.109	0.335	-0.711	0.632
dev_nest[60]	-1.018	0.270	-1.589	-0.540
dev_nest[61]	0.085	0.327	-0.456	0.819
dev_nest[62]	-2.614	0.506	-3.669	-1.690

dev_nest[63]	0.725	0.676	-0.329	2.217
dev_nest[64]	0.673	0.672	-0.409	2.147
dev_nest[65]	-0.677	0.267	-1.198	-0.161
dev_nest[66]	0.705	0.693	-0.451	2.223
dev_nest[67]	0.685	0.684	-0.385	2.269
dev_nest[68]	0.691	0.645	-0.378	2.136
dev_nest[69]	0.608	0.723	-0.583	2.138
dev_nest[70]	-1.025	0.251	-1.544	-0.545
dev_nest[71]	-2.148	0.489	-3.266	-1.337
dev_nest[72]	-0.338	0.215	-0.760	0.083
dev_nest[73]	-1.424	0.528	-2.682	-0.614
dev_nest[74]	-0.486	0.218	-0.890	-0.055
dev_nest[75]	0.268	0.314	-0.275	0.942
dev_nest[76]	1.059	0.606	0.149	2.446
dev_nest[77]	0.330	0.311	-0.202	1.038
dev_nest[78]	1.062	0.595	0.165	2.475
dev_nest[79]	0.704	0.672	-0.382	2.249
dev_nest[80]	0.675	0.670	-0.407	2.159
dev_nest[81]	-0.235	0.325	-0.807	0.486
dev_nest[82]	-0.543	0.252	-1.028	-0.060
dev_nest[83]	1.128	0.573	0.274	2.469
dev_nest[84]	-0.023	0.381	-0.728	0.827
dev_nest[85]	0.676	0.692	-0.455	2.240
dev_nest[86]	0.676	0.694	-0.426	2.207
dev_nest[87]	0.042	0.265	-0.445	0.604
dev_nest[88]	-1.474	0.291	-2.039	-0.897
dev_nest[89]	1.085	0.602	0.135	2.415
dev_nest[90]	0.190	0.299	-0.330	0.836
dev_nest[91]	0.023	0.254	-0.437	0.590
dev_nest[92]	0.014	0.329	-0.531	0.786
dev_nest[93]	0.153	0.303	-0.382	0.793
dev_nest[94]	0.003	0.255	-0.456	0.533
dev_nest[95]	0.249	0.299	-0.246	0.902
dev_nest[96]	1.066	0.585	0.130	2.368
dev_nest[97]	-0.214	0.245	-0.667	0.308
dev_nest[98]	0.708	0.358	0.096	1.435
dev_nest[99]	-0.046	0.248	-0.518	0.456
dev_nest[100]	-0.275	0.233	-0.727	0.170
dev_nest[101]	0.054	0.244	-0.390	0.557
dev_nest[102]	-0.168	0.233	-0.625	0.276
dev_nest[103]	0.141	0.248	-0.338	0.622

dev_nest[104]	-0.364	0.238	-0.842	0.093
dev_nest[105]	-1.143	0.285	-1.694	-0.591
dev_nest[106]	-0.103	0.243	-0.578	0.371
dev_nest[107]	-1.438	0.271	-1.961	-0.929
dev_nest[108]	0.975	0.654	-0.040	2.465
dev_nest[109]	0.950	0.628	-0.058	2.335
dev_nest[110]	-1.056	0.240	-1.523	-0.591
dev_nest[111]	0.647	0.663	-0.425	2.084
dev_nest[112]	0.927	0.603	0.007	2.318
dev_nest[113]	0.275	0.277	-0.224	0.863
dev_nest[114]	0.232	0.269	-0.279	0.777
dev_nest[115]	0.005	0.336	-0.563	0.734
dev_nest[116]	0.556	0.690	-0.545	2.160
dev_nest[117]	-2.938	0.406	-3.736	-2.140
dev_nest[118]	0.173	0.348	-0.452	0.892
dev_nest[119]	0.171	0.339	-0.437	0.869
dev_nest[120]	0.055	0.319	-0.529	0.726
dev_nest[121]	0.668	0.703	-0.461	2.172
dev_nest[122]	-0.338	0.333	-0.933	0.389
dev_nest[123]	0.331	0.329	-0.238	1.028
dev_nest[124]	-0.850	0.252	-1.334	-0.348
dev_nest[125]	0.789	0.639	-0.253	2.236
dev_nest[126]	0.911	0.629	-0.098	2.363
dev_nest[127]	1.405	0.516	0.578	2.638
dev_nest[128]	-0.270	0.243	-0.726	0.231
dev_nest[129]	-0.934	0.272	-1.531	-0.465
dev_nest[130]	-1.141	0.281	-1.735	-0.649
dev_nest[131]	0.615	0.676	-0.513	2.120
dev_nest[132]	0.978	0.616	-0.023	2.334
dev_nest[133]	-0.342	0.268	-0.868	0.144
dev_nest[134]	-2.433	0.395	-3.264	-1.654
dev_nest[135]	0.197	0.207	-0.197	0.612
dev_nest[136]	0.292	0.239	-0.151	0.777
dev_nest[137]	0.167	0.226	-0.252	0.648
dev_nest[138]	0.047	0.251	-0.396	0.571
dev_nest[139]	0.424	0.308	-0.103	1.070
dev_nest[140]	-1.123	0.267	-1.669	-0.575
dev_nest[141]	0.063	0.254	-0.406	0.587
dev_nest[142]	0.619	0.254	0.124	1.134
dev_nest[143]	-2.534	0.454	-3.531	-1.724
dev_nest[144]	-0.417	0.239	-0.879	0.041

dev_nest[145]	0.271	0.341	-0.354	1.020
dev_nest[146]	0.107	0.248	-0.355	0.599
dev_nest[147]	0.334	0.316	-0.195	1.013
dev_nest[148]	0.326	0.303	-0.201	0.999
dev_nest[149]	-1.076	0.238	-1.555	-0.630
dev_nest[150]	-0.737	0.623	-2.095	0.285
dev_nest[151]	0.820	0.319	0.276	1.513
dev_nest[152]	0.089	0.244	-0.336	0.607
dev_nest[153]	-0.134	0.206	-0.526	0.280
dev_nest[154]	1.058	0.593	0.116	2.474
dev_nest[155]	0.261	0.238	-0.180	0.749
dev_nest[156]	0.204	0.201	-0.173	0.620
dev_nest[157]	1.032	0.555	0.156	2.289
dev_nest[158]	-2.999	0.472	-4.068	-2.171
dev_nest[159]	0.366	0.335	-0.215	1.116
dev_nest[160]	-0.823	0.660	-2.242	0.300
dev_nest[161]	-0.473	0.300	-1.037	0.109
dev_nest[162]	0.783	0.672	-0.274	2.248
dev_nest[163]	0.033	0.338	-0.569	0.752
dev_nest[164]	0.869	0.642	-0.153	2.294
dev_nest[165]	1.038	0.586	0.088	2.356
dev_nest[166]	1.024	0.599	0.070	2.381
dev_nest[167]	-0.125	0.253	-0.600	0.377
dev_nest[168]	-0.088	0.335	-0.683	0.625
dev_nest[169]	0.857	0.621	-0.169	2.233
dev_nest[170]	0.730	0.655	-0.297	2.150
dev_nest[171]	1.035	0.607	0.033	2.370
dev_nest[172]	0.561	0.253	0.130	1.103
dev_nest[173]	0.465	0.268	-0.034	1.012
dev_nest[174]	-0.466	0.291	-1.071	0.091
dev_nest[175]	0.338	0.265	-0.156	0.846
dev_nest[176]	-0.586	0.755	-2.312	0.573
dev_nest[177]	-0.635	0.288	-1.224	-0.080
dev_nest[178]	0.796	0.326	0.205	1.476
dev_nest[179]	-0.374	0.272	-0.937	0.150
dev_nest[180]	-1.742	0.510	-2.771	-0.830
dev_nest[181]	-0.710	0.294	-1.337	-0.134
dev_nest[182]	1.361	0.546	0.488	2.612
dev_nest[183]	0.256	0.263	-0.225	0.792
dev_nest[184]	0.108	0.277	-0.428	0.677
dev_nest[185]	-0.268	0.836	-2.055	1.187

dev_nest[186]	-0.478	0.299	-1.075	0.099
dev_nest[187]	-1.779	0.520	-2.851	-0.846
dev_nest[188]	-1.016	0.341	-1.714	-0.367
dev_nest[189]	0.218	0.266	-0.291	0.754
dev_nest[190]	0.755	0.343	0.121	1.463
dev_nest[191]	1.522	0.513	0.644	2.644
dev_nest[192]	1.545	0.522	0.638	2.656
dev_nest[193]	1.034	0.343	0.386	1.727
dev_nest[194]	-0.070	0.311	-0.665	0.560
dev_nest[195]	-0.290	0.322	-0.943	0.313
dev_nest[196]	0.054	0.302	-0.577	0.634
dev_nest[197]	-0.416	0.308	-1.003	0.186
dev_nest[198]	-1.448	0.425	-2.358	-0.638
dev_nest[199]	-0.273	0.309	-0.864	0.343
dev_nest[200]	-2.118	0.541	-3.301	-1.155
dev_nest[201]	-0.647	0.403	-1.469	0.131
dev_nest[202]	-0.661	0.404	-1.505	0.113
dev_nest[203]	-0.979	0.398	-1.773	-0.253
dev_nest[204]	1.189	0.361	0.509	1.894
dev_nest[205]	0.922	0.378	0.269	1.705
dev_nest[206]	0.709	0.318	0.119	1.351
dev_nest[207]	0.708	0.334	0.068	1.376
dev_nest[208]	0.767	0.320	0.166	1.403
dev_nest[209]	1.214	0.372	0.518	1.958
sigmanest[2012]	5.013	1.274	3.153	8.005
sigmanest[2013]	4.662	0.807	3.289	6.535
sigmanest[2014]	4.374	0.579	3.383	5.638
sigmanest[2015]	6.962	1.830	4.272	11.421
sigmanest[2016]	5.214	1.194	3.357	7.868
scale_sigmanest	3.163	1.243	1.232	6.347
Random Effects- Level 2				
dev_year[2012]	1.651	0.552	0.697	2.840
dev_year[2013]	0.953	0.398	0.231	1.763
dev_year[2014]	0.898	0.385	0.193	1.734
dev_year[2015]	-0.669	0.538	-1.849	0.222
dev_year[2016]	-0.208	0.443	-1.194	0.479
sigmayear	6.566	3.057	3.015	14.418
lp__	-918.261	16.119	-950.893	-888.004

Table A3.3: Results for model predicting the effects of species and species environmental factor interactions on daily survival rates of Gambel's white-crowned sparrow and Lapland longspur offspring. Values are reported on a log-odds scale.

	Posterior mean	*SD*	2.5%	97.5%
a	0.639	0.969	-1.272	2.599
Rain	-0.065	1.032	-2.044	1.887
Temperature	0.340	0.060	0.231	0.467
Wind	0.231	0.216	-0.198	0.650
Pitfall	-0.021	0.011	-0.043	0.001
Sweepnet	0.004	0.016	-0.027	0.033
Clutch Initiation	-0.328	0.141	-0.608	-0.022
Snow	-0.301	0.488	-1.257	0.695
Species	-1.225	0.646	-2.481	-0.020
Rain * Species	-0.055	1.034	-2.016	1.936
Temperature * Species	-0.228	0.075	-0.381	-0.089
Wind * Species	0.022	0.317	-0.580	0.630
Pitfall * Species	0.014	0.013	-0.011	0.039
Sweep-net * Species	0.134	0.026	0.085	0.188
Clutch Initiation * Species	-0.037	0.194	-0.448	0.331
Snow * Species	-2.777	0.740	-4.178	-1.289
Random Effects- Level 1				
dev_age[1]	8.421	1.819	5.289	12.421
dev_age[2]	9.659	1.985	6.192	14.114
dev_age[3]	6.706	1.549	3.954	10.403
dev_age[4]	4.639	1.462	2.185	8.043
dev_age[5]	4.307	1.451	1.811	7.788
dev_age[6]	4.669	1.607	1.886	8.355
dev_age[7]	3.430	1.373	1.127	6.580
dev_age[8]	1.368	1.355	-0.964	4.274
dev_age[9]	2.805	1.342	0.498	5.796
dev_age[10]	3.236	1.524	0.597	6.610
dev_age[11]	0.619	1.312	-1.628	3.523
dev_age[12]	1.665	1.293	-0.719	4.513
dev_age[13]	-1.865	1.274	-4.190	0.951
dev_age[14]	-0.256	1.296	-2.620	2.556
dev_age[15]	-2.263	1.290	-4.505	0.616
dev_age[16]	-0.700	1.304	-3.013	2.038
dev_age[17]	0.249	1.351	-2.203	3.187
dev_age[18]	-1.997	1.282	-4.296	0.926

dev_age[19]	-3.377	1.271	-5.677	-0.508
dev_age[20]	-3.889	1.298	-6.200	-1.066
dev_age[21]	-3.005	1.310	-5.340	-0.131
dev_age[22]	-5.211	1.322	-7.616	-2.268
dev_age[23]	-4.455	1.356	-7.017	-1.410
dev_age[24]	-1.427	2.115	-5.047	3.072
dev_age[25]	-3.158	1.924	-6.699	0.776
dev_age[26]	-2.114	2.872	-7.796	3.447
dev_age[27]	-0.013	3.273	-5.968	7.026
dev_age[28]	0.295	3.603	-6.566	7.659
dev_age[29]	0.265	3.731	-6.943	7.787
eta2_age	14.220	6.317	6.596	31.452
inv_rho2_age	1.813	0.405	1.015	2.619
dev_site[ROMO]	-0.012	0.859	-1.882	1.591
dev_site[TLFS]	-0.153	0.888	-1.873	1.615
dev_site[IMVT]	0.280	0.912	-1.581	2.004
dev_site[SDOT]	0.318	0.968	-1.648	2.111
sigmasite	0.735	1.021	0.014	3.124
dev_nest[1]	0.497	0.750	-0.721	2.127
dev_nest[2]	0.519	0.679	-0.577	2.048
dev_nest[3]	-0.429	0.362	-1.098	0.337
dev_nest[4]	0.544	0.757	-0.646	2.238
dev_nest[5]	0.499	0.740	-0.660	2.123
dev_nest[6]	0.340	0.772	-0.972	2.007
dev_nest[7]	0.776	0.681	-0.291	2.380
dev_nest[8]	0.541	0.697	-0.650	2.026
dev_nest[9]	-0.662	0.384	-1.349	0.158
dev_nest[10]	-0.910	0.657	-2.343	0.307
dev_nest[11]	0.458	0.752	-0.797	2.007
dev_nest[12]	0.478	0.752	-0.723	2.188
dev_nest[13]	-0.641	0.292	-1.187	-0.025
dev_nest[14]	0.403	0.769	-0.816	2.086
dev_nest[15]	0.520	0.732	-0.734	2.066
dev_nest[16]	0.685	0.689	-0.386	2.303
dev_nest[17]	-1.181	0.298	-1.831	-0.646
dev_nest[18]	0.534	0.729	-0.652	2.087
dev_nest[19]	0.391	0.817	-0.966	2.179
dev_nest[20]	0.427	0.777	-0.851	2.111
dev_nest[21]	0.590	0.771	-0.600	2.304
dev_nest[22]	0.363	0.799	-0.927	2.214
dev_nest[23]	0.478	0.773	-0.802	2.176

dev_nest[24]	0.660	0.662	-0.461	2.133
dev_nest[25]	0.571	0.726	-0.551	2.119
dev_nest[26]	-1.898	0.527	-3.084	-1.023
dev_nest[27]	-1.521	0.513	-2.624	-0.600
dev_nest[28]	0.576	0.721	-0.583	2.188
dev_nest[29]	0.609	0.686	-0.504	2.157
dev_nest[30]	0.550	0.701	-0.584	2.056
dev_nest[31]	0.630	0.683	-0.451	2.191
dev_nest[32]	0.758	0.757	-0.577	2.391
dev_nest[33]	-0.439	0.373	-1.134	0.300
dev_nest[34]	-0.879	0.253	-1.387	-0.373
dev_nest[35]	0.242	0.818	-1.210	1.928
dev_nest[36]	-2.005	0.442	-2.978	-1.204
dev_nest[37]	0.425	0.736	-0.774	1.965
dev_nest[38]	0.526	0.731	-0.700	2.080
dev_nest[39]	-1.239	0.276	-1.775	-0.726
dev_nest[40]	0.469	0.740	-0.778	2.166
dev_nest[41]	-0.878	0.306	-1.433	-0.216
dev_nest[42]	-0.961	0.300	-1.541	-0.372
dev_nest[43]	-0.446	0.359	-1.072	0.373
dev_nest[44]	0.565	0.700	-0.538	2.160
dev_nest[45]	-0.408	0.313	-1.026	0.166
dev_nest[46]	-0.055	0.341	-0.660	0.665
dev_nest[47]	-0.726	0.281	-1.282	-0.208
dev_nest[48]	0.889	0.612	-0.049	2.240
dev_nest[49]	0.599	0.724	-0.583	2.202
dev_nest[50]	0.846	0.635	-0.140	2.315
dev_nest[51]	0.105	0.421	-0.740	0.981
dev_nest[52]	-2.499	0.490	-3.520	-1.661
dev_nest[53]	0.874	0.657	-0.099	2.471
dev_nest[54]	0.026	0.325	-0.575	0.734
dev_nest[55]	-0.397	0.343	-1.050	0.319
dev_nest[56]	-0.494	0.311	-1.124	0.086
dev_nest[57]	0.886	0.609	-0.033	2.247
dev_nest[58]	-0.502	0.286	-1.064	0.022
dev_nest[59]	-0.074	0.323	-0.637	0.600
dev_nest[60]	-0.873	0.259	-1.412	-0.395
dev_nest[61]	0.137	0.325	-0.443	0.872
dev_nest[62]	-2.619	0.500	-3.661	-1.753
dev_nest[63]	0.905	0.654	-0.088	2.501
dev_nest[64]	0.764	0.658	-0.318	2.220

dev_nest[65]	-0.767	0.263	-1.313	-0.281
dev_nest[66]	0.665	0.667	-0.448	2.170
dev_nest[67]	0.770	0.645	-0.286	2.245
dev_nest[68]	0.707	0.657	-0.332	2.187
dev_nest[69]	0.637	0.734	-0.594	2.264
dev_nest[70]	-0.938	0.251	-1.451	-0.500
dev_nest[71]	-2.109	0.495	-3.234	-1.295
dev_nest[72]	-0.361	0.207	-0.780	0.025
dev_nest[73]	-1.339	0.502	-2.474	-0.538
dev_nest[74]	-0.525	0.222	-0.980	-0.089
dev_nest[75]	0.174	0.328	-0.426	0.887
dev_nest[76]	0.890	0.577	-0.022	2.187
dev_nest[77]	0.255	0.307	-0.262	0.954
dev_nest[78]	0.995	0.604	0.077	2.419
dev_nest[79]	0.913	0.594	-0.082	2.266
dev_nest[80]	0.892	0.621	-0.103	2.318
dev_nest[81]	0.160	0.345	-0.471	0.902
dev_nest[82]	-0.603	0.243	-1.129	-0.160
dev_nest[83]	1.119	0.553	0.265	2.407
dev_nest[84]	-0.057	0.360	-0.703	0.774
dev_nest[85]	0.898	0.620	-0.052	2.311
dev_nest[86]	0.862	0.609	-0.080	2.261
dev_nest[87]	-0.161	0.265	-0.648	0.379
dev_nest[88]	-1.518	0.305	-2.123	-0.990
dev_nest[89]	0.754	0.657	-0.280	2.304
dev_nest[90]	0.205	0.312	-0.301	0.919
dev_nest[91]	-0.051	0.245	-0.501	0.446
dev_nest[92]	0.090	0.336	-0.482	0.887
dev_nest[93]	0.056	0.308	-0.491	0.787
dev_nest[94]	0.036	0.257	-0.431	0.598
dev_nest[95]	0.060	0.321	-0.500	0.774
dev_nest[96]	1.046	0.588	0.110	2.418
dev_nest[97]	-0.118	0.242	-0.595	0.356
dev_nest[98]	0.731	0.359	0.101	1.492
dev_nest[99]	-0.012	0.231	-0.457	0.431
dev_nest[100]	-0.289	0.229	-0.751	0.148
dev_nest[101]	0.041	0.235	-0.427	0.501
dev_nest[102]	-0.164	0.231	-0.625	0.305
dev_nest[103]	0.202	0.250	-0.292	0.700
dev_nest[104]	-0.381	0.236	-0.856	0.072
dev_nest[105]	-1.112	0.292	-1.676	-0.544

dev_nest[106]	-0.107	0.244	-0.588	0.378
dev_nest[107]	-1.436	0.265	-1.979	-0.954
dev_nest[108]	1.020	0.621	0.093	2.585
dev_nest[109]	0.956	0.566	0.095	2.358
dev_nest[110]	-0.965	0.227	-1.435	-0.528
dev_nest[111]	0.849	0.689	-0.210	2.452
dev_nest[112]	0.946	0.592	-0.015	2.289
dev_nest[113]	0.054	0.247	-0.409	0.568
dev_nest[114]	0.044	0.254	-0.431	0.555
dev_nest[115]	0.095	0.321	-0.459	0.808
dev_nest[116]	0.686	0.657	-0.317	2.167
dev_nest[117]	-2.762	0.410	-3.602	-2.007
dev_nest[118]	0.270	0.324	-0.287	1.022
dev_nest[119]	0.258	0.318	-0.286	0.939
dev_nest[120]	0.167	0.323	-0.398	0.873
dev_nest[121]	0.719	0.682	-0.387	2.289
dev_nest[122]	-0.246	0.329	-0.823	0.420
dev_nest[123]	0.288	0.326	-0.303	0.950
dev_nest[124]	-0.820	0.247	-1.318	-0.348
dev_nest[125]	0.688	0.667	-0.361	2.220
dev_nest[126]	0.965	0.577	0.080	2.301
dev_nest[127]	1.424	0.531	0.590	2.622
dev_nest[128]	-0.273	0.226	-0.716	0.198
dev_nest[129]	-0.867	0.277	-1.463	-0.385
dev_nest[130]	-1.169	0.295	-1.799	-0.614
dev_nest[131]	0.635	0.682	-0.452	2.181
dev_nest[132]	1.012	0.631	-0.020	2.483
dev_nest[133]	-0.335	0.270	-0.896	0.164
dev_nest[134]	-2.511	0.372	-3.267	-1.802
dev_nest[135]	0.193	0.200	-0.195	0.601
dev_nest[136]	0.239	0.240	-0.208	0.737
dev_nest[137]	0.160	0.219	-0.249	0.607
dev_nest[138]	0.046	0.241	-0.398	0.559
dev_nest[139]	0.452	0.304	-0.097	1.085
dev_nest[140]	-1.187	0.261	-1.725	-0.700
dev_nest[141]	0.074	0.271	-0.467	0.630
dev_nest[142]	0.600	0.261	0.128	1.152
dev_nest[143]	-2.629	0.426	-3.550	-1.870
dev_nest[144]	-0.468	0.250	-0.967	0.039
dev_nest[145]	0.277	0.307	-0.265	0.915
dev_nest[146]	0.171	0.253	-0.334	0.693

dev_nest[147]	0.378	0.328	-0.182	1.101
dev_nest[148]	0.376	0.329	-0.201	1.096
dev_nest[149]	-1.101	0.235	-1.585	-0.644
dev_nest[150]	-0.848	0.672	-2.448	0.313
dev_nest[151]	0.797	0.305	0.270	1.462
dev_nest[152]	0.104	0.246	-0.343	0.585
dev_nest[153]	-0.150	0.198	-0.536	0.239
dev_nest[154]	1.077	0.590	0.189	2.469
dev_nest[155]	0.351	0.250	-0.109	0.873
dev_nest[156]	0.182	0.192	-0.189	0.572
dev_nest[157]	1.097	0.578	0.204	2.394
dev_nest[158]	-2.973	0.456	-3.936	-2.118
dev_nest[159]	0.393	0.316	-0.150	1.135
dev_nest[160]	-0.936	0.605	-2.357	0.079
dev_nest[161]	-0.547	0.285	-1.088	-0.001
dev_nest[162]	0.729	0.678	-0.346	2.323
dev_nest[163]	0.073	0.331	-0.501	0.787
dev_nest[164]	0.830	0.621	-0.166	2.156
dev_nest[165]	1.044	0.568	0.140	2.318
dev_nest[166]	1.043	0.600	0.142	2.470
dev_nest[167]	-0.132	0.246	-0.587	0.384
dev_nest[168]	-0.136	0.325	-0.725	0.595
dev_nest[169]	0.938	0.600	-0.020	2.209
dev_nest[170]	0.719	0.693	-0.313	2.330
dev_nest[171]	1.043	0.598	0.128	2.435
dev_nest[172]	0.499	0.245	0.071	1.021
dev_nest[173]	0.407	0.259	-0.079	0.931
dev_nest[174]	-0.432	0.275	-0.964	0.121
dev_nest[175]	0.264	0.264	-0.272	0.785
dev_nest[176]	-0.566	0.660	-2.094	0.478
dev_nest[177]	-0.553	0.291	-1.157	0.018
dev_nest[178]	0.781	0.317	0.224	1.449
dev_nest[179]	-0.270	0.258	-0.778	0.250
dev_nest[180]	-1.678	0.533	-2.880	-0.773
dev_nest[181]	-0.701	0.286	-1.278	-0.143
dev_nest[182]	1.381	0.536	0.454	2.532
dev_nest[183]	0.176	0.255	-0.316	0.694
dev_nest[184]	0.066	0.272	-0.495	0.595
dev_nest[185]	-0.288	0.786	-1.942	1.090
dev_nest[186]	-0.432	0.287	-1.019	0.096
dev_nest[187]	-1.833	0.537	-2.946	-0.895

dev_nest[188]	-1.029	0.330	-1.689	-0.386
dev_nest[189]	0.145	0.269	-0.364	0.663
dev_nest[190]	0.785	0.349	0.144	1.523
dev_nest[191]	1.544	0.537	0.667	2.738
dev_nest[192]	1.540	0.543	0.635	2.781
dev_nest[193]	1.069	0.357	0.397	1.806
dev_nest[194]	-0.047	0.367	-0.786	0.679
dev_nest[195]	-0.296	0.396	-1.121	0.422
dev_nest[196]	0.233	0.366	-0.437	0.962
dev_nest[197]	-0.491	0.335	-1.126	0.177
dev_nest[198]	-1.327	0.446	-2.215	-0.483
dev_nest[199]	-0.350	0.332	-0.975	0.296
dev_nest[200]	-2.263	0.589	-3.476	-1.240
dev_nest[201]	-0.539	0.470	-1.537	0.328
dev_nest[202]	-0.550	0.462	-1.512	0.306
dev_nest[203]	-0.943	0.473	-1.947	-0.092
dev_nest[204]	1.178	0.360	0.502	1.926
dev_nest[205]	0.922	0.389	0.240	1.744
dev_nest[206]	0.619	0.313	0.005	1.254
dev_nest[207]	0.654	0.354	-0.023	1.371
dev_nest[208]	0.686	0.338	0.047	1.363
dev_nest[209]	1.234	0.381	0.515	1.978
sigmanest[2012]	4.794	1.228	2.923	7.837
sigmanest[2013]	4.705	0.864	3.232	6.619
sigmanest[2014]	4.482	0.560	3.495	5.822
sigmanest[2015]	7.207	2.098	4.179	12.243
sigmanest[2016]	4.441	1.010	2.889	6.850
scale_sigmanest	3.124	1.280	1.122	6.092
Random Effects- Level 2				
dev_year[2012]	10.069	2.272	5.767	14.519
dev_year[2013]	7.030	1.970	3.118	10.650
dev_year[2014]	6.287	1.856	2.574	9.815
dev_year[2015]	-1.187	2.269	-5.457	3.468
dev_year[2016]	0.695	2.020	-3.539	4.661
sigmayear	6.796	3.104	2.936	13.707
lp__	-921.376	15.490	-953.740	-890.769

Table A3.4: Full model results comparing the probability of predation (yes/no) for Gambel's white-crowned sparrow and Lapland longspur offspring. Values are reported on a log-odds scale.

	Posterior mean	*SD*	2.5%	97.5%
a	-22.738	4.942	-32.864	-13.355
bspecies	3.462	3.946	-4.636	11.062
Random Effects Level 1				
a_site[ROMO]	-0.663	2.873	-6.825	3.967
a_site[TLFS]	-1.823	3.456	-9.936	2.569
a_site[IMVT]	0.780	2.838	-6.214	7.250
a_site[SDOT]	-0.367	2.622	-6.213	5.241
a_year[2012]	-1.528	3.518	-10.618	2.993
a_year[2013]	0.033	2.410	-5.622	5.270
a_year[2014]	0.693	2.594	-5.497	6.378
a_year[2015]	0.136	2.621	-5.265	6.134
a_year[2016]	-2.376	5.023	-13.612	3.759
a_nest_id[1]	-8.288	15.702	-37.349	18.983
a_nest_id[2]	-7.092	15.587	-36.884	19.441
a_nest_id[3]	-7.602	15.450	-37.746	18.520
a_nest_id[4]	-7.988	15.899	-41.526	17.362
a_nest_id[5]	-8.079	15.727	-39.091	18.052
a_nest_id[6]	-6.454	16.558	-39.256	22.197
a_nest_id[7]	-6.899	16.193	-38.054	21.402
a_nest_id[8]	-5.949	16.485	-38.788	24.071
a_nest_id[9]	-5.828	16.916	-37.452	22.782
a_nest_id[10]	-6.808	16.309	-41.494	19.744
a_nest_id[11]	-8.053	16.434	-43.868	18.889
a_nest_id[12]	-7.719	16.230	-39.971	18.158
a_nest_id[13]	-7.933	16.448	-38.731	21.359
a_nest_id[14]	-7.647	16.140	-42.506	17.745
a_nest_id[15]	-8.062	15.787	-40.288	18.392
a_nest_id[16]	-8.210	16.047	-43.525	18.119
a_nest_id[17]	22.908	5.666	11.319	33.952
a_nest_id[18]	-8.110	16.405	-41.615	17.816
a_nest_id[19]	-7.492	15.763	-39.339	19.224
a_nest_id[20]	-6.952	15.714	-37.259	21.166
a_nest_id[21]	-7.896	16.446	-39.655	20.875
a_nest_id[22]	-5.976	15.822	-38.644	21.720
a_nest_id[23]	-5.401	16.423	-37.535	22.948
a_nest_id[24]	-6.221	16.773	-39.959	22.741
a_nest_id[25]	-5.339	17.180	-38.344	23.263

a_nest_id[26]	-6.123	16.525	-37.400	23.003
a_nest_id[27]	27.166	5.454	17.778	38.779
a_nest_id[28]	-6.056	16.173	-36.696	21.223
a_nest_id[29]	-6.867	17.603	-40.035	24.873
a_nest_id[30]	-4.752	17.059	-41.520	21.259
a_nest_id[31]	-5.477	17.688	-40.097	24.292
a_nest_id[32]	-6.358	17.383	-38.168	25.701
a_nest_id[33]	-4.974	16.980	-40.500	23.122
a_nest_id[34]	35.498	10.900	17.221	56.241
a_nest_id[35]	-5.266	17.192	-36.376	26.094
a_nest_id[36]	38.078	10.658	22.093	60.645
a_nest_id[37]	-5.203	17.088	-37.644	25.320
a_nest_id[38]	-5.535	16.643	-35.978	23.623
a_nest_id[39]	35.644	10.883	17.278	56.134
a_nest_id[40]	-6.706	15.963	-39.282	19.290
a_nest_id[41]	-6.134	16.815	-38.212	23.428
a_nest_id[42]	-5.883	15.890	-39.063	21.269
a_nest_id[43]	-5.788	15.979	-36.717	21.674
a_nest_id[44]	-6.649	16.352	-40.038	20.019
a_nest_id[45]	21.380	5.767	10.201	33.590
a_nest_id[46]	-7.419	15.778	-38.473	20.245
a_nest_id[47]	-7.213	15.771	-38.646	18.520
a_nest_id[48]	-6.185	16.571	-41.500	21.024
a_nest_id[49]	-6.947	16.404	-39.938	21.641
a_nest_id[50]	-6.259	16.277	-40.278	19.909
a_nest_id[51]	-8.289	15.834	-39.147	19.956
a_nest_id[52]	35.041	11.312	16.970	57.704
a_nest_id[53]	-5.314	16.358	-39.518	20.990
a_nest_id[54]	-7.327	15.556	-38.933	19.115
a_nest_id[55]	-6.163	16.446	-38.841	22.646
a_nest_id[56]	35.713	10.364	19.571	57.320
a_nest_id[57]	-6.547	17.197	-38.596	24.043
a_nest_id[58]	36.530	10.037	22.112	58.136
a_nest_id[59]	-5.792	16.667	-41.321	20.921
a_nest_id[60]	-6.036	17.188	-39.109	24.223
a_nest_id[61]	-5.943	16.786	-37.925	24.447
a_nest_id[62]	-5.929	17.696	-39.956	24.920
a_nest_id[63]	-6.375	16.221	-38.828	22.627
a_nest_id[64]	-6.659	16.940	-39.460	22.004
a_nest_id[65]	-7.278	15.459	-40.536	16.437
a_nest_id[66]	-6.668	16.299	-40.039	19.901
a_nest_id[67]	-7.588	16.395	-41.730	18.904
a_nest_id[68]	-6.188	15.631	-36.899	21.014

a_nest_id[69]	-6.148	16.462	-38.230	21.811
a_nest_id[70]	23.916	5.230	14.371	34.699
a_nest_id[71]	33.062	11.001	15.320	56.678
a_nest_id[72]	25.264	5.312	15.513	36.188
a_nest_id[73]	33.283	11.512	16.271	57.424
a_nest_id[74]	-7.343	16.084	-39.635	18.588
a_nest_id[75]	-7.894	16.258	-40.343	19.438
a_nest_id[76]	-7.774	16.333	-41.623	16.755
a_nest_id[77]	-7.436	15.927	-38.378	19.364
a_nest_id[78]	-7.350	15.472	-38.829	19.022
a_nest_id[79]	-6.594	16.857	-36.324	23.870
a_nest_id[80]	-6.805	16.737	-40.558	22.202
a_nest_id[81]	-5.980	16.323	-37.716	23.368
a_nest_id[82]	37.024	10.488	19.122	58.124
a_nest_id[83]	-7.882	15.806	-39.395	17.974
a_nest_id[84]	-5.893	17.796	-39.772	25.202
a_nest_id[85]	-5.676	15.590	-36.613	20.421
a_nest_id[86]	-6.285	16.576	-38.574	23.480
a_nest_id[87]	-8.539	16.300	-41.275	17.490
a_nest_id[88]	-7.664	16.582	-39.190	20.780
a_nest_id[89]	-6.997	15.220	-38.484	16.887
a_nest_id[90]	-7.821	15.984	-40.023	18.423
a_nest_id[91]	-7.183	15.589	-39.407	18.120
a_nest_id[92]	-7.108	15.374	-37.977	19.001
a_nest_id[93]	-7.533	16.544	-39.143	20.800
a_nest_id[94]	-7.413	16.334	-40.250	18.791
a_nest_id[95]	-7.859	16.361	-40.741	18.837
a_nest_id[96]	-7.695	16.046	-37.907	20.313
a_nest_id[97]	23.925	5.265	14.227	34.826
a_nest_id[98]	21.395	5.744	11.735	34.321
a_nest_id[99]	18.640	5.565	8.687	30.985
a_nest_id[100]	21.881	5.706	11.970	34.494
a_nest_id[101]	21.985	5.644	11.698	33.647
a_nest_id[102]	22.042	5.708	11.716	34.498
a_nest_id[103]	-9.242	15.812	-42.336	16.454
a_nest_id[104]	32.221	11.449	14.036	56.085
a_nest_id[105]	32.496	11.843	13.166	55.899
a_nest_id[106]	32.426	12.276	13.626	58.439
a_nest_id[107]	36.824	10.764	18.894	58.815
a_nest_id[108]	-7.603	17.134	-40.983	22.009
a_nest_id[109]	-7.461	16.190	-37.820	19.789
a_nest_id[110]	-6.486	15.819	-36.643	20.360
a_nest_id[111]	-7.019	16.232	-39.110	22.224

a_nest_id[112]	-7.028	16.443	-39.331	22.376
a_nest_id[113]	-8.218	15.700	-40.950	17.899
a_nest_id[114]	-7.616	15.492	-39.615	18.067
a_nest_id[115]	-6.524	16.065	-40.425	19.431
a_nest_id[116]	-6.747	16.497	-40.502	19.422
a_nest_id[117]	35.122	10.764	16.097	56.884
a_nest_id[118]	-7.371	16.946	-40.838	20.365
a_nest_id[119]	-6.753	16.026	-39.822	19.441
a_nest_id[120]	-7.487	16.927	-40.534	21.274
a_nest_id[121]	-6.655	16.716	-39.303	22.207
a_nest_id[122]	-6.642	17.213	-44.108	20.906
a_nest_id[123]	-8.144	15.794	-41.453	17.376
a_nest_id[124]	33.531	12.390	15.133	60.692
a_nest_id[125]	-6.614	14.693	-36.185	17.035
a_nest_id[126]	-5.672	16.551	-36.499	23.084
a_nest_id[127]	-7.760	16.213	-39.123	19.865
a_nest_id[128]	24.369	5.398	13.629	34.797
a_nest_id[129]	36.500	11.181	17.116	58.290
a_nest_id[130]	21.450	5.264	10.081	31.474
a_nest_id[131]	-7.389	16.977	-41.485	22.027
a_nest_id[132]	-7.093	15.873	-40.576	18.621
a_nest_id[133]	-6.918	16.252	-40.036	20.317
a_nest_id[134]	33.595	11.106	14.093	54.906
a_nest_id[135]	-7.829	15.508	-40.240	17.472
a_nest_id[136]	-8.348	15.693	-41.483	17.275
a_nest_id[137]	-7.101	15.671	-38.303	20.063
a_nest_id[138]	-6.823	15.033	-35.221	19.327
a_nest_id[139]	-7.619	15.751	-38.952	18.468
a_nest_id[140]	-7.706	15.563	-39.550	18.598
a_nest_id[141]	-7.467	15.021	-35.631	19.732
a_nest_id[142]	-7.999	15.769	-39.790	18.091
a_nest_id[143]	33.073	11.798	14.854	56.557
a_nest_id[144]	34.373	11.420	16.880	57.377
a_nest_id[145]	-6.169	16.874	-38.558	22.424
a_nest_id[146]	-8.223	16.209	-40.536	19.605
a_nest_id[147]	-8.471	15.482	-41.015	16.487
a_nest_id[148]	-8.743	16.607	-41.071	17.926
a_nest_id[149]	-8.635	17.115	-40.368	21.788
a_nest_id[150]	-6.153	16.678	-36.525	24.083
a_nest_id[151]	-7.859	15.547	-38.870	17.851
a_nest_id[152]	-8.384	16.055	-39.705	19.342
a_nest_id[153]	24.684	5.361	15.174	35.611
a_nest_id[154]	-8.128	16.124	-39.304	19.638

a_nest_id[155]	-8.477	15.828	-42.546	17.460
a_nest_id[156]	-7.699	15.519	-38.457	19.294
a_nest_id[157]	-8.141	15.965	-39.262	18.835
a_nest_id[158]	-5.323	16.537	-35.828	23.858
a_nest_id[159]	-5.285	15.704	-36.030	22.049
a_nest_id[160]	-3.761	16.590	-34.736	26.361
a_nest_id[161]	-5.818	16.514	-40.511	21.967
a_nest_id[162]	-6.833	17.120	-39.837	24.307
a_nest_id[163]	-5.168	15.631	-35.521	20.379
a_nest_id[164]	-6.838	16.296	-37.688	22.936
a_nest_id[165]	-7.167	16.788	-39.853	22.094
a_nest_id[166]	-6.655	16.647	-40.457	19.884
a_nest_id[167]	-6.198	15.738	-38.591	20.605
a_nest_id[168]	-7.049	16.907	-44.086	18.718
a_nest_id[169]	-6.980	16.666	-37.713	22.537
a_nest_id[170]	-6.181	15.857	-37.107	19.778
a_nest_id[171]	-5.614	15.650	-37.207	20.819
a_nest_id[172]	-8.040	16.571	-40.144	18.818
a_nest_id[173]	38.746	10.319	21.987	59.317
a_nest_id[174]	-5.811	16.702	-40.152	21.533
a_nest_id[175]	-6.152	16.208	-37.134	23.238
a_nest_id[176]	-5.201	16.651	-39.280	22.337
a_nest_id[177]	-6.246	17.222	-38.873	24.771
a_nest_id[178]	-7.107	16.393	-38.030	20.902
a_nest_id[179]	-5.466	16.570	-38.800	21.070
a_nest_id[180]	-5.328	17.088	-40.662	23.139
a_nest_id[181]	-6.185	16.717	-40.666	21.443
a_nest_id[182]	-6.398	17.018	-42.765	20.860
a_nest_id[183]	-4.915	16.638	-37.442	24.576
a_nest_id[184]	-5.695	16.381	-37.785	22.219
a_nest_id[185]	-5.693	17.912	-40.382	27.031
a_nest_id[186]	27.906	5.399	18.260	39.465
a_nest_id[187]	-4.962	16.680	-38.388	24.531
a_nest_id[188]	-5.620	17.025	-39.841	22.252
a_nest_id[189]	28.054	5.376	17.214	38.534
a_nest_id[190]	-7.022	16.259	-39.036	20.474
a_nest_id[191]	-5.464	16.254	-36.755	23.382
a_nest_id[192]	-5.607	17.249	-39.672	24.099
a_nest_id[193]	-6.981	16.856	-40.630	22.779
a_nest_id[194]	-5.909	15.902	-40.466	20.216
a_nest_id[195]	-6.080	16.060	-39.491	19.876
a_nest_id[196]	-6.022	15.978	-38.216	21.194
a_nest_id[197]	-5.307	17.088	-38.506	24.899

a_nest_id[198]	-5.046	17.312	-36.563	25.125
a_nest_id[199]	-4.344	16.594	-36.230	24.098
a_nest_id[200]	-4.459	17.424	-37.488	26.401
a_nest_id[201]	-6.402	16.479	-40.693	21.768
a_nest_id[202]	-7.103	17.059	-40.684	20.623
a_nest_id[203]	-6.032	17.052	-39.825	23.426
a_nest_id[204]	-6.947	16.399	-38.735	22.049
a_nest_id[205]	-5.401	16.264	-36.754	22.885
a_nest_id[206]	-5.262	17.171	-39.888	23.752
a_nest_id[207]	-4.617	17.006	-37.126	24.913
a_nest_id[208]	-5.314	17.482	-41.656	23.098
a_nest_id[209]	-5.370	17.767	-38.101	28.196
sigma_site	2.261	2.587	0.005	7.535
sigma_year	2.478	3.115	0.004	8.126
sigma_nest	20.560	3.793	14.299	28.847