diversity

MDPI

Supplementary Material

Effects of landscape configuration on the body condition of migratory and resident Tropical birds

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Table S1. Coordinates (in decimal degrees) and mean elevation (in m) of the 26 localities included in our analysis (localities L_1 to L_{52} were obtained from Cardona *et al*., 2020; while $L_{53\text{-}54}$ corresponding to localities reporting by ISAGEN).

ID	Locality	Latitude	Longitude	Elevation
L_1	Las Margaritas	5.13	-75.72	956
L_3	Vereda La Arboleda	5.20	-75.80	1224
L_4	Vereda Varsovia	5.25	-75.54	1429
L_5	Corregimiento La Zainera	5.03	-75.81	1237
L_6	Vereda La Esmeralda	5.05	-75.73	1025
L_{11}	Vereda Japón	5.57	-74.66	178
L_{15}	Vereda Alto del Naranjo	5.00	-75.56	1749
L_{19}	Universidad de Caldas. Jardín Botánico	5.05	-75.49	2100
L_{20}	Corregimiento Colombia	5.12	-75.62	920
L_{21}	Corregimiento El Remanso	5.09	-75.59	1257
L_{24}	Vereda El Llano	5.46	-75.59	1069
L_{27}	Vereda La Quiebra de Roque	5.67	-74.77	204
L_{29}	Vereda San Antonio	5.52	-75.45	1829
L_{30}	Vereda Santágueda	5.38	-75.67	1021
L_{32}	Vereda San José	5.38	-75.13	1905
L_{34}	Vereda El Oro. Finca la Argentina	5.40	-75.74	2279
L_{35}	Corregimiento Berlín	5.60	-74.94	878
L_{40}	Vereda Arrayanes	5.06	-75.77	1123
L_{39}	Vereda El Contento	5.08	-75.79	1697
L_{41}	Vereda Cabuyal	5.46	-75.63	1403
L_{42}	Vereda Bellavista	5.33	-74.91	976
L_{45}	Vereda La Pradera	5.42	-74.88	527
L_{47}	Vereda Gallinazo	5.01	-75.41	2299
L_{52}	Vereda La Alsacia	5.06	-75.91	1405
L_{53}	Vereda Montebello	5.58	-74.92	781
L_{54}	Vereda Puerto Hierro	5.56	-74.86	456

Table S2. Bird species included in the analysis according to the source database.

Bird species	**Cardona-Salazar *et al.*, (2020) (n)**	**GIET & GEBIOME, 2005 - 2007, 2011 and 2015 (n)**	**GEBIOME, 2021 - 2022 (n)**	**ISAGEN, 2014 - 2021 (n)**
Cardellina canadensis	10	12	–	3
Catharus minimus	4	10	1	39
Catharus ustulatus	35	96	5	156
Euphonia laniirostris	53	18	–	21
Mionectes oleagineus	59	146	11	421
Oporornis agilis	2	8	–	2
Parkesia noveboracensis	19	3	–	19
Todirostrum cinereum	15	2	–	6
Zimmerius chrysops	41	15	3	0
Total	**238**	**310**	**20**	**667**

Table S3. Configuration and landscape composition indices estimated with FRAGSTATS (details on each metric are given at Table 1 in the main text) for the sampling 26 localities. Details on each locality are presented in Table S1.

ID	LPI_crop	LPI_for	LPI_grass	PATCH AREA_MN	ENN_MN	CONNECT
L_1	28.12	14.16	29.99	36.07	145.31	16.36
L_3	44.33	8.91	7.44	17.33	43.96	14.70
L_4	9.33	16.69	54.66	36.20	344.80	10.00
L_5	69.36	3.87	10.46	6.51	114.63	9.52
L_6	7.09	61.16	9.84	146.44	31.75	40.00
L_{11}	58.06	33.93	0.15	95.47	71.32	28.57
L_{15}	23.18	7.84	14.24	28.25	197.92	13.10
L_{19}	1.15	17.04	0.02	11.33	52.89	23.80
L_{20}	32.87	24.92	7.60	68.09	33.91	19.69
L_{21}	0.97	4.83	80.53	7.72	122.80	15.23
L_{24}	15.99	10.38	2.23	17.03	39.57	20.00
L_{27}	36.52	57.55	0.30	173.40	30.52	42.85
L_{29}	18.28	4.82	16.30	10.09	91.48	9.09
L_{30}	43.77	8.27	7.49	17.06	61.88	26.92
L_{32}	7.87	19.75	38.62	48.58	48.98	27.77
L_{34}	6.27	53.35	5.13	148.29	30.05	21.66
L_{35}	6.73	46.42	3.79	123.26	30.56	33.33
L_{40}	17.44	14.36	20.74	32.05	42.81	25.00
L_{39}	3.32	10.45	60.36	17.34	102.21	66.66
L_{41}	28.68	12.58	28.92	22.68	53.71	13.04
L_{42}	9.56	46.03	2.00	105.59	30.00	47.61
L_{45}	6.17	41.13	12.93	137.08	32.59	66.66
L_{47}	6.26	79.52	0.49	247.07	30.01	47.61
L_{52}	7.26	18.38	11.22	35.24	31.92	23.80
L_{53}	17.16	44.81	0.61	18.76	46.47	30.91
L_{54}	5.033	78.31	0.69	27.41	53.50	33.33

Table S4. Results from Bayesian Linear Mixed Models to relate body condition and landscape metrics (after accounting for multicollinearity and removing those variables with VIF > 2). This model includes all bird species (residents + neotropical migrants; $n = 1235$). Variables with a p-value < 0.05 are denoted in bold type.

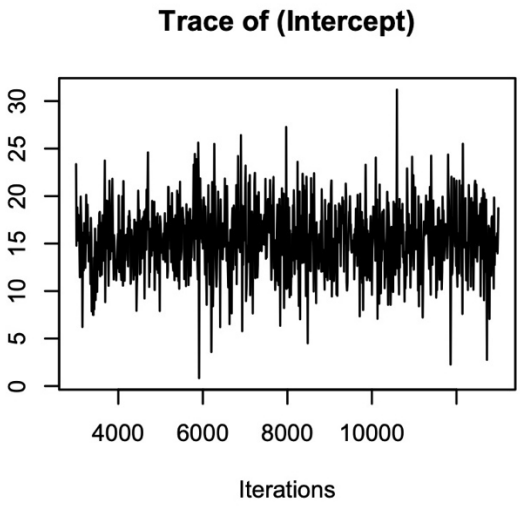
Index	VIF	post mean	95% CI	p_{MCMC}
LPI_CROP	**1.365**	**0.335**	**0.134 to 0.507**	**<0.001**
PATCH_AREA_MN	1.125	-0.005	-0.178 to 0.155	0.956
ENN_MN	1.411	0.054	-0.159 to 0.278	0.894
CONNECT	**1.843**	**0.293**	**0.082 to 0.525**	**0.006**
CAPTURE DAY	**1.056**	**0.169**	**0.008 to 0.310**	**0.032**

Table S5. Results from Bayesian Linear Mixed Models to body condition and landscape metrics (after accounting for multicollinearity and removing those variables with VIF > 2). This model includes only migrant birds (n = 424). Variables with a p-value < 0.05 are denoted in bold type.

Index	VIF	post mean	95% CI	p MCMC
LPI_CROP	**1.365**	**0.871**	**0.274 to 1.483**	**0.004**
PATCH_AREA_MN	1.125	-0.190	-0.618 to 0.237	0.378
ENN_MN	1.411	0.142	-0.387 to 0.637	0.582
CONNECT	**1.843**	**0.606**	**0.044 to 1.207**	**0.036**
CAPTURE DAY	1.056	0.224	-0.116 to 0.626	0.232

Table S6. Results from Bayesian Linear Mixed Models to relate body condition and landscape metrics (after accounting for multicollinearity and removing those variables with VIF > 2). This model includes only resident birds (n = 811). Variables with a p-value < 0.05 are denoted in bold type.

Index	VIF	post mean	95% CI	p MCMC
LPI_CROP	**1.434**	**0.161**	**0.0376 to 0.280**	**0.006**
PATCH_AREA_MN	**1.111**	**0.112**	**0.005 to 0.219**	**0.036**
ENN_AM	1.586	0.088	-0.044 to 0.222	0.214
CONNECT	**1.988**	**0.169**	**0.027 to 0.317**	**0.024**
CAPTURE DAY	**1.011**	**0.126**	**0.006 to 0.238**	**0.040**


Trace of (Intercept)
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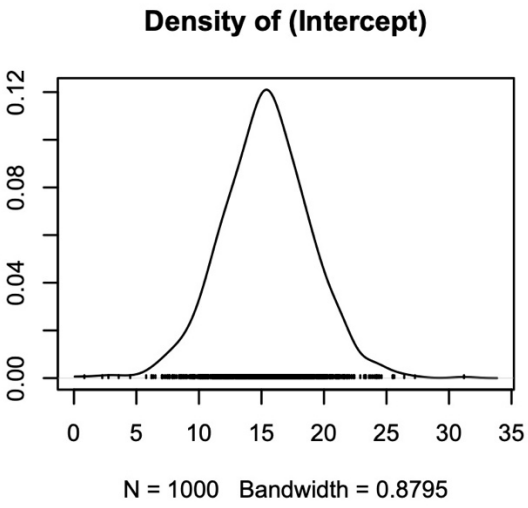
Iterations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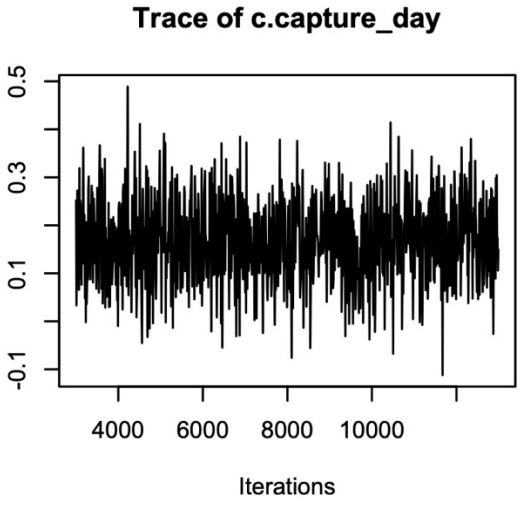
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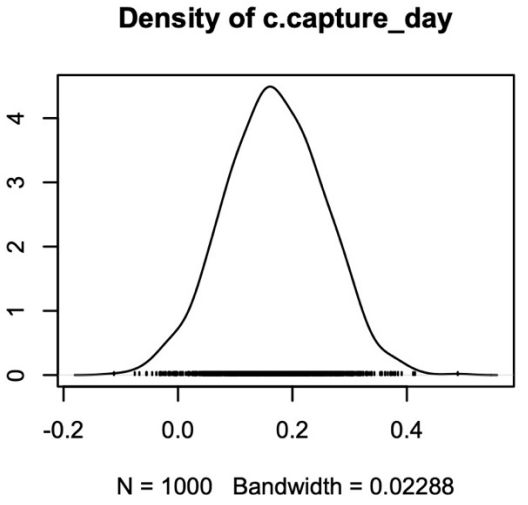
Iterations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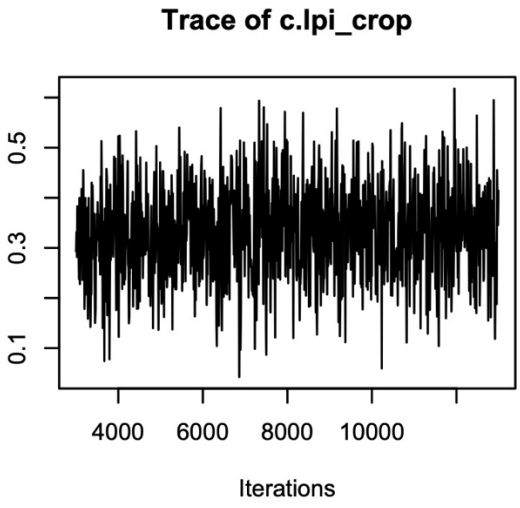
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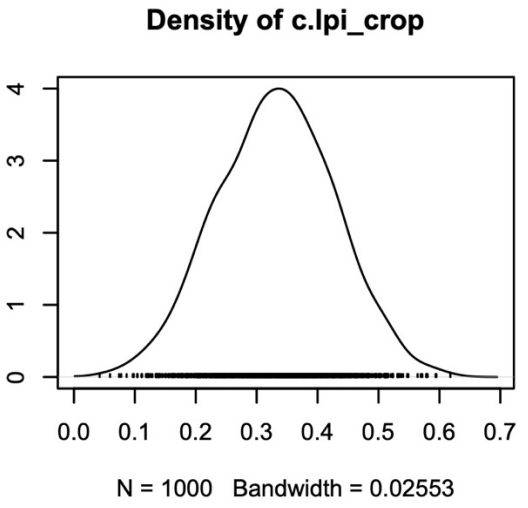
Iterations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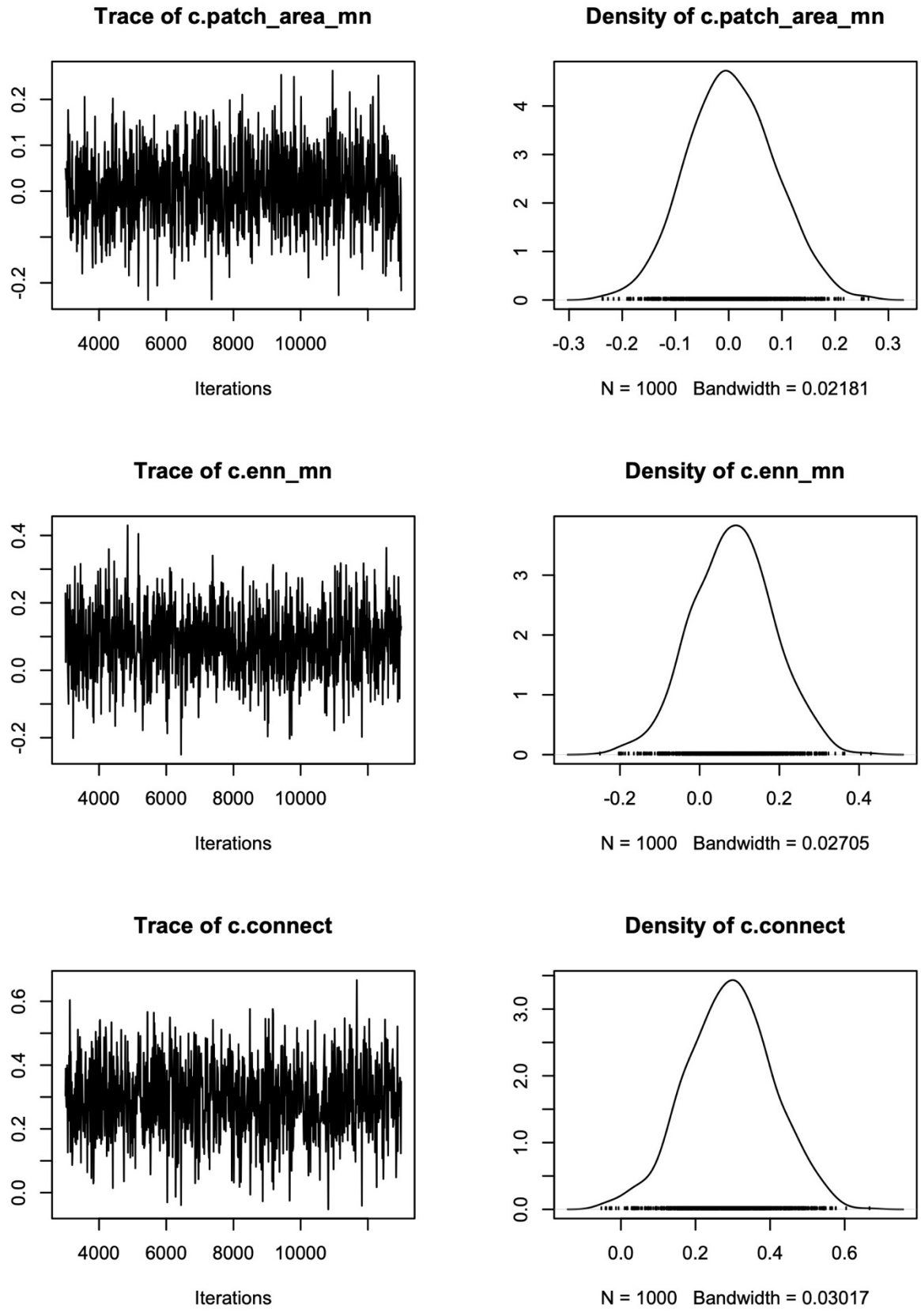
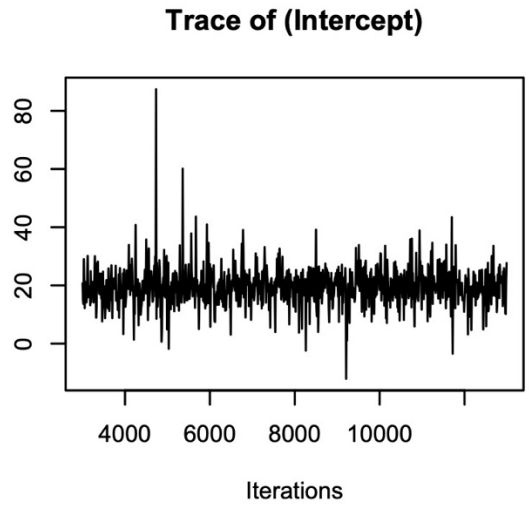


Figure S1. Summary of the Markov Chain for the BLMM including all bird species. Left plots depict the trace of the sampled posterior, and the right plots depicts the density estimate approximating the posterior distribution.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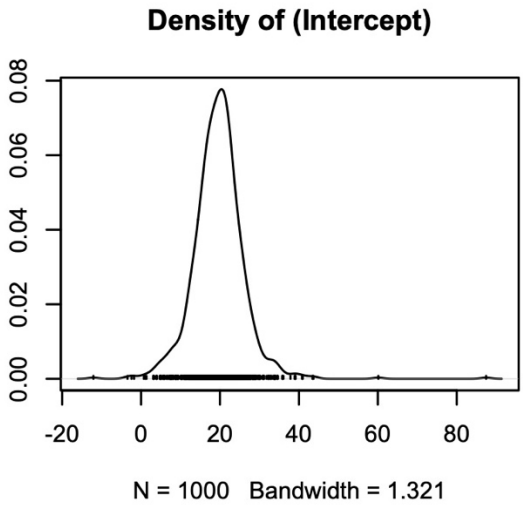
40
60
80
4000
6000
8000
10000
Iterations


Density of (Intercept)
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0.06
0.08
-20
0
20
40
60
80
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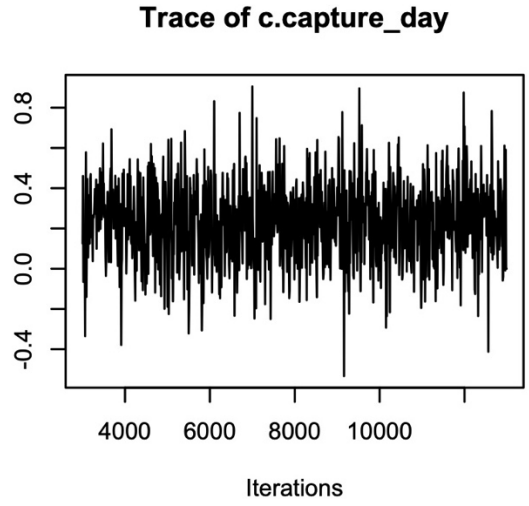
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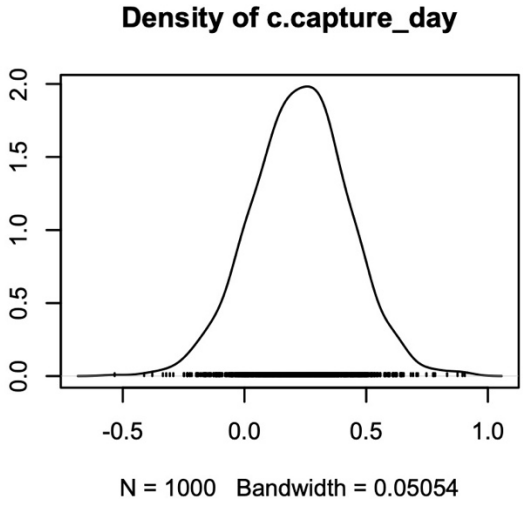
0.4
0.8
4000
6000
8000
10000
Iterations


Density of c.capture_day
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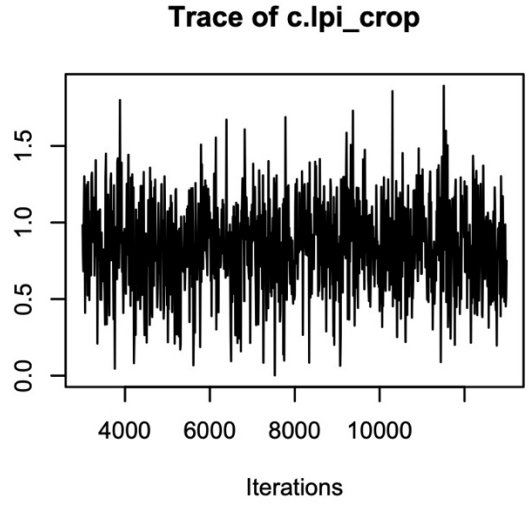
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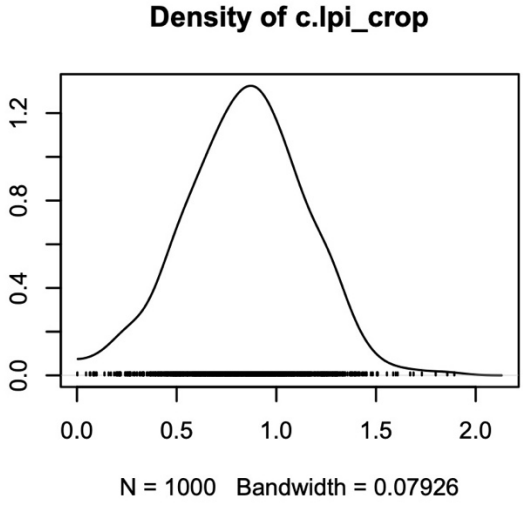
1.5
4000
6000
8000
10000
Iterations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0.5
1.0
1.5
2.0
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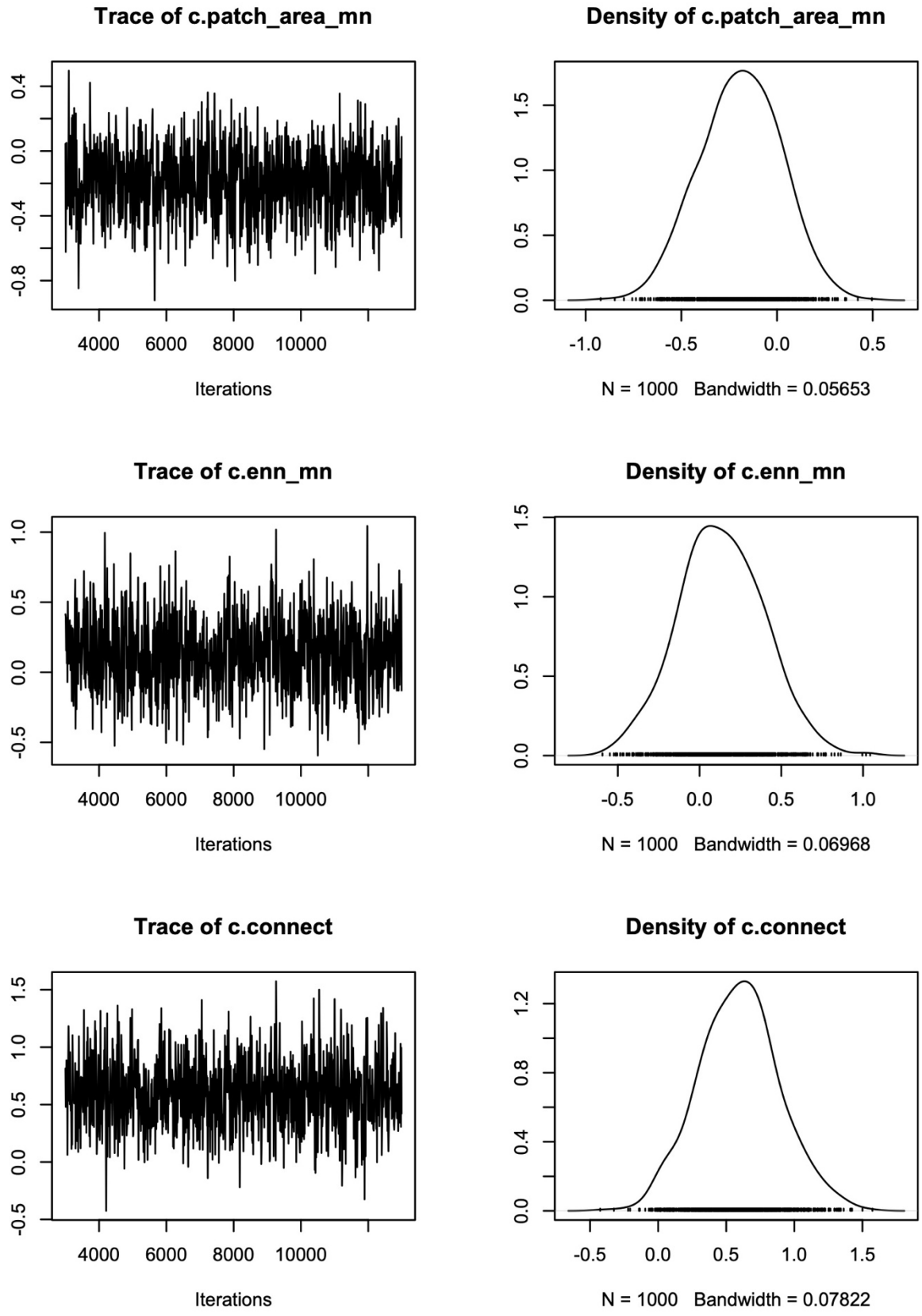
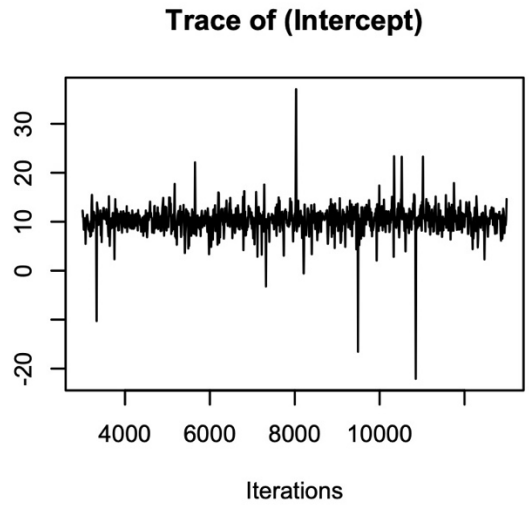


Figure S2. Summary of the Markov Chain for the BLMM for migrant bird species. Left plots depict the trace of the sampled posterior, and the right plots depicts the density estimate approximating the posterior distribution.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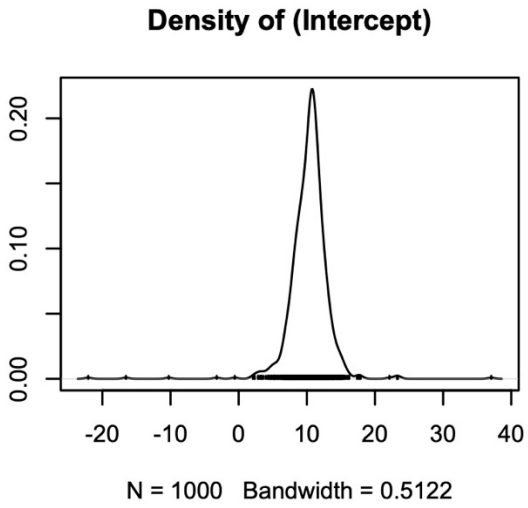
20
30
4000
6000
8000
10000
Iterations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0
10
20
30
40
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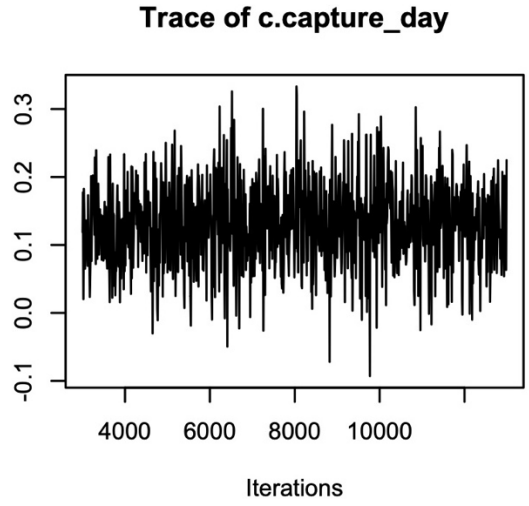
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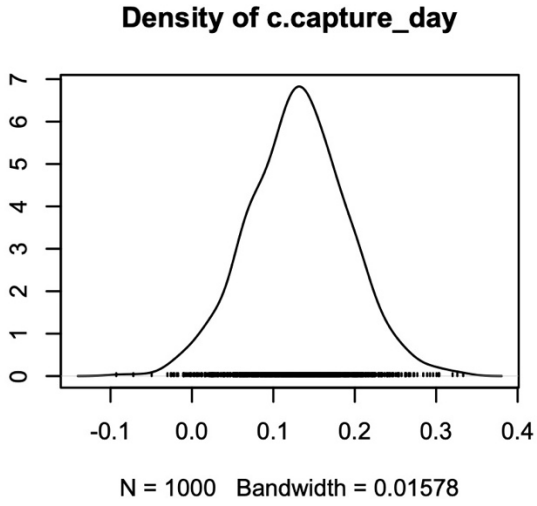
6000
8000
10000
Iterations


Density of c.capture_day
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7
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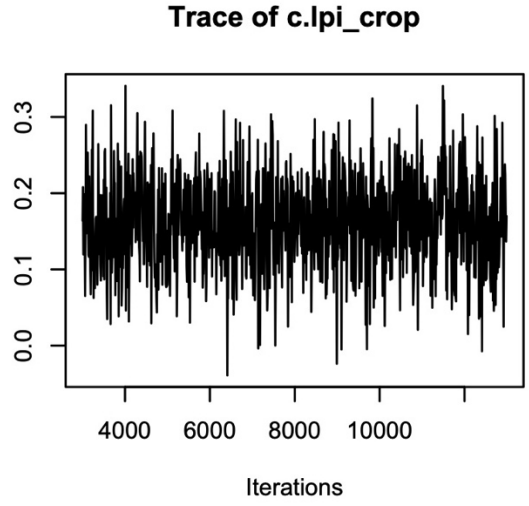
0.2
0.3
0.4
N = 1000 Bandwidth = 0.01578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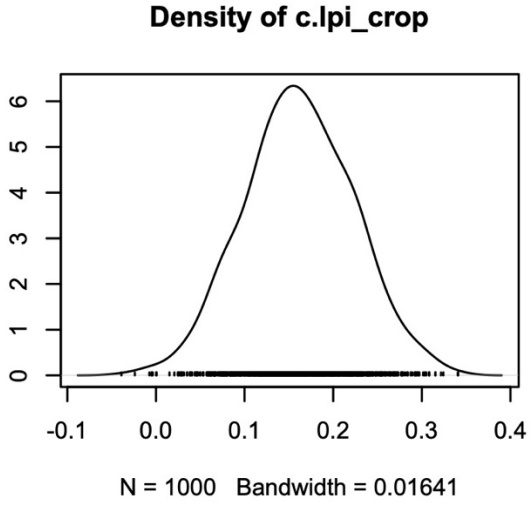
Iterations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0.1
0.2
0.3
0.4
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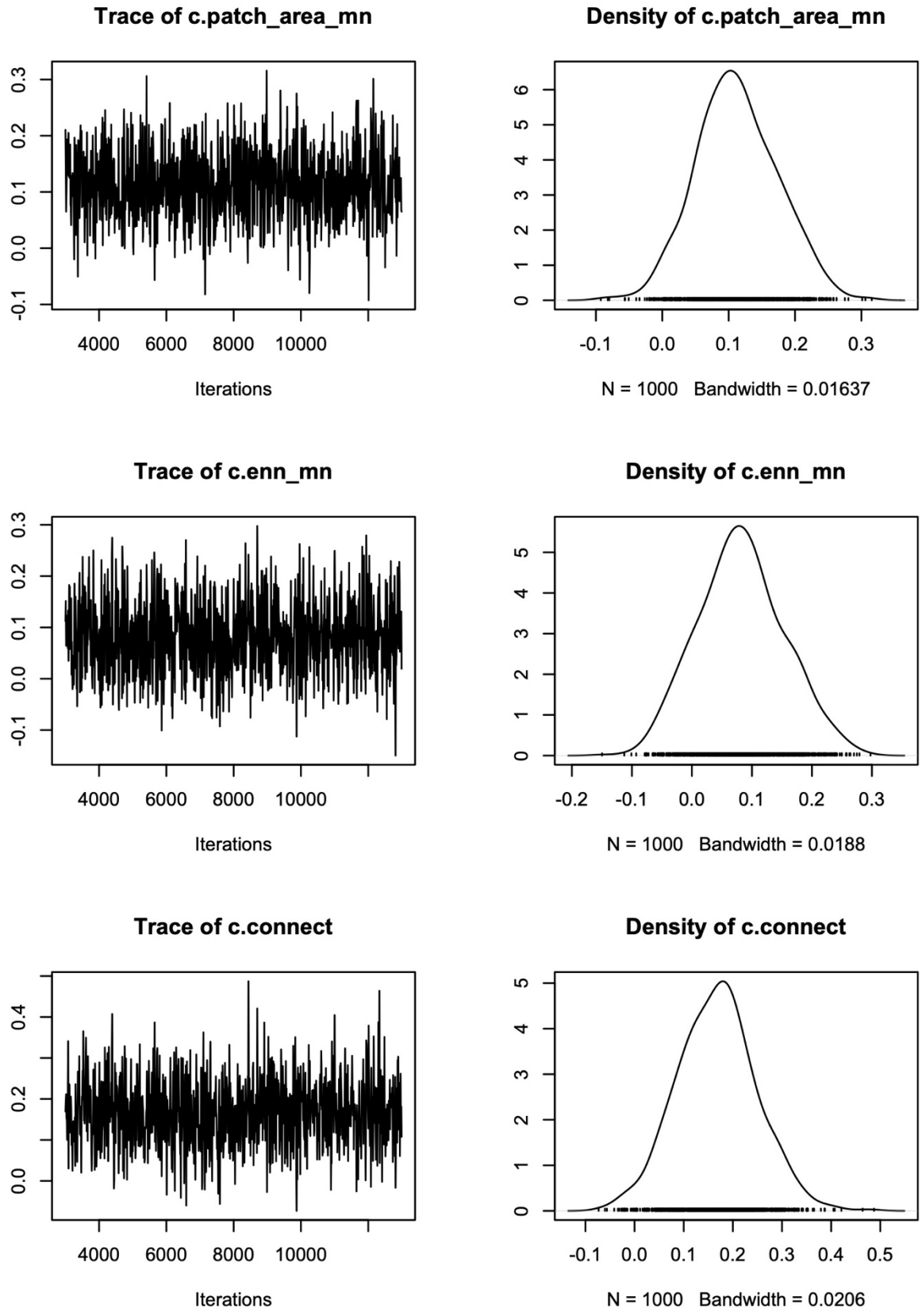

Figure S3. Summary of the Markov Chain for the BLMM for resident bird species. Left plots depict the trace of the sampled posterior, and the right plots depicts the density estimate approximating the posterior distribution.

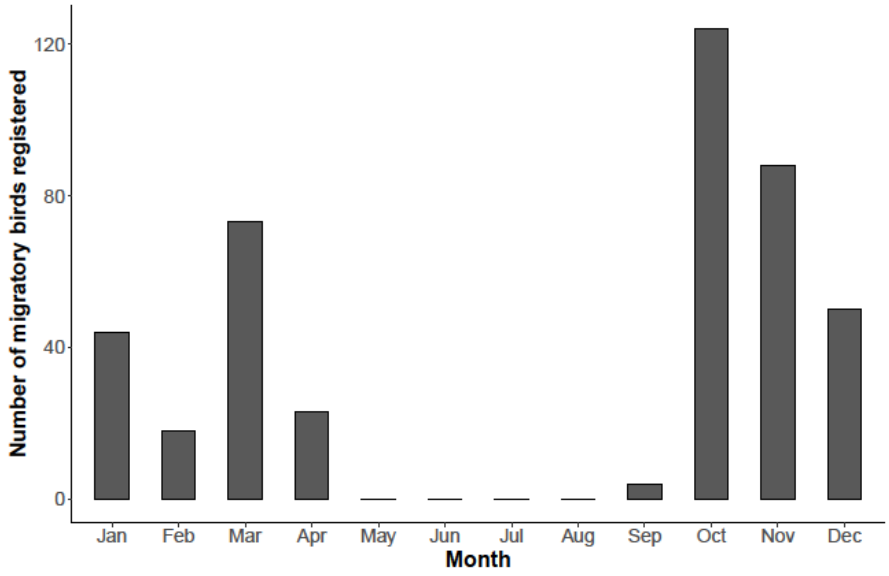

Figure S4. Number of neotropical migrant birds registered on a monthly basis.

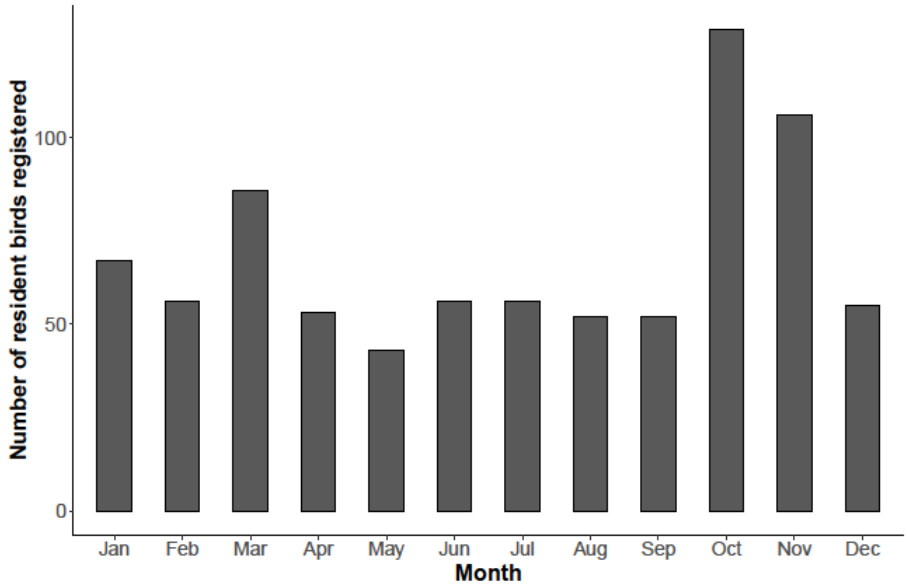

Figure S5. Number of resident birds registered on a monthly basis.