

Supplementary Material

Results of model averaging, spatial autocorrelation test, and overdispersion test

Table S1. Legend of the different acronyms in used in the analysis.

<u>Land cover</u>	<u>acronym in the model average</u>
Tree_hedgerows_100m	tre_hdg_100
Annual_crop_100m	ann_crp_100
c	rrl_100
Water_1km	wtr_1km
Forest_1km	frs_1km
Shrubland_1km	shr_1km
Herbs_10m	hrb_10m
Season	seas
Longitude	long

Table S2. Results of the Pearson correlation of the final variables used in the GLM and GLMM models.

	tre_hdg_100	ann_crp_100	rrl_100	wtr_1km	frs_1km	shr_1km	Herbs_10m
tre_hdg_100	1	-0.031	-0.020	-0.064	0.029	-0.106	0.104
ann_crp_100		1	-0.021	-0.086	-0.002	-0.136	0.033
rrl_100			1	-0.076	0.075	-0.080	0.098
wtr_1km				1	-0.086	-0.044	0.045
frs_1km					1	-0.214	-0.204
shr_1km						1	-0.162
Herbs_10m							1

Table S3. Detailed results of the GLMM used in the analysis, including the results of the Spatial autocorrelation test (Moran’s I) and Overdispersion test.

Richness

Model ZI poisson

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	3.197e-02	1.788e-01
farm	3.236e-10	1.799e-05
Julian day	5.611e-11	7.490e-06

Spatial autocorrelation test

Moran I statistic standard deviate = 0.38193, p-value = 0.3513

Overdispersion test

Pearson Chi-Squared: 832.3973

Degrees of Freedom: 2587

Dispersion Ratio: 0.3217616

p-value:1

General activity

Model averaging

AICc<2

Models	(Intercept)	wtr_1km	tre_hdg_100	frs_1km	ann_crp_100	hrb_10m	long	shr_1km	rrl_100	seas	adjR^2	df	logLik	AICc	delta	weight
416	2.011	0.103	0.082	0.174	-0.626	0.095			0.026	+	0.968	11	-8981.377	17984.856	0.000	0.29
288	2.007	0.080	0.080	0.163	-0.625	0.099				+	0.968	10	-8982.644	17985.374	0.518	0.224
414	2.017	0.106		0.184	-0.645	0.094			0.025	+	0.968	10	-8983.171	17986.427	1.571	0.132
480	2.012	0.097	0.096	0.176	-0.617	0.095		0.061	0.026	+	0.968	12	-8981.227	17986.575	1.719	0.123
448	2.011	0.105	0.083	0.178	-0.622	0.094	-0.057		0.027	+	0.968	12	-8981.229	17986.578	1.722	0.122
286	2.012	0.083		0.172	-0.644	0.098				+	0.968	9	-8984.369	17986.808	1.952	0.109

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	6.868e-01	8.288e-01
Julian day	9.040e-02	3.007e-01
farm	2.727e-09	5.222e-05

Spatial autocorrelation test

Moran I statistic standard deviate = -2.4082, p-value = 0.992

Overdispersion test

Pearson Chi-

Squared:

8367.068

Degrees of

Freedom: 2588

Dispersion

Ratio: 3.233025

p-value:0

Total general without T. brasiliensis

Model ZI negative binomial

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	0.78798	0.8877
Julian day	0.04528	0.2128
farm	0.06140	0.2478

Spatial autocorrelation test

Moran I statistic standard deviate = -1.3381, p-value = 0.9096

Overdispersion test

Pearson Chi-Squared:
2558.417
Degrees of Freedom:
2586
Dispersion Ratio:
0.9893337
p-value: 0.6464063

Feeding Activity

Model ZI negative binomial

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	5.462e-01	0.7390496
Julian day	8.053e-02	0.2837752
farm	1.766e-07	0.0004202

Spatial autocorrelation test

Moran I statistic standard deviate = 0.77233, p-value = 0.22

Overdispersion test

Pearson Chi-Squared:
2375.724
Degrees of Freedom:
2586
Dispersion Ratio:
0.9186869
p-value: 0.9986402

T. brasiliensis

Model averaging AICc<2

Models	(Intercept)	wtr_1km	tre_hdg_100	frs_1km	ann_crp_100	hrb_10m	long	shr_1km	rrl_100	seas	adjR^2	df	logLik	AICc	delta	weight
409	1.525				-0.501	0.037					-0.125 + 0.954	8	-6980.948	13977.951	0.000	0.231
413	1.523			0.046	-0.523	0.037					-0.130 + 0.954	9	-6980.405	13978.880	0.928	0.145
411	1.537		-0.077		-0.525	0.037					-0.126 + 0.954	9	-6980.417	13978.903	0.951	0.143
393	1.524				-0.515						-0.128 + 0.954	7	-6982.701	13979.446	1.495	0.109

415	1.537		-0.090	0.052	-0.553	0.036		-0.132	+	0.954	10	-6979.726	13979.537	1.585	0.105	
410	1.522	-0.018			-0.507	0.041		-0.132	+	0.954	9	-6980.833	13979.736	1.784	0.095	
441	1.523				-0.502	0.037	0.033	-0.125	+	0.954	9	-6980.921	13979.912	1.961	0.087	
473	1.523				-0.502	0.038		-0.020	-0.126	+	0.954	9	-6980.936	13979.942	1.991	0.085

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	0.7851	0.8861
Julian day	0.1679	0.4098
farm	0.1679	0.4097

Spatial autocorrelation test

Moran I statistic standard deviate = -3.0912, p-value = 0.999

Overdispersion test

Pearson Chi-Squared: 6233.521
Degrees of Freedom: 2.408625
Dispersion Ratio: 0.5097482
p-value: 1.950702e-300

M. chiloensis

Model ZI negative binomial

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	1.379065	1.17434
Julian day	0.044815	0.21170
farm	0.009845	0.09922

Spatial autocorrelation test

Moran I statistic standard deviate = -3.0514, p-value = 0.9989

Overdispersion test

Pearson Chi-Squared: 2458.811
 Degrees of Freedom: 2586
 Dispersion Ratio: 0.9508165
 p-value: 0.9632009

L. varius Model ZI negative binomial

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	0.62638	0.7914
Julian day	0.07681	0.2771
farm	0.27220	0.5217

Spatial autocorrelation test

Moran I statistic standard deviate = -2.9127, p-value = 0.9982

Overdispersion test

Pearson Chi-Squared: 2244.602
 Degrees of Freedom: 2587
 Dispersion Ratio: 0.8676466
 p-value: 0.9999997

L. villosissimus Model averaging AICc<2

Models	(Intercept)	wtr_1km	tre_hdg_100	frs_1km	ann_crp_100	hrb_10m	c	shr_1km	rrl_100	seas	adjR^2	df	logLik	AICc	delta	weight
246	-4.475	-0.626		-0.328		0.387	0.648	0.928	-3.149		0.148	10	-441.606	903.297	0.000	0.164
242	-4.480	-0.521				0.463	0.551	0.975	-3.443		0.145	9	-442.779	903.628	0.331	0.139
118	-4.135	-0.547		-0.313		0.381	0.624	0.941			0.145	9	-442.886	903.842	0.545	0.125
114	-4.114	-0.444				0.442	0.535	0.993			0.142	8	-443.940	903.936	0.639	0.119
502	-123.588	-0.680		-0.327		0.375	0.636	0.892	-1164.822	+	0.149	11	-441.084	904.270	0.973	0.101
498	-124.372	-0.545				0.443	0.552	0.953	-1172.750	+	0.146	10	-442.210	904.506	1.209	0.09
113	-4.086					0.416	0.452	0.980			0.139	7	-445.465	904.974	1.677	0.071
248	-4.454	-0.669	-0.055	-0.323		0.419	0.663	0.935	-2.939		0.148	11	-441.480	905.061	1.764	0.068

254	-4.518	-0.653	-0.330	0.034	0.407	0.647	0.932	-3.482	0.148	11	-441.581	905.263	1.966	0.061
230	-4.280	-0.596	-0.411			0.601	0.798	-1.788	0.143	9	-443.601	905.272	1.975	0.061

Random effects:

Groups	Variance	Std.Dev.
survey site:farm	0.68734	0.8291
Julian day	0.46068	0.6787
farm	0.03513	0.1874

Spatial autocorrelation test

Moran I statistic standard deviate = -4.0389, p-value = 1

Overdispersion test

Pearson Chi-Squared: 2228.298

Degrees of Freedom: 2588

Dispersion Ratio: 0.8610116

p-value: 0.9999999