

SUPPLEMENTARY ELECTRONIC MATERIAL

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SPECIES-AREA RELATIONSHIPS OF SPECIALIST VERSUS OPPORTUNISTIC
PAMPAS GRASSLAND BIRDS DEPEND ON THE SURROUNDING LANDSCAPE
MATRIX

LA RELACIÓN ESPECIES-ÁREA PARA AVES ESPECIALISTAS *VERSUS*
OPORTUNISTAS DE LOS PASTIZALES DE LA PAMPA DEPENDE DE LA MATRIZ
DE PAISAJE CIRCUNDANTE

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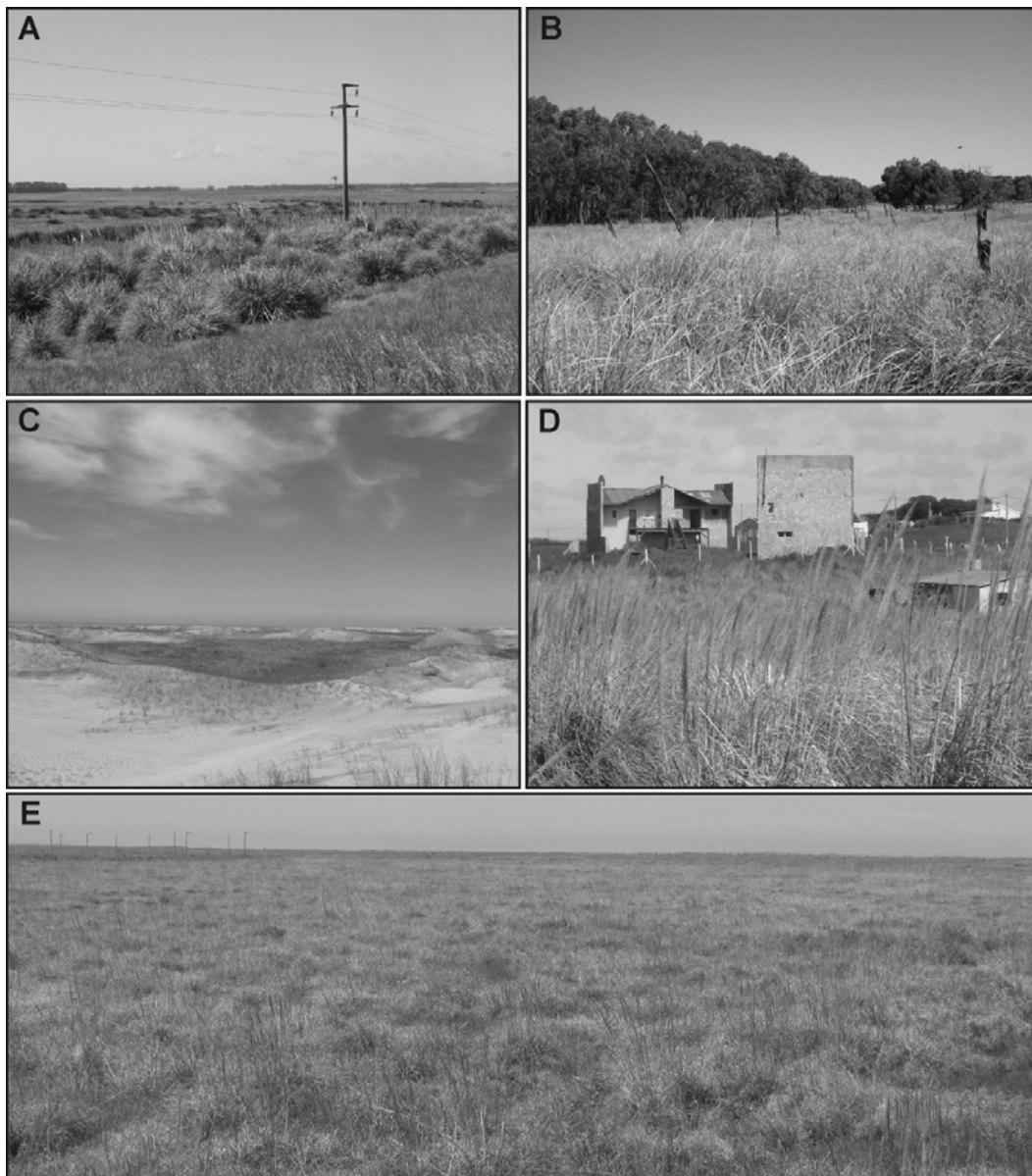
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APPENDIX 1

FIGURE A1—Grasslands of *Cortaderia selloana* growing as patches embedded within four different landscape matrices: agricultural (A), forest (B), dunes (C) and urban (D), and unfragmented grassland within Mar Chiquita Coastal Lagoon Biosphere reserve (E) in the southeast Pampas region, Argentina. Photo credit: M. Pretelli.

[Pastizales de Cortaderia selloana creciendo como parches inmersos en cuatro diferentes matrices de paisaje: agrícola (A), forestal (B), dunas (C) y urbana (D), y pastizales sin fragmentar dentro de la reserva de Biosfera Laguna Costera Mar Chiquita (E) en el sudeste de la región Pampeana, Argentina. Fotos: M. Pretelli.]



APPENDIX 2

TABLE B1

Size and location of *Cortaderia selloana* grassland patches and location of sites within reserves surveyed along the coastal strip in the southeast Pampas region, Argentina.

[Tamaño y localización de los parches de pastizal de Cortaderia selloana y localización de los sitios dentro de las reservas muestreadas a lo largo de la franja costera en el sudeste de la región Pampeana, Argentina.]

Landscape matrix	Site (S)	Size (ha)	Coordinates	
	Small Patch (SP)		Lat (S)	Long (W)
Large Patch (LP)				
Reserve				
	S 1	n.a.	37° 432072	57° 252252
	S 2	n.a.	37° 432122	57° 242512
	S 3	n.a.	37° 432302	57° 252092
	S 4	n.a.	37° 222082	57° 052472
	S 5	n.a.	37° 222422	57° 062312
	S 6	n.a.	37° 232152	57° 072172
	S 7	n.a.	37° 192562	57° 032572
Dune				
	SP 1	3.3	37° 202562	57° 032332
	SP 2	2.8	37° 212192	57° 032492
	SP 3	4.1	37° 232172	57° 032372
	SP 4	3.5	37° 232492	57° 042032
	SP 5	3	37° 242182	57° 042242
	LP 1	13	37° 202052	57° 032322
	LP 2	11.1	37° 202332	57° 032552
	LP 3	9.2	37° 232272	57° 042522
	LP 4	10.6	37° 242002	57° 052192
	LP 5	9.8	37° 242212	57° 052382
Urban				
	SP 1	3.2	37° 152272	57° 002062
	SP 2	2.9	37° 492382	57° 372202
	SP 3	1.8	38° 142472	57° 472572
	LP 1	8.6	38° 052452	57° 322582
	LP 2	7.6	38° 032252	57° 322262
	LP 3	5.2	38° 132472	57° 442542
Agricultural				
	SP 1	1.6	37° 402382	57° 392552
	SP 2	2.9	39° 192042	57° 562352
	SP 3	2.2	37° 122152	57° 062072

	LP 1	5.3	37° 462382	57° 382132
	LP 2	4.7	38° 132112	57° 432012
	LP 3	9.5	37° 362542	57° 292592
Forest	SP 1	3.1	38° 182382	57° 542522
	SP 2	2.9	37° 212192	57° 022312
	SP 3	2.8	37° 102172	56° 562162
	LP 1	8.6	37° 432232	57° 252162
	LP 2	6.4	37° 142032	56° 592082
	LP 3	5.1	37° 022362	56° 502102

n.a.: not applicable.

TABLE B2

Fixed-factor contrasts resulting from GLMM comparing the abundance and species richness of specialists among different patch sizes (small patches: SP, and large patches: LP), seasons of the year (spring, summer, autumn, and winter) and landscape matrices (agricultural, forest, dune and urban).

[Resultados de los contrastes de factor fijo que resultan de los MLGM que comparan la abundancia y riqueza de especies de aves especialistas de pastizal entre diferentes tamaños de parche (parches pequeños: SP y parches grandes: LG), estaciones del año (primavera, verano, otoño e invierno), y matrices de paisaje (agrícola, forestal, dunas y urbana).]

Contrasts between categories	Abundance		Richness	
	Z	p	Z	p
Size				
SP – LP	2.8	0.004	–	–
Matrix				
Agricultural – Forest	6.2	<0.001	–	–
Agricultural – Dune	1.3	0.546	–	–
Agricultural – Urban	1.4	0.428	–	–
Forest – Dune	4.9	<0.001	–	–
Forest – Urban	4.1	<0.001	–	–
Dune – Urban	0.3	0.988	–	–
Season				
Spring – Summer	3.4	0.003	3.3	0.003
Spring – Autumn	7.0	<0.001	7.8	<0.001
Spring – Winter	11.0	<0.001	8.2	<0.001
Summer – Autumn	3.8	<0.001	4.9	<0.001
Summer – Winter	6.6	<0.001	5.4	<0.001
Autumn – Winter	0.9	0.764	0.5	0.945

TABLE B3

Interaction contrasts resulting from GLMM comparing the species richness of specialists between small patches (SP) and large patches (LP) of grassland embedded within different landscapes matrices (*size effect*), and among landscape matrices that contained patches of two sizes (*matrix effect*).

[*Resultados de la interacción de contrastes que resultan de los MLGM que comparan la riqueza de especies de aves de pastizal entre parches pequeños (SP) y parches grandes (LP) de pastizal inmersos en diferentes matrices de paisaje (efecto del tamaño) y entre matrices de paisaje que contienen parches de dos tamaños (efecto de la matriz).*]

Contrasts between categories	Richness	
	Z	p
Size		
Agricultural-SP – Agricultural-LP	-1.3	0.553
Forest-SP – Forest-LP	-3.4	0.002
Dune-SP – Dune-LP	-0.9	0.845
Urban-SP – Urban-LP	-0.0	0.999
Matrix		
Small patches		
Agricultural – Forest	4.8	<0.001
Agricultural – Dune	0.7	0.983
Agricultural – Urban	1.2	0.848
Forest – Dune	-4.5	<0.001
Forest – Urban	-4.0	<0.001
Dune – Urban	0.6	0.994
Large patches		
Agricultural – Forest	3.3	0.008
Agricultural – Dune	1.4	0.687
Agricultural – Urban	2.4	0.138
Forest – Dune	-2.3	0.175
Forest – Urban	-0.9	0.951
Dune – Urban	1.2	0.819

TABLE B4

Interaction contrasts resulted from GLMM comparing the abundance and species richness of opportunistic grassland birds among different landscape matrices in different seasons (*season effect*), and among seasons but in different landscape matrices (*matrix effect*).

[Resultados de la interacción de contrastes que resultan de los MLGM que comparan la abundancia y riqueza de especies de aves oportunistas del pastizal entre diferentes matrices de paisaje en diferentes estaciones (efecto estación), y entre estaciones pero en diferentes matrices de paisaje (efecto matriz).]

Contrasts between categories	Abundance		Richness	
	Z	p	Z	p
Season				
Spring				
Forest – Agricultural	-1.5	0.966	-0.8	1.000
Dune – Agricultural	-0.8	0.999	-0.5	1.000
Urban – Agricultural	-0.7	1.000	-0.3	1.000
Dune – Forest	0.6	1.000	0.2	1.000
Urban – Forest	0.6	1.000	0.4	1.000
Urban – Dune	0.0	1.000	0.2	1.000
Summer				
Forest – Agricultural	-0.5	1.000	-0.8	0.999
Dune – Agricultural	-2.5	0.420	-2.7	0.241
Urban – Agricultural	0.2	1.000	0.0	1.000
Dune – Forest	-2.0	0.808	-2.0	0.777
Urban – Forest	0.7	1.000	0.8	0.999
Urban – Dune	2.7	0.253	3.0	0.130
Autumn				
Forest – Agricultural	-0.4	1.000	-0.3	1.000
Dune – Agricultural	-1.2	0.996	-1.5	0.975
Urban – Agricultural	0.1	1.000	0.4	1.000
Dune – Forest	-0.8	1.000	-1.1	0.998
Urban – Forest	0.4	1.000	0.7	1.000
Urban – Dune	1.3	0.991	1.9	0.837
Winter				
Forest – Agricultural	-0.7	1.000	-0.6	1.000
Dune – Agricultural	-3.5	0.040	-3.4	0.045
Urban – Agricultural	-0.3	1.000	-0.6	1.000
Dune – Forest	-2.3	0.513	-2.3	0.520
Urban – Forest	0.2	1.000	-0.0	1.000

Urban – Dune	2.7	0.255	2.5	0.422
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Matrix

Agricultural

Spring – Winter	3.1	0.097	1.7	0.917
Summer – Winter	2.4	0.455	2.1	0.713
Autumn – Winter	-0.1	1.000	-0.4	1.000
Spring – Autumn	2.4	0.508	1.5	0.974
Spring – Summer	-0.5	1.000	0.2	1.000
Summer – Autumn	1.9	0.836	1.7	0.907

Forest

Spring – Winter	1.1	0.998	0.8	0.999
Summer – Winter	1.7	0.919	1.0	0.999
Autumn – Winter	0.0	1.000	-0.1	1.000
Spring – Autumn	0.6	1.000	1.0	0.999
Spring – Summer	1.1	0.998	0.2	1.000
Summer – Autumn	1.7	0.920	1.2	0.999

Dune

Spring – Winter	3.8	<0.01	3.4	0.045
Summer – Winter	2.4	0.504	1.8	0.878
Autumn – Winter	2.0	0.775	1.5	0.967
Spring – Autumn	2.8	0.233	2.6	0.353
Spring – Summer	-2.1	0.676	-2.0	0.781
Summer – Autumn	0.4	1.000	0.3	1.000

Urban

Spring – Winter	1.5	0.977	1.3	0.994
Summer – Winter	2.0	0.743	1.9	0.814
Autumn – Winter	0.2	1.000	0.6	1.000
Spring – Autumn	1.2	0.995	0.7	1.000
Spring – Summer	0.6	1.000	0.7	1.000
Summer – Autumn	1.8	0.862	1.4	0.986
