

Supplementary Materials

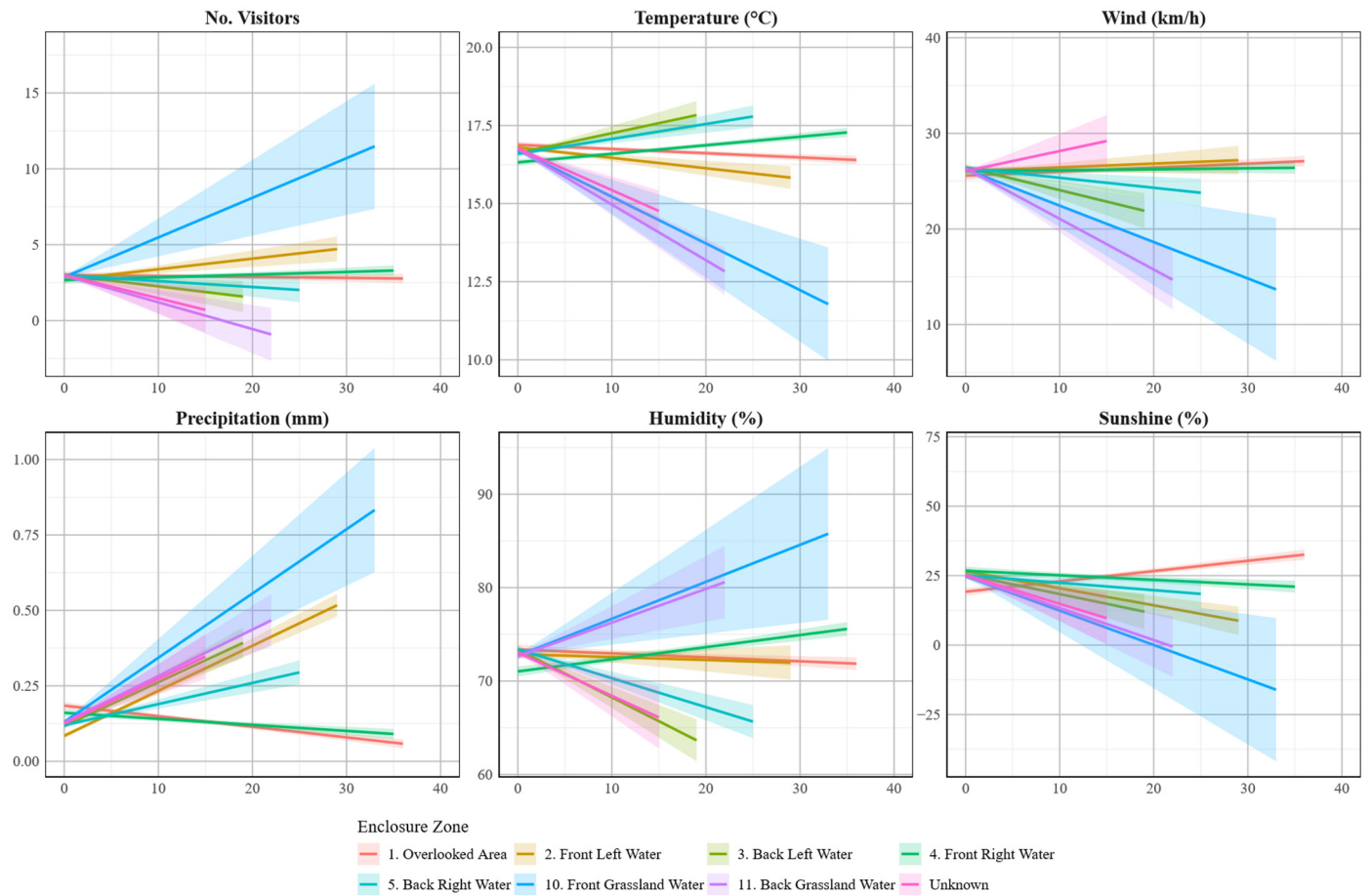


Figure S1. Correlation between counts of Greater Flamingos in enclosure zones against environmental factors. No correlation between number of visitors and zone use. Shaded areas around lines represent $\pm 95\%$ CI. Weak significant correlations ($0.1 \leq r_s \leq 0.29$) held between: temperature – zone 4, zone 10, zone 11; wind – zone 5, zone 11; precipitation – zone 1, zone 3, zone 4, zone 5, zone 10, zone 11; humidity – zone 1, zone 3, zone 4, zone 11, unknown; sunshine – zone 1, zone 1, zone 4, zone 11. Significant moderate correlation ($0.3 \leq r_s \leq 0.49$) was shown between precipitation and occupancy in zone 2.

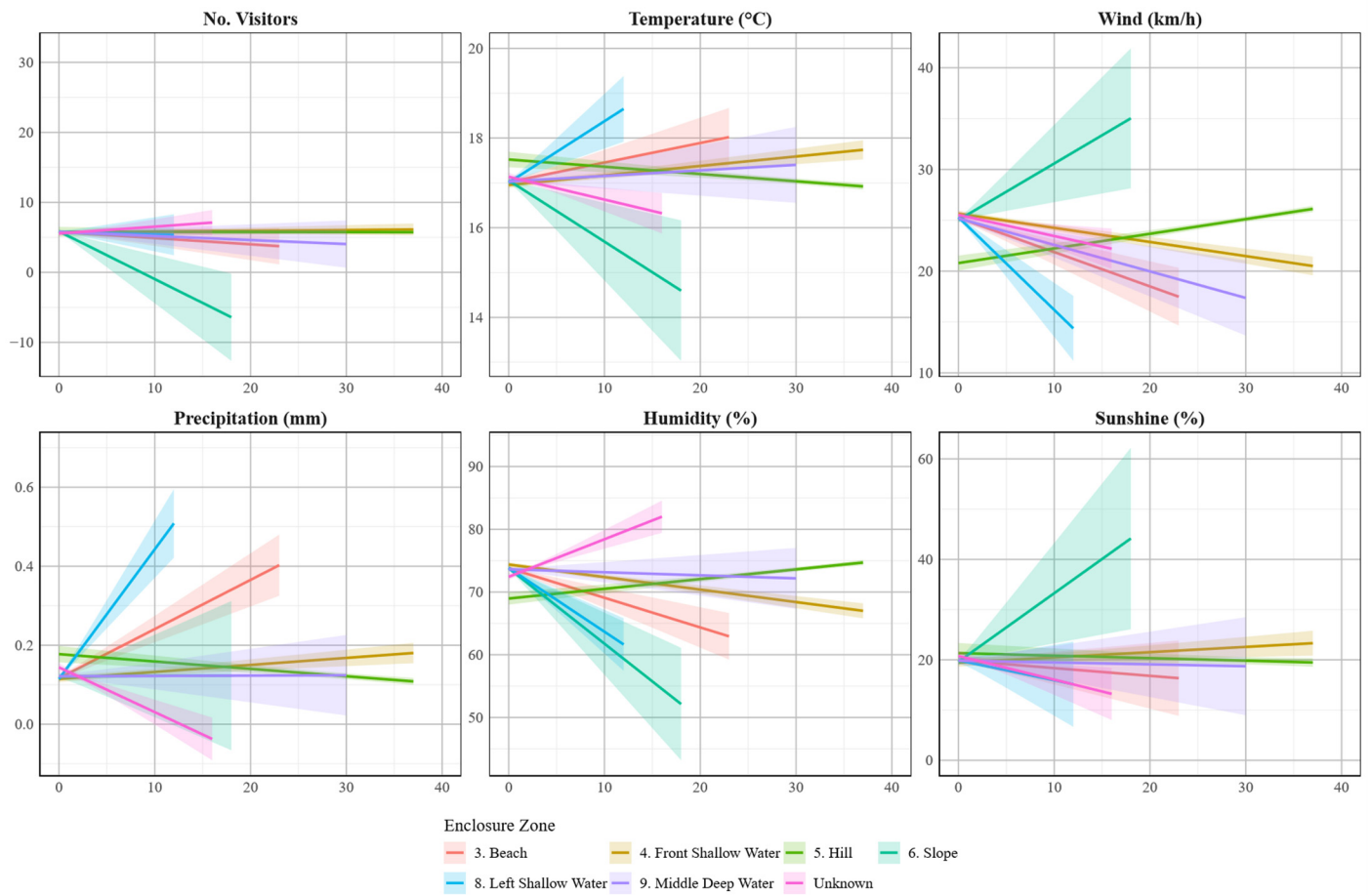


Figure S2. Correlation between counts of Chilean Flamingos in enclosure zones against environmental factors. Shaded areas around lines represent $\pm 95\%$ CI. Weak negative correlation ($0.1 \leq r_s \leq 0.29$) between number of visitors and occupancy in zone 6. Weak significant correlations held between: temperature – zone 4, zone 6, zone 8; wind – zone 3, zone 5, zone 6, zone 8, zone 9; precipitation – zone 3, zone 4, zone 8, zone 9, unknown; humidity – zone 4, zone 6, unknown. Significant moderate correlation ($0.3 \leq r_s \leq 0.49$) was shown between wind and occupancy in zone 4.

Table S1. Details of enclosure zones of the Africa Alive Greater Flamingo enclosure.

Africa Alive						
No.	Name	Description	Size (m ²)	Main Features	Proximity to visitors	Visibility to visitors
1	Overlooked	Water area looked down upon by visitors from a viewing platform through glass windows	101	Water, viewing platform.	1	1
2	Front Left Water	Front left quadrant of water. Includes feeders.	119	Water, feeders.	2	1
3	Back Left Water	Back left quadrant of water. Visual cover from willow tree.	202	Water, willow tree cover.	4	4
4	Front Right Water	Front right quadrant of water.	90	Water.	2	2
5	Back Right Water	Back right quadrant of water behind a tree covered bank (7). Large fallen tree trunk at the back.	145	Water, mud bank, tree cover.	4	4
6	Front High Bank	Grassy mud bank.	53	Grass, mud bank.	3	1
7	Back Low Bank	Muddy bank, extends into the water, creating shallow water areas.	43	Mud bank, shallow water, water.	4	5
8	Back Grassland Path	Grassland with tree cover. Next to goose enclosure. At the beginning of a walk-through path and runs along this path.	242	Vegetation, tree cover, walkthrough path	1	1
9	Front Grassland Path	Grassland with tree cover, runs along the walk-through path until visitor exit, near nesting zone (12).	242	Vegetation, tree cover, walkthrough path	1	1
10	Front Grassland Water	Grassland and bank, next to water and feeders (2), in front of goose enclosure.	116	Vegetation, mud bank	2	2
11	Back Grassland Water	Grassland and bank next to nesting zone (12) with tree cover.	190	Vegetation, tree cover	3	3
12	Nesting Zone	Near exit of walk-through path, backs onto East African crowned crane enclosure. Tree cover. Tall vertical mirrors, pseudo-eggs, speakers playing flamingo vocalisations, and sprinklers.	98	Mud, tree cover, reproductive enrichment	2	1
13	Woodland	Large woodland area extends from back of visitor walk-through path to behind back water zones (3, 5). Dense tree cover.	1227	Woodland, tree cover	3	5

A zones proximity to visitors and visibility to visitors were subjectively ranked by PK and SF on a scale of 1 to 5, with 1 representing the closest/most visible to visitors and 5 representing the furthest/least visible to visitors.

Table S2. Details of enclosure zones of the Banham Zoo Chilean Flamingo enclosure.

Banham Zoo						
No.	Name	Description	Size (m ²)	Main Features	Proximity to visitors	Visibility to visitors
1	Yard	Concrete outdoor yard, sectioned off, accessible by a door.	98	Concrete	1	1
2	Shelter	Indoor off-show shelter. Wooden structure with concrete flooring.	39	Concrete, wooden shelter	2	5
3	Beach	Front sand beach with five feeders.	60	Sand, feeders	1	1
4	Front Shallow Water	Shallow water at front of lagoon.	115	Shallow water	2	1
5	Hill	Sandy raised bank, with flattened top, sandy path running on downslope vegetation strip near fence.	248	Elevated, sand, stones, vegetation	1	1
6	Slope	Sandy slope with sprinklers, towards water and patches of vegetation	171	Sand bank, vegetation, sprinklers	2	3
7	Canopy Cover	Sandy and stoney area, sheltered and partially covered by oak trees.	113	Sand, stones, tree cover	1	1
8	Left Shallow Water	Shallow water on left side of lagoon.	32	Shallow water	3	4
9	Middle Deep Water	Deep middle section of the lagoon.	247	Deep water	4	1
10	Far Deep Water	Deep water backing onto a steep bank, blocked by vegetation.	395	Deep water, steep bank	5	1
11	Overgrown Bank	Bank of overgrown vegetation, with small sections of a natural path.	600	Vegetation	2	3

A zones proximity to visitors and visibility to visitors were subjectively ranked by PK and SF on a scale of 1 to 5, with 1 representing the closest/most visible to visitors and 5 representing the furthest/least visible to visitors.

Table S3. Model fit values of negative binomial GLMMs explaining behaviour performed by Greater Flamingos at Africa Alive.

Dependent Variable (Behaviour)	Model Fit Values							
	AIC	BIC	LogLik	Deviance	df.residual	K	R ²	%Exp
Feeding	16582.0	16648.0	-8280.0	16560.0	2988	7	0.416	41.55
Preening	18854.8	18920.9	-9416.4	18832.8	2988	7	0.444	44.38
Inactive	21468.3	21534.4	-10723.2	21446.3	2988	7	0.294	29.38
Movement	9339.0	9405.1	-4658.5	9317.0	2988	7	0.148	14.83
Vigilance	7270.8	7336.9	-3624.4	7248.8	2988	7	0.059	5.88
Aggression	1510.1	1576.1	-744.0	1488.1	2988	7	0.000	0.02
Courtship	1621.7	1687.8	-799.8	1599.7	2988	7	0.001	0.13
Unknown	8438.0	8504.1	-4208.0	8416.0	2988	7	0.317	31.70

AIC = Akaike information criterion; BIC = Bayesian information criterion; K = number of parameters. R² = proportion of variance in DV explained by the model.

Table S4. Model fit values of negative binomial GLMMs explaining behaviour performed by Chilean Flamingos at Banham Zoo.

Dependent Variable (Behaviour)	Model Fit Values							
	AIC	BIC	LogLik	Deviance	df.residual	K	R ²	%Exp
Feeding	12871.6	12932.4	-6425.8	12851.6	3190	6	0.588	58.83
Preening	16811.9	16872.6	-8395.9	16791.9	3188	7	0.286	28.61
Inactive	22788.5	22855.3	-11383.3	22766.5	3187	7	0.322	32.16
Movement	11105.7	11172.4	-5541.8	11083.7	3187	7	0.182	18.24
Vigilance	7679.3	7740.0	-3829.7	7659.3	3188	6	0.254	25.36
Aggression	7730.4	7797.2	-3854.2	7708.4	3187	7	0.033	3.26
Courtship	3100.5	3167.3	-1539.3	3078.5	3187	7	0.019	1.90
Unknown	16913.5	16974.2	-8446.7	16893.5	3188	6	0.327	32.71

AIC = Akaike information criterion; BIC = Bayesian information criterion; K = number of parameters. R² = proportion of variance in DV explained by the model.

Table S5. Model fit values of negative binomial GLMMs explaining enclosure use by Greater Flamingos at Africa Alive.

Dependent Variable (Enclosure Zone)	Model Fit Values							
	AIC	BIC	LogLik	Deviance	df.residual	K	R ²	%Exp
1. Overlooked	20272.8	20338.9	-10125.4	20250.8	2988	7	0.579	57.91
2. Front Left Water	13263.4	13329.4	-6620.7	13241.4	2988	7	0.452	45.21
3. Back Left Water	4964.8	5030.9	2471.4	4942.8	2988	7	0.261	26.06
4. Front Right Water	20559.2	20625.3	-10268.6	20537.2	2988	7	0.600	59.97
5. Back Right Water	6678.9	6744.9	-3328.4	6656.9	2988	7	0.142	14.18
10. Front Grassland								
Water	882.1	942.2	-431.1	862.1	2989	7	0.025	2.51
11. Back Grassland								
Water	1823.8	1871.8	-903.9	1807.8	2991	4	0.001	0.001
Unknown	5253.5	5319.5	-2615.7	5231.5	2988	7	0.252	25.18

AIC = Akaike information criterion; BIC = Bayesian information criterion; K = number of parameters. R² = proportion of variance in DV explained by the model.

Table S6. Model fit values of negative binomial GLMMs explaining enclosure use by Chilean Flamingos at Banham Zoo.

Dependent Variable (Enclosure Zone)	Model Fit Values							
	AIC	BIC	LogLik	Deviance	df.residual	K	R ²	%Exp
3. Beach	1554.6	1615.3	-767.3	1534.6	3188	6	0.690	68.97
4. Front Shallow								
Water	6027.2	6087.9	-3003.6	6007.2	3188	6	0.931	93.15
5. Hill	25480.0	25540.7	-12730.0	25460.0	3188	6	0.732	73.24

6. Slope	2399.7	2460.4	-1189.9	2379.7	3188	6	0.316	31.60
8. Left Shallow							<	<
Water	7820.5	7875.1	-3901.2	7802.5	3189	5	0.001	0.001
9. Middle Deep								
Water	4191.8	4240.4	-2087.9	4175.8	3190	4	0.851	85.14
Unknown	11178.7	11239.4	-5579.3	11158.7	3188	6	0.151	15.14

AIC = Akaike information criterion; BIC = Bayesian information criterion; K = number of parameters. R² = proportion of variance in DV explained by the model.

Table S7. Change in model fit values through stepwise deletion of singular terms within negative binomial GLMMs explaining behaviour performed by Greater Flamingos at Africa Alive.

Single Term Deletions	Feeding						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			16582.0				
Zoo Status	1	2999	16582.0	0.0	2.060	2.158	0.151
Observation	2	2999	17486.0	904.0	908.080	862.282	< 0.001 ***
Temperature (°C)	1	2999	16596.0	14.0	16.370	15.687	< 0.001 ***
Wind (km/h)	1	2999	16582.0	0.0	1.730	1.747	0.189
Rainfall (mm)	1	2999	16650.0	68.0	69.970	72.089	< 0.001 ***
Humidity (%)	1	2999	16595.0	13.0	14.530	15.047	< 0.001 ***
Sunshine (%)	1	2999	16601.0	19.0	21.450	21.454	< 0.001 ***
Single Term Deletions	Preening						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			18855.0				
Zoo Status	1	2999	18853.0	-2.0	0.222	0.222	0.637
Observation	2	2999	18862.0	7.0	11.123	<	< 0.001 **
Temperature (°C)	1	2999	18871.0	16.0	17.671	17.204	< 0.001 ***
Wind (km/h)	1	2999	18853.0	-2.0	0.165	0.165	0.685
Rainfall (mm)	1	2999	18880.0	25.0	27.360	27.699	< 0.001 ***
Humidity (%)	1	2999	18930.0	75.0	77.300	72.925	< 0.001 ***
Sunshine (%)	1	2999	18890.0	35.0	36.630	36.351	< 0.001 ***
Single Term Deletions	Inactive						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			21468.0				
Zoo Status	1	2999	21468.0	0.0	1.159	1.1612	0.282
Observation	2	2999	21682.0	214.0	217.515	217.1847	< 0.001 ***
Temperature (°C)	1	2999	21495.0	27.0	28.272	24.0992	< 0.001 ***
Wind (km/h)	1	2999	21467.0	-1.0	0.945	0.9667	0.331
Rainfall (mm)	1	2999	21690.0	222.0	223.858	251.7356	< 0.001 ***
Humidity (%)	1	2999	21467.0	-1.0	0.476	0.4712	0.490
Sunshine (%)	1	2999	21508.0	40.0	41.256	40.0355	< 0.001 ***
Single Term Deletions	Movement						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			9339.0				
Zoo Status	1	2999	9337.1	-1.9	0.012	0.0117	0.912
Observation	2	2999	9460.0	121	124.973	122.5968	< 0.001 ***
Temperature (°C)	1	2999	9337.6	-1.4	0.606	0.6102	0.436
Wind (km/h)	1	2999	9340.8	1.8	3.772	3.6439	0.052
Rainfall (mm)	1	2999	9346.7	7.7	9.662	9.8922	< 0.01 **
Humidity (%)	1	2999	9344.8	5.8	7.747	7.7047	< 0.01 **
Sunshine (%)	1	2999	9342.1	3.1	5.023	5.0444	< 0.05 *
Single Term Deletions	Vigilance						
	df	N	AIC	ΔAIC	LRT	X ²	p

None			7270.8				
Zoo Status	1	2999	7270.9	0.1	2.053	2.069	0.152
Observation	2	2999	7286.1	15.3	19.321	19.318	< 0.001 ***
Temperature (°C)	1	2999	7278.4	7.6	9.628	8.352	< 0.01 **
Wind (km/h)	1	2999	7269.0	-1.8	0.171	0.171	0.679
Rainfall (mm)	1	2999	7278.8	8.0	9.982	10.573	< 0.01 **
Humidity (%)	1	2999	7280.9	10.1	12.079	10.294	< 0.001 ***
Sunshine (%)	1	2999	7274.9	4.1	6.043	5.967	< 0.05 *
Single Term Deletions			Aggression				
	df	N	AIC	ΔAIC	LRT	X ²	p
None			1510.0				
Zoo Status	1	2999	1508.5	-1.5	0.467	0.468	0.494
Observation	2	2999	1507.9	-2.1	1.843	1.834	0.398
Temperature (°C)	1	2999	1508.0	-2.0	0.000	0.000	0.984
Wind (km/h)	1	2999	1509.4	-0.6	1.380	1.433	0.240
Rainfall (mm)	1	2999	1509.8	-0.2	1.704	1.858	0.192
Humidity (%)	1	2999	1509.2	-0.8	1.098	1.096	0.295
Sunshine (%)	1	2999	1508.2	-1.8	0.115	0.115	0.735
Single Term Deletions			Courtship				
	df	N	AIC	ΔAIC	LRT	X ²	p
None			1621.7				
Zoo Status	1	2999	1619.8	-1.9	0.061	0.061	0.804
Observation	2	2999	1622.2	0.5	4.534	4.540	0.104
Temperature (°C)	1	2999	1620.7	-1.0	1.034	1.016	0.309
Wind (km/h)	1	2999	1619.7	-2.0	0.018	0.018	0.895
Rainfall (mm)	1	2999	1620.6	-1.1	0.901	0.917	0.342
Humidity (%)	1	2999	1622.5	0.8	2.821	2.748	0.093
Sunshine (%)	1	2999	1619.7	-2.0	0.042	0.042	0.838
Single Term Deletions			Unknown				
	df	N	AIC	ΔAIC	LRT	X ²	p
None			8438.0				
Zoo Status	1	2999	8436.1	-1.9	0.054	0.0546	0.816
Observation	2	2999	8647.1	209.1	213.063	207.4758	< 0.001 ***
Temperature (°C)	1	2999	8436.3	-1.7	0.288	0.2898	0.592
Wind (km/h)	1	2999	8458.5	20.5	22.466	21.4411	< 0.001 ***
Rainfall (mm)	1	2999	8437.1	-0.9	1.049	1.061	0.306
Humidity (%)	1	2999	8448.3	10.3	12.284	11.671	< 0.001 ***
Sunshine (%)	1	2999	8448.9	10.9	12.827	12.7576	< 0.001 ***

df = degrees of freedom; N = number of samples; AIC = Akaike information criterion; ΔAIC = change in AIC score after stepwise removal of respective parameter; LRT = likelihood ratio test; X² = Chi squared test statistic; p = significance value.

Table S8. Change in model fit values through stepwise deletion of singular terms within negative binomial GLMMs explaining behaviour performed by Chilean Flamingos at Banham Zoo.

Single Term Deletions		Feeding					
	df	N	AIC	ΔAIC	LRT	X ²	p
None			12872.0				
Zoo Status	1	3198	12877.0	5.0	7.220	9.156	< 0.05 *
Observation	2	3198	13282.0	410.0	414.260	381.526	< 0.001 ***
Temperature (°C)	1	3198	12927.0	55.0	56.960	53.539	< 0.001 ***
Wind (km/h)	1	3198	12870.0	0.0	0.820	0.817	0.365
Rainfall (mm)	1	3198	12982.0	112.0	112.49	115.252	< 0.001 ***
Sunshine (%)	1	3198	12871.0	1.0	0.950	0.952	0.330
Single Term Deletions		Preening					

	df	N	AIC	ΔAIC	LRT	X ²	p
None			16812.0				
Zoo Status	1	3198	16811.0	-1.0	1.353	1.423	0.245
Observation	2	3198	17091.0	279.0	283.561	279.981	< 0.001 ***
Wind (km/h)	1	3198	16842.0	30.0	31.719	30.661	< 0.001 ***
Rainfall (mm)	1	3198	16823.0	11.0	13.351	13.661	< 0.001 ***
Humidity (%)	1	3198	16827.0	15.0	16.821	16.929	< 0.001 ***
Sunshine (%)	1	3198	16813.0	1.0	3.062	3.061	0.080
Single Term Deletions	Inactive						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			22789.0				
Zoo Status	1	3198	22794.0	5.0	7.838	10.012	< 0.01 **
Observation	2	3198	22987.0	198.0	202.309	221.419	< 0.001 ***
Temperature (°C)	1	3198	22787.0	-2.0	0.795	0.799	0.372
Wind (km/h)	1	3198	22787.0	-2.0	0.307	0.311	0.579
Rainfall (mm)	1	3198	22865.0	76.0	78.899	80.382	< 0.001 ***
Humidity (%)	1	3198	22807.0	18.0	20.274	20.381	< 0.001 ***
Sunshine (%)	1	3198	22802.0	13.0	15.441	15.396	< 0.001 ***
Single Term Deletions	Movement						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			11106.0				
Zoo Status	1	3198	11111.0	5.0	6.908	8.2239	< 0.01 **
Observation	2	3198	11264.0	158.0	161.916	164.1049	< 0.001 ***
Temperature (°C)	1	3198	11106.0	0.0	1.843	1.8003	0.175
Wind (km/h)	1	3198	11151.0	45.0	47.775	42.0221	< 0.001 ***
Rainfall (mm)	1	3198	11104.0	-2.0	0.012	0.0125	0.911
Humidity (%)	1	3198	11115.0	9.0	11.209	11.8423	< 0.001 ***
Sunshine (%)	1	3198	11120.0	14.0	15.858	15.4748	< 0.001 ***
Single Term Deletions	Vigilance						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			7679.3				
Zoo Status	1	3198	7678.3	-1.0	0.978	1.024	0.323
Observation	2	3198	7766.2	86.9	90.896	87.360	< 0.001 ***
Wind (km/h)	1	3198	7763.0	83.7	85.687	72.909	< 0.001 ***
Rainfall (mm)	1	3198	7737.1	57.8	59.843	56.610	< 0.001 ***
Humidity (%)	1	3198	7678.1	-1.2	0.818	0.815	0.366
Sunshine (%)	1	3198	7743.0	63.7	65.736	59.141	< 0.001 ***
Single Term Deletions	Aggression						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			7730.4				
Zoo Status	1	3198	7729.3	-1.1	0.859	0.827	0.354
Observation	2	3198	7739.5	9.1	13.065	13.178	< 0.01 **
Temperature (°C)	1	3198	7746.6	16.2	18.139	15.124	< 0.001 ***
Wind (km/h)	1	3198	7732.5	2.1	4.058	3.102	< 0.05 *
Rainfall (mm)	1	3198	7728.4	-2.0	0.001	0.001	0.979
Humidity (%)	1	3198	7731.2	0.8	2.758	2.361	0.097
Sunshine (%)	1	3198	7741.3	10.9	12.863	12.749	< 0.001 ***
Single Term Deletions	Courtship						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			3100.5				
Zoo Status	1	3198	3099.1	-1.4	0.572	0.591	0.449
Observation	2	3198	3099.4	-1.1	2.903	2.915	0.234

Temperature (°C)	1	3198	3098.9	-1.6	0.437	0.427	0.509
Wind (km/h)	1	3198	3104.4	3.9	5.931	5.517	< 0.05 *
Rainfall (mm)	1	3198	3102.3	1.8	3.842	3.823	< 0.05 *
Humidity (%)	1	3198	3099.3	-1.2	0.821	0.798	0.365
Sunshine (%)	1	3198	3098.5	-2.0	0.002	0.002	0.964
Single Term Deletions	Unknown						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			16914.0				
Zoo Status	1	3198	16912.0	-2.0	0.635	0.652	0.425
Observation	2	3198	16936.0	22.0	26.853	26.826	< 0.001 ***
Wind (km/h)	1	3198	16928.0	14.0	16.738	16.176	< 0.001 ***
Rainfall (mm)	1	3198	16949.0	35.0	37.493	37.044	< 0.001 ***
Humidity (%)	1	3198	16918.0	4.0	6.665	6.642	< 0.001 ***
Sunshine (%)	1	3198	16927.0	13.0	15.690	15.616	< 0.001 ***

df = degrees of freedom; N = number of samples; AIC = Akaike information criterion; ΔAIC = change in AIC score after stepwise removal of respective parameter; LRT = likelihood ratio test; X² = Chi squared test statistic; p = significance value.

Table S9. Change in model fit values through stepwise deletion of singular terms within negative binomial GLMMs explaining zones occupied by Greater Flamingos at Africa Alive.

Single Term Deletions	1. Overlooked						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			20273.0				
Zoo Status	1	2999	20272.0	-1.0	0.660	0.671	0.418
Observation	2	2999	21204.0	931.0	935.270	969.101	< 0.001 ***
Temperature (°C)	1	2999	20288.0	15.0	17.450	17.459	< 0.001 ***
Wind (km/h)	1	2999	20277.0	4.0	5.970	5.951	< 0.05 *
Rainfall (mm)	1	2999	20300.0	27.0	28.930	29.115	< 0.001 ***
Humidity (%)	1	2999	20274.0	1.0	2.950	2.951	0.086
Sunshine (%)	1	2999	20410.0	137.0	138.910	139.587	< 0.001 ***
Single Term Deletions	2. Front Left Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			13263.0				
Zoo Status	1	2999	13262.0	-1.0	0.440	0.446	0.506
Observation	2	2999	13650.0	387.0	391.080	376.986	< 0.001 ***
Temperature (°C)	1	2999	13261.0	-2.0	0.080	0.082	0.775
Wind (km/h)	1	2999	13265.0	2.0	3.340	3.351	0.068
Rainfall (mm)	1	2999	13318.0	55.0	57.110	57.360	< 0.001 ***
Humidity (%)	1	2999	13265.0	2.0	3.980	4.028	< 0.05 *
Sunshine (%)	1	2999	13284.0	21.0	22.330	22.301	< 0.001 ***
Single Term Deletions	3. Back Left Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			4964.8				
Zoo Status	1	2999	4963.5	-1.3	0.710	0.720	0.401
Observation	2	2999	5310.8	346.0	350.010	201.236	< 0.001 ***
Temperature (°C)	1	2999	4963.4	-1.4	0.560	0.548	0.456
Wind (km/h)	1	2999	4965.1	0.3	2.300	2.236	0.129
Rainfall (mm)	1	2999	4964.7	-0.1	1.860	1.825	0.173
Humidity (%)	1	2999	4971.1	6.3	8.240	7.887	< 0.01 **
Sunshine (%)	1	2999	4967.1	2.3	4.320	4.344	< 0.05 *
Single Term Deletions	4. Front Right Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			20559.0				
Zoo Status	1	2999	20557.0	-2.0	0.120	0.118	0.732

Observation	2	2999	21114.0	555.0	559.020	5566.041	< 0.001 ***
Temperature (°C)	1	2999	20561.0	2.0	3.560	3.544	0.059
Wind (km/h)	1	2999	20682.0	123.0	124.440	122.093	< 0.001 ***
Rainfall (mm)	1	2999	20615.0	56.0	58.230	58.564	< 0.001 ***
Humidity (%)	1	2999	20585.0	26.0	28.130	28.613	< 0.001 ***
Sunshine (%)	1	2999	20753.0	194.0	195.370	193.029	< 0.001 ***
Single Term Deletions	5. Back Right Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			6678.9				
Zoo Status	1	2999	6677.0	-1.9	0.140	0.138	0.712
Observation	2	2999	7024.3	345.4	349.480	274.474	< 0.001 ***
Temperature (°C)	1	2999	6682.0	3.1	5.180	5.711	<.05 *
Wind (km/h)	1	2999	6683.5	4.6	6.650	6.099	< 0.01 **
Rainfall (mm)	1	2999	6683.4	4.5	6.580	6.023	< 0.05 *
Humidity (%)	1	2999	6694.0	15.1	17.110	14.470	< 0.001 ***
Sunshine (%)	1	2999	6678.8	-0.1	1.950	1.940	0.162
Single Term Deletions	10. Front Grassland Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			882.1				
Zoo Status	1	2999	882.2	0.1	2.070	1.715	0.150
Observation	2	2999	883.0	0.9	4.923	4.485	0.085
Temperature (°C)	1	2999	881.2	-0.9	1.100	1.092	0.294
Wind (km/h)	1	2999	880.3	-1.8	0.152	0.149	0.696
Rainfall (mm)	1	2999	887.4	5.3	7.337	6.818	< 0.01 **
Sunshine (%)	1	2999	880.1	-2.0	0.006	0.006	0.938
Single Term Deletions	11. Back Grassland Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			1823.8				
Zoo Status	1	2999	1822.1	-1.7	0.318	0.416	0.573
Observation	2	2999	1820.5	-3.3	0.699	0.752	0.705
Wind (km/h)	1	2999	1822.5	-1.3	0.731	0.765	0.393
Rainfall (mm)	1	2999	1822.3	-1.5	0.503	0.525	0.478
Single Term Deletions	Unknown						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			5253.5				
Zoo Status	1	2999	5251.5	-2.0	0.025	0.025	0.875
Observation	2	2999	5507.4	253.9	257.983	216.932	< 0.001 ***
Temperature (°C)	1	2999	5262.5	9.0	11.054	11.514	< 0.001 ***
Wind (km/h)	1	2999	5256.6	3.1	5.159	5.048	< 0.05 *
Rainfall (mm)	1	2999	5252.7	-0.8	1.252	1.273	0.263
Humidity (%)	1	2999	5264.7	11.2	13.243	12.425	< 0.001 ***
Sunshine (%)	1	2999	5313.8	60.3	62.379	59.466	< 0.001 ***

df = degrees of freedom; N = number of samples; AIC = Akaike information criterion; ΔAIC = change in AIC score after stepwise removal of respective parameter; LRT = likelihood ratio test; X² = Chi squared test statistic; p = significance value.

Table S10. Change in model fit values through stepwise deletion of singular terms within negative binomial GLMMs explaining zones occupied by Chilean Flamingos at Banham Zoo.

Single Term Deletions	3. Beach						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			1554.6				
Zoo Status	1	3198	1552.6	-2.0	0.000	0.000	1.000
Observation	2	3198	1576.7	22.1	26.043	25.914	< 0.001 ***

Wind (km/h)	1	3198	1566.3	11.7	13.649	17.984	< 0.001 ***
Rainfall (mm)	1	3198	1558.2	3.6	5.580	5.377	< 0.05 *
Humidity (%)	1	3198	1562.7	8.1	10.074	9.219	< 0.01 **
Sunshine (%)	1	3198	1552.9	-1.7	0.274	0.269	0.601
Single Term Deletions	4. Front Shallow Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			6027.2				
Zoo Status	1	3198	6025.4	-1.8	0.170	0.233	0.683
Observation	2	3198	6378.1	350.9	354.940	263.570	< 0.001 ***
Wind (km/h)	1	3198	6056.9	29.7	31.720	24.295	< 0.001 ***
Rainfall (mm)	1	3198	6223.1	195.9	197.870	218.736	< 0.001 ***
Humidity (%)	1	3198	6034.1	6.9	8.860	9.630	< 0.01 **
Sunshine (%)	1	3198	6134.0	106.8	108.820	113.860	< 0.001 ***
Single Term Deletions	5. Hill						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			25480.0				
Zoo Status	1	3198	25479.0	-1.0	0.530	0.542	0.467
Observation	2	3198	25871.0	391.0	395.030	413.819	< 0.001 ***
Wind (km/h)	1	3198	25623.0	143.0	144.930	138.909	< 0.001 ***
Rainfall (mm)	1	3198	25549.0	69.0	71.390	72.334	< 0.001 ***
Humidity (%)	1	3198	25503.0	23.0	24.890	24.964	< 0.001 ***
Sunshine (%)	1	3198	25481.0	1.0	3.060	4.045	0.080
Single Term Deletions	6. Slope						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			2399.8				
Zoo Status	1	3198	2397.8	-2.0	< 0.001	0.000	1.000
Observation	2	3198	2447.5	47.7	51.767	44.864	< 0.001 ***
Wind (km/h)	1	3198	2404.4	4.6	6.702	6.534	< 0.01 **
Rainfall (mm)	1	3198	2408.7	8.9	10.916	10.362	< 0.001 ***
Humidity (%)	1	3198	2417.9	18.1	20.159	18.943	< 0.001 ***
Sunshine (%)	1	3198	2404.2	4.4	6.416	5.819	< 0.05 *
Single Term Deletions	8. Left Shallow Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			7820.5				
Zoo Status	1	3198	7824.5	4.0	6.084	3.627	< 0.05 *
Observation	2	3198	7821.2	0.7	4.704	5.381	0.095
Rainfall (mm)	1	3198	7820.7	0.2	2.277	0.916	0.131
Humidity (%)	1	3198	7818.8	-1.7	0.306	0.322	0.580
Sunshine (%)	1	3198	7819.6	-0.9	1.128	1.074	0.288
Single Term Deletions	9. Middle Deep Water						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			4191.8				
Zoo Status	1	3198	4190.4	-1.4	0.550	0.471	0.460
Observation	2	3198	4976.7	784.9	788.840	481.126	< 0.001 ***
Humidity (%)	1	3198	4261.0	69.2	71.190	71.549	< 0.001 ***
Sunshine (%)	1	3198	4199.6	7.8	9.790	10.067	< 0.01 **
Single Term Deletions	Unknown						
	df	N	AIC	ΔAIC	LRT	X ²	p
None			11179.0				
Zoo Status	1	3198	11177.0	-2.0	0.077	0.077	0.782
Observation	2	3198	11204.0	25.0	29.825	29.759	< 0.001 ***
Wind (km/h)	1	3198	11183.0	4.0	6.013	5.877	< 0.05 *

Rainfall (mm)	1	3198	11182.0	3.0	5.394	5.345	< 0.05 *
Humidity (%)	1	3198	11179.0	0.0	2.433	2.424	0.119
Sunshine (%)	1	3198	11215.0	36.0	38.338	37.586	< 0.001 ***

df = degrees of freedom; N = number of samples; AIC = Akaike information criterion; Δ AIC = change in AIC score after stepwise removal of respective parameter; LRT = likelihood ratio test; χ^2 = Chi squared test statistic; p = significance value.

Table S11. Full conditional negative binomial GLMMs investigating the influence of predictors on the performance of key behaviours in Greater Flamingos.

Predictor(s)	Feeding					
	β	SE	p	OR	95% CI \pm	
Intercept	0.784	0.198	< 0.001 ***	2.189	1.485	3.227
Visitor Blocking Variable						
Zoo Status (Closed)	-0.373	0.254	0.142	0.689	0.419	1.133
Observation Periods						
Early Afternoon (Morn)	1.489	0.056	< 0.001 ***	4.431	3.971	4.943
Late Afternoon (Morn)	1.744	0.064	< 0.001 ***	5.721	5.046	6.486
Late Afternoon (Early)	0.256	0.048	< 0.001 ***	1.291	1.175	1.419
Climatic Variables						
Temperature (°C)	-0.208	0.053	< 0.001 ***	0.812	0.732	0.900
Wind (km/h)	0.078	0.059	0.186	1.081	0.963	1.213
Rainfall (mm)	0.258	0.030	< 0.001 ***	1.295	1.220	1.374
Humidity (%)	0.174	0.045	< 0.001 ***	1.191	1.090	1.300
Sunshine (%)	0.196	0.042	< 0.001 ***	1.216	1.119	1.321
Predictor(s)	Preening					
	β	SE	p	OR	95% CI \pm	
Intercept	2.144	0.213	< 0.001 ***	8.536	5.620	12.966
Visitor Blocking Variable						
Zoo Status (Closed)	0.129	0.273	0.638	1.137	0.666	1.942
Observation Periods						
Early Afternoon (Morn)	0.063	0.037	0.091	1.065	0.990	1.146
Late Afternoon (Morn)	0.146	0.044	< 0.001 ***	1.157	1.061	1.262
Late Afternoon (Early)	0.083	0.036	< 0.05 *	1.086	1.013	1.165
Climatic Variables						
Temperature (°C)	0.178	0.043	< 0.001 ***	1.194	1.098	1.299
Wind (km/h)	-0.017	0.042	0.685	0.983	0.905	1.068
Rainfall (mm)	0.119	0.023	< 0.001 ***	1.126	1.077	1.177
Humidity (%)	0.309	0.036	< 0.001 ***	1.362	1.269	1.462
Sunshine (%)	0.185	0.031	< 0.001 ***	1.203	1.133	1.277
Predictor(s)	Inactive					
	β	SE	p	OR	95% CI \pm	
Intercept	2.943	0.095	< 0.001 ***	18.975	15.757	22.849
Visitor Blocking Variable						
Zoo Status Open (Closed)	0.132	0.122	0.281	1.141	0.898	1.449
Observation Periods						
Early Afternoon (Morn)	-0.451	0.046	< 0.001 ***	0.637	0.582	0.697
Late Afternoon (Morn)	-0.829	0.056	< 0.001 ***	0.436	0.391	0.487
Late Afternoon (Early)	-0.378	0.042	< 0.001 ***	0.686	0.631	0.744
Climatic Variables						
Temperature (°C)	0.216	0.044	< 0.001 ***	1.242	1.139	1.354
Wind (km/h)	-0.042	0.043	0.326	0.959	0.882	1.043
Rainfall (mm)	-0.400	0.025	< 0.001 ***	0.670	0.638	0.704
Humidity (%)	0.024	0.036	0.492	1.025	0.956	1.099
Sunshine (%)	-0.224	0.035	< 0.001 ***	0.799	0.745	0.856

Predictor(s)	Movement					
	β	SE	p	OR	95% CI \pm	
Intercept	-0.378	0.274	0.169	0.685	0.400	1.173
Visitor Blocking Variable						
Zoo Status (Closed)	0.038	0.350	0.914	1.039	0.523	2.064
Observation Periods						
Early Afternoon (Morn)	0.744	0.072	< 0.001 ***	2.105	1.826	2.426
Late Afternoon (Morn)	0.825	0.087	< 0.001 ***	2.283	1.926	2.706
Late Afternoon (Early)	0.081	0.072	0.258	1.085	0.942	1.249
Climatic Variables						
Temperature (°C)	-0.059	0.075	0.435	0.943	0.814	1.092
Wind (km/h)	-0.175	0.092	0.056	0.839	0.701	1.005
Rainfall (mm)	0.140	0.044	< 0.01 **	1.150	1.054	1.254
Humidity (%)	0.178	0.064	< 0.01 **	1.194	1.054	1.354
Sunshine (%)	0.144	0.064	< 0.05 *	1.155	1.019	1.310
Predictor(s)	Vigilance					
	β	SE	p	OR	95% CI \pm	
Intercept	-0.942	0.398	< 0.05 *	0.390	0.179	0.851
Visitor Blocking Variable						
Zoo Status (Closed)	0.739	0.514	0.150	2.094	0.765	5.730
Observation Periods						
Early Afternoon (Morn)	0.572	0.130	< 0.001 ***	1.772	1.373	2.287
Late Afternoon (Morn)	0.388	0.147	< 0.01 **	1.474	1.105	1.967
Late Afternoon (Early)	-0.184	0.128	0.150	0.832	0.648	1.069
Climatic Variables						
Temperature (°C)	0.428	0.148	< 0.01 **	1.534	1.148	2.050
Wind (km/h)	-0.058	0.139	0.680	0.944	0.719	1.240
Rainfall (mm)	0.249	0.077	< 0.01 **	1.283	1.104	1.490
Humidity (%)	0.419	0.130	< 0.01 **	1.520	1.177	1.962
Sunshine (%)	0.267	0.109	< 0.05 *	1.306	1.054	1.618
Predictor(s)	Aggression					
	β	SE	p	OR	95% CI \pm	
Intercept	-2.631	0.263	< 0.001 ***	0.072	0.043	0.120
Visitor Blocking Variable						
Zoo Status (Closed)	-0.205	0.300	0.494	0.814	0.452	1.467
Observation Periods						
Early Afternoon (Morn)	0.102	0.267	0.704	1.107	0.656	1.869
Late Afternoon (Morn)	0.390	0.303	0.198	1.477	0.815	2.676
Late Afternoon (Early)	0.288	0.267	0.281	1.334	0.790	2.253
Climatic Variables						
Temperature (°C)	-0.003	0.135	0.984	0.997	0.765	1.300
Wind (km/h)	-0.170	0.142	0.231	0.844	0.639	1.114
Rainfall (mm)	0.159	0.117	0.173	1.173	0.933	1.475
Humidity (%)	0.124	0.118	0.295	1.132	0.898	1.427
Sunshine (%)	0.055	0.162	0.735	1.056	0.769	1.451
Predictor(s)	Courtship					
	β	SE	p	OR	95% CI \pm	
Intercept	-2.977	0.421	< 0.001 ***	0.051	0.022	0.116
Visitor Blocking Variable						
Zoo Status (Closed)	0.130	0.526	0.804	1.139	0.407	3.192
Observation Periods						
Early Afternoon (Morn)	0.447	0.257	0.082	1.563	0.945	2.584

Wind (km/h)	-0.287	0.052	< 0.001 ***	0.750	0.678	0.831
Rainfall (mm)	0.099	0.028	< 0.001 ***	1.103	1.047	1.163
Humidity (%)	0.128	0.045	< 0.01 **	1.138	1.070	1.210
Sunshine (%)	-0.069	0.040	0.082	0.933	0.863	1.008
Predictor(s)	Inactive					
	β	SE	p	OR	95% CI \pm	
Intercept	2.688	0.111	< 0.001 **	14.702	11.827	18.274
Visitor Blocking Variable						
Zoo Status (Closed)	0.483	0.153	< 0.01 **	1.622	1.202	2.188
Observation Periods						
Early Afternoon (Morn)	-0.377	0.039	< 0.001 ***	0.686	0.635	0.741
Late Afternoon (Morn)	-0.601	0.040	< 0.001 ***	0.548	0.507	0.594
Late Afternoon (Early)	-0.224	0.033	< 0.001 ***	0.800	0.749	0.854
Climatic Variables						
Temperature (°C)	0.049	0.055	0.372	1.050	0.943	1.169
Wind (km/h)	0.022	0.040	0.577	1.023	0.945	1.106
Rainfall (mm)	-0.176	0.020	< 0.001 ***	0.838	0.807	0.871
Humidity (%)	-0.146	0.032	< 0.001 ***	0.864	0.811	0.920
Sunshine (%)	0.114	0.029	< 0.001 ***	1.120	1.058	1.186
Predictor(s)	Movement					
	β	SE	p	OR	95% CI \pm	
Intercept	0.586	0.283	< 0.05 *	1.797	1.033	3.126
Visitor Blocking Variable						
Zoo Status (Closed)	-1.124	0.392	< 0.01 **	0.325	0.151	0.701
Observation Periods						
Early Afternoon (Morn)	0.484	0.098	< 0.001 ***	1.623	1.339	1.968
Late Afternoon (Morn)	1.167	0.096	< 0.001 ***	3.213	2.662	3.878
Late Afternoon (Early)	0.683	0.081	< 0.001 ***	1.980	1.690	2.319
Climatic Variables						
Temperature (°C)	-0.185	0.138	0.180	0.831	0.634	1.089
Wind (km/h)	-0.634	0.098	< 0.001 ***	0.530	0.438	0.642
Rainfall (mm)	0.005	0.048	0.911	1.005	0.916	1.104
Humidity (%)	0.262	0.076	< 0.001 ***	1.300	1.119	1.509
Sunshine (%)	-0.300	0.076	< 0.001 ***	0.740	0.638	0.860
Predictor(s)	Vigilance					
	β	SE	p	OR	95% CI \pm	
Intercept	-0.354	0.630	0.574	0.702	0.204	2.410
Visitor Blocking Variable						
Zoo Status (Closed)	-0.845	0.835	0.312	0.429	0.084	2.207
Observation Periods						
Early Afternoon (Morn)	0.242	0.122	< 0.05 *	1.274	1.003	1.618
Late Afternoon (Morn)	1.089	0.123	< 0.001 ***	2.971	2.334	3.781
Late Afternoon (Early)	0.846	0.120	< 0.001 ***	2.331	1.841	2.951
Climatic Variables						
Wind (km/h)	-1.398	0.164	< 0.001 **	0.247	0.179	0.340
Rainfall (mm)	-0.551	0.073	< 0.001 ***	0.577	0.500	0.666
Humidity (%)	-0.077	0.085	0.367	0.926	0.785	1.094
Sunshine (%)	-0.939	0.122	< 0.001 ***	0.391	0.308	0.497
Predictor(s)	Aggression					
	β	SE	p	OR	95% CI \pm	
Intercept	-0.365	0.161	< 0.05 *	0.694	0.507	0.951
Visitor Blocking Variable						

Zoo Status (Closed)	0.207	0.227	0.363	1.229	0.788	1.920
Observation Periods						
Early Afternoon (Morn)	0.041	0.104	0.691	1.042	0.850	1.277
Late Afternoon (Morn)	-0.286	0.111	< 0.05 *	0.752	0.605	0.934
Late Afternoon (Early)	-0.328	0.093	< 0.001 ***	0.720	0.600	0.866
Climatic Variables						
Temperature (°C)	0.444	0.114	< 0.001 ***	1.559	1.246	1.950
Wind (km/h)	0.181	0.103	0.078	1.199	0.980	1.467
Rainfall (mm)	0.002	0.061	0.978	1.002	0.889	1.129
Humidity (%)	0.131	0.085	0.124	1.139	0.965	1.346
Sunshine (%)	0.282	0.079	< 0.001 ***	1.325	1.135	1.547
Predictor(s)	Courtship					
	β	SE	<i>p</i>	OR	95% CI \pm	
Intercept	-1.952	0.353	< 0.001 ***	0.142	0.071	0.284
Visitor Blocking Variable						
Zoo Status (Closed)	-0.379	0.493	0.442	0.684	0.260	1.800
Observation Periods						
Early Afternoon (Morn)	0.296	0.173	0.088	1.344	0.957	1.888
Late Afternoon (Morn)	0.195	0.176	0.268	1.215	0.861	1.714
Late Afternoon (Early)	-0.102	0.148	0.491	0.903	0.676	1.206
Climatic Variables						
Temperature (°C)	0.136	0.208	0.514	1.145	0.762	1.721
Wind (km/h)	-0.363	0.155	< 0.05 *	0.695	0.513	0.942
Rainfall (mm)	0.172	0.088	0.051	1.188	1.000	1.412
Humidity (%)	0.109	0.122	0.372	1.115	0.878	1.416
Sunshine (%)	0.005	0.118	0.965	1.005	0.798	1.266
Predictor(s)	Unknown					
	β	SE	<i>p</i>	OR	95% CI \pm	
Intercept	1.908	0.128	< 0.001 ***	6.737	5.243	8.657
Visitor Blocking Variable						
Zoo Status (Closed)	0.137	0.169	0.420	1.147	0.823	1.598
Observation Periods						
Early Afternoon (Morn)	-0.120	0.023	< 0.001 ***	0.887	0.847	0.928
Late Afternoon (Morn)	-0.057	0.027	< 0.05 *	0.944	0.895	0.996
Late Afternoon (Early)	0.063	0.025	< 0.05 *	1.065	1.014	1.119
Climatic Variables						
Wind (km/h)	-0.129	0.032	< 0.001 ***	0.879	0.826	0.936
Rainfall (mm)	-0.094	0.015	< 0.001 ***	0.910	0.883	0.938
Humidity (%)	-0.049	0.019	< 0.01 **	0.953	0.918	0.988
Sunshine (%)	-0.092	0.023	< 0.001 ***	0.913	0.872	0.955

For the levels of visitor blocking and observation period, items within parentheses correspond to the reference level that comparison are being made to. β = beta coefficient; SE = standard error; *p* = significance value; OR = odds ratio; CI = confidence interval. Significance codes: '*' *p* < 0.05, '**' *p* < 0.01, '***' *p* < 0.001

Table S13. Average percentage of time spent performing key state behaviours by Greater Flamingos.

Status	Observation	Feeding		Preening		Inactive		Movement		Vigilant	
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	12.09	1.493	33.38	2.159	46.51	2.284	3.24	0.811	2.27	0.683
	Early										
	Afternoon	21.70	2.053	26.87	2.208	40.80	2.448	4.55	1.038	2.23	0.736
	Late Afternoon	32.83	2.339	28.69	2.253	26.99	2.211	4.24	1.004	2.27	0.742
Open	Morning	4.27	0.792	24.77	1.692	65.07	1.869	2.09	0.561	2.08	0.560
	Early										
	Afternoon	20.65	1.604	25.35	1.724	41.10	1.949	4.08	0.784	3.93	0.770
	Late Afternoon	29.48	1.877	43.48	2.041	60.14	2.016	32.30	1.925	33.89	1.949
	Total Closed	22.21	1.160	29.65	1.275	38.10	1.356	4.01	0.548	2.26	0.415
	Total Open	18.14	0.889	26.93	1.024	43.38	1.144	3.77	0.439	3.22	0.407
	Total	20.17	0.714	28.29	0.801	40.74	0.874	3.89	0.344	2.74	0.290
Status	Observation	Aggression		Courtship		Parental		Unknown			
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE		
Closed	Morning	0.21	0.211	0.30	0.249	0.00	0.000	2.01	0.642		
	Early										
	Afternoon	0.25	0.250	0.47	0.339	0.01	0.041	3.12	0.866		
	Late Afternoon	0.27	0.259	0.15	0.193	0.00	0.000	4.56	1.040		
Open	Morning	0.17	0.160	0.18	0.168	0.00	0.000	1.36	0.454		
	Early										
	Afternoon	0.16	0.156	0.23	0.191	0.00	0.000	4.49	0.820		
	Late Afternoon	4.36	0.840	0.63	0.325	0.02	0.063	7.23	1.066		
	Total Closed	0.25	0.138	0.30	0.154	0.00	0.013	3.23	0.493		
	Total Open	0.21	0.106	0.21	0.107	0.01	0.017	4.14	0.459		
	Total	0.23	0.085	0.26	0.091	0.00	0.011	3.68	0.335		

Table S14. Average percentage of time spent performing key state behaviours by Chilean Flamingos.

Status	Observation	Feeding		Preening		Inactive		Movement		Vigilant	
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	9.02	1.312	15.03	1.636	47.77	2.287	6.50	1.129	1.91	0.627
	Early										
	Afternoon	20.93	2.026	11.84	1.609	38.70	2.426	4.35	1.016	1.80	0.662
	Late Afternoon	16.79	1.862	21.30	2.039	28.08	2.239	7.00	1.271	4.89	1.074
Open	Morning	1.86	0.530	9.15	1.130	57.84	1.935	2.47	0.608	3.94	0.763
	Early										
	Afternoon	6.36	0.997	14.31	1.431	50.81	2.043	3.38	0.738	2.54	0.643
	Late Afternoon	8.73	1.162	23.29	1.740	47.19	2.055	21.63	1.695	17.85	1.577
	Total Closed	15.58	1.012	16.06	1.025	38.18	1.356	5.95	0.660	2.87	0.466
	Total Open	5.65	0.538	14.91	0.830	47.23	1.164	4.62	0.489	3.89	0.451
	Total	10.61	0.551	15.48	0.647	42.71	0.885	5.28	0.400	3.38	0.323
Status	Observation	Aggression		Courtship		Parental		Unknown			
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE		
Closed	Morning	2.69	0.740	0.53	0.333	0.00	0.000	16.54	1.701		
	Early										
	Afternoon	5.61	1.147	0.89	0.468	0.00	0.000	15.89	1.821		
	Late Afternoon	2.58	0.789	0.52	0.357	0.00	0.000	18.85	1.948		
Open	Morning	1.54	0.483	0.34	0.227	0.00	0.000	22.85	1.646		
	Early										
	Afternoon	2.18	0.596	0.32	0.231	0.00	0.000	20.10	1.637		
	Late Afternoon	6.49	1.014	1.85	0.554	0.00	0.000	25.60	1.797		
	Total Closed	3.62	0.522	0.65	0.224	0.00	0.000	17.09	1.051		
	Total Open	1.75	0.306	0.41	0.149	0.00	0.000	21.55	0.958		
	Total	2.69	0.289	0.53	0.130	0.00	0.000	19.32	0.706		

Table S15. Spearman's rank correlation outputs, testing for associations between climatic and visitor numbers against behaviours performed by Greater Flamingos.

Correlates	Feeding		Preening		Inactivity		Movement	
	rho	p	rho	p	rho	p	rho	p
No. Vis	-0.063	< 0.01 **	-0.080	< 0.001 ***	0.083	< 0.001 ***	-0.038	0.110
Temp	0.100	< 0.001 ***	-0.076	< 0.001 ***	0.103	< 0.001 ***	-0.044	0.064
Wind	-0.001	0.972	-0.033	0.166	0.113	< 0.001 ***	-0.041	0.078
Precipitation	0.296	< 0.001 ***	0.114	< 0.001 ***	-0.388	< 0.001 ***	0.154	< 0.001 ***
Humid	0.079	< 0.001 ***	0.223	< 0.001 ***	-0.171	< 0.001 ***	0.031	0.186
Sunshine	-0.148	< 0.001 ***	-0.205	< 0.001 ***	0.255	< 0.001 ***	-0.122	< 0.001 ***

Correlates	Vigilance		Aggression		Courtship		Unknown	
	rho	p	rho	p	rho	p	rho	p
No. Vis	0.057	< 0.05 *	-0.022	0.341	0.027	0.251	-0.099	< 0.001 ***
Temp	-0.040	0.088	-0.022	0.350	0.013	0.588	-0.100	< 0.001 ***
Wind	-0.131	< 0.001 ***	-0.042	0.071	-0.033	0.160	-0.062	< 0.01 **
Precipitation	0.171	< 0.001 ***	0.027	0.246	0.055	< 0.05 *	0.186	< 0.001 ***
Humid	0.084	< 0.001 ***	0.015	0.535	-0.003	0.907	-0.023	0.333
Sunshine	-0.126	< 0.001 ***	-0.015	0.517	-0.014	0.538	-0.192	< 0.001 ***

No correlation: rho = 0 - ± 0.09 ; weak correlation: rho = ± 0.10 - ± 0.29 ; moderate correlation: rho = ± 0.3 - ± 0.49 ; strong correlation: rho = ± 0.5 - 1. *p* values indicate whether the association occurred by chance, they do not infer strength of association. A significant *p* value means association did not occur by chance. Significance codes: '*' *p* < 0.05, '**' *p* < 0.01, '***' *p* < 0.001.

Table S16. Spearman's rank correlation outputs, testing for associations between climatic and visitor numbers against behaviours performed by Chilean Flamingos.

Correlates	Feeding		Preening		Inactivity		Movement	
	rho	p	rho	p	rho	p	rho	p
No. Vis	0.042	0.065	-0.069	< 0.01 **	0.041	0.075	-0.123	< 0.001 ***
Temp	0.215	< 0.001 ***	0.028	0.224	0.007	0.748	-0.001	0.977
Wind	-0.045	0.050	-0.358	< 0.001 ***	0.419	< 0.001 ***	-0.178	< 0.001 ***
Precipitation	0.163	< 0.001 ***	0.364	< 0.001 ***	-0.385	< 0.001 ***	0.296	< 0.001 ***
Humid	-0.064	< 0.01 **	0.109	< 0.001 ***	-0.212	< 0.001 ***	0.020	0.388
Sunshine	-0.015	0.499	-0.087	< 0.001 ***	0.121	< 0.001 ***	-0.065	< 0.01 **

Correlates	Vigilance		Aggression		Courtship		Unknown	
	rho	p	rho	p	rho	p	rho	p
No. Vis	-0.183	< 0.001 ***	-0.011	0.635	-0.056	< 0.05 **	0.112	< 0.001 ***
Temp	-0.114	< 0.001 ***	0.016	0.480	0.021	0.357	0.035	0.129
Wind	-0.310	< 0.001 ***	0.038	0.100	0.058	< 0.05 **	-0.044	0.054
Precipitation	0.295	< 0.001 ***	-0.043	0.059	-0.045	< 0.05 *	-0.131	< 0.001 ***
Humid	0.129	< 0.001 ***	0.001	0.979	-0.053	< 0.05 *	0.186	< 0.001 ***
Sunshine	-0.048	< 0.05 *	0.012	0.591	0.024	0.302	-0.019	0.411

No correlation: rho = 0 - ± 0.09 ; weak correlation: rho = ± 0.10 - ± 0.29 ; moderate correlation: rho = ± 0.3 - ± 0.49 ; strong correlation: rho = ± 0.5 - 1. *p* values indicate whether the association occurred by chance, they do not infer strength of association. A significant *p* value means association did not occur by chance. Significance codes: '*' *p* < 0.05, '**' *p* < 0.01, '***' *p* < 0.001.

Table S17. Full conditional negative binomial GLMMs investigating the influence of predictors on the occupancy of enclosure zones by Greater Flamingos.

Predictor(s)	1. Overlooked				
	β	SE	p	OR	95% CI \pm
Intercept	3.418	0.282	< 0.001 ***	30.514	17.549 53.056
Visitor Blocking Variable					
Zoo Status (Closed)	-0.296	0.361	0.413	0.744	0.366 1.510

Observation Periods						
Early Afternoon (Morn)	-1.250	0.041	< 0.001 ***	0.287	0.264	0.311
Late Afternoon (Morn)	-1.334	0.054	< 0.001 ***	0.264	0.237	0.293
Late Afternoon (Early)	-0.084	0.043	0.053	0.920	0.845	1.001
Climatic Variables						
Temperature (°C)	0.203	0.049	< 0.001 ***	1.225	1.114	1.348
Wind (km/h)	0.123	0.050	< 0.05 *	1.131	1.024	1.248
Rainfall (mm)	-0.141	0.026	< 0.001 ***	0.868	0.825	0.914
Humidity (%)	0.067	0.039	0.086	1.069	0.991	1.154
Sunshine (%)	-0.440	0.037	< 0.001 ***	0.644	0.599	0.693
2. Front Left Water						
Predictor(s)	β	SE	p	OR	95% CI \pm	
Intercept	-0.240	0.477	0.614	0.786	0.309	2.002
Visitor Blocking Variable						
Zoo Status (Closed)	0.406	0.607	0.504	1.500	0.456	4.933
Observation Periods						
Early Afternoon (Morn)	1.214	0.068	< 0.001 ***	3.367	2.948	3.845
Late Afternoon (Morn)	1.329	0.079	< 0.001 ***	3.778	3.239	4.408
Late Afternoon (Early)	0.115	0.065	0.077	1.122	0.988	1.275
Climatic Variables						
Temperature (°C)	0.021	0.074	0.775	1.021	0.883	1.181
Wind (km/h)	0.144	0.079	0.067	1.155	0.990	1.347
Rainfall (mm)	0.306	0.040	< 0.001 ***	1.357	1.254	1.469
Humidity (%)	0.124	0.062	< 0.05 *	1.132	1.003	1.277
Sunshine (%)	0.299	0.063	< 0.001 ***	1.348	1.191	1.527
3. Back Left Water						
Predictor(s)	β	SE	p	OR	95% CI \pm	
Intercept	-5.074	0.815	< 0.001 ***	0.006	0.001	0.031
Visitor Blocking Variable						
Zoo Status (Closed)	0.849	1.001	0.396	2.338	0.329	16.626
Observation Periods						
Early Afternoon (Morn)	3.836	0.280	< 0.001 ***	46.333	26.765	80.205
Late Afternoon (Morn)	4.243	0.317	< 0.001 ***	69.615	37.375	129.665
Late Afternoon (Early)	0.407	0.181	< 0.05 *	1.502	1.054	2.142
Climatic Variables						
Temperature (°C)	0.143	0.193	0.459	1.154	0.790	1.686
Wind (km/h)	-0.443	0.296	0.135	0.642	0.359	1.148
Rainfall (mm)	-0.161	0.119	0.177	0.852	0.674	1.075
Humidity (%)	0.524	0.187	< 0.01 **	1.688	1.171	2.434
Sunshine (%)	-0.337	0.162	< 0.05 *	0.714	0.520	0.980
4. Front Right Water						
Predictor(s)	β	SE	p	OR	95% CI \pm	
Intercept	1.698	0.361	< 0.001 ***	5.461	2.691	11.082
Visitor Blocking Variable						
Zoo Status (Closed)	0.158	0.461	0.731	1.171	0.475	2.889
Observation Periods						
Early Afternoon (Morn)	1.053	0.045	< 0.001 ***	2.867	2.624	3.131
Late Afternoon (Morn)	0.957	0.053	< 0.001 ***	2.604	2.349	2.886
Late Afternoon (Early)	-0.096	0.039	< 0.05 *	0.908	0.841	0.981
Climatic Variables						
Temperature (°C)	-0.090	0.048	0.060	0.914	0.832	1.004
Wind (km/h)	0.574	0.052	< 0.001 ***	1.775	1.603	1.965

Rainfall (mm)	0.198	0.026	< 0.001 ***	1.219	1.159	1.283
Humidity (%)	0.216	0.040	< 0.001 ***	1.241	1.147	1.344
Sunshine (%)	0.475	0.034	< 0.001 ***	1.607	1.503	1.719
Predictor(s)	5. Back Right Water					
	β	SE	p	OR	95% CI \pm	
Intercept	-3.087	0.614	< 0.001 ***	0.046	0.014	0.152
Visitor Blocking Variable						
Zoo Status (Closed)	0.289	0.777	0.710	1.335	0.291	6.123
Observation Periods						
Early Afternoon (Morn)	3.462	0.212	< 0.001 ***	31.864	21.030	48.280
Late Afternoon (Morn)	3.343	0.230	< 0.001 ***	28.291	18.031	44.389
Late Afternoon (Early)	-0.119	0.146	0.416	0.888	0.667	1.182
Climatic Variables						
Temperature (°C)	-0.437	0.183	< 0.05 *	0.646	0.451	0.924
Wind (km/h)	-0.551	0.223	< 0.05 *	0.765	0.372	0.893
Rainfall (mm)	-0.268	0.109	< 0.05 *	2.013	0.617	0.947
Humidity (%)	0.700	0.184	< 0.001 ***	1.201	1.404	2.886
Sunshine (%)	0.183	0.132	0.164	0.046	0.928	1.555
Predictor(s)	10. Front Grassland Water					
	β	SE	p	OR	95% CI \pm	
Intercept	-9.022	2.326	< 0.001 ***	1.21E-04	1.26E-06	0.012
Visitor Blocking Variable						
Zoo Status (Closed)	3.246	2.478	0.190	25.676	0.200	3.30E+03
Observation Periods						
Early Afternoon (Morn)	0.886	0.694	0.201	2.427	0.623	9.452
Late Afternoon (Morn)	1.253	0.592	< 0.05 *	3.500	1.098	11.163
Late Afternoon (Early)	0.366	0.589	0.534	1.443	0.455	4.578
Climatic Variables						
Temperature (°C)	-0.456	0.436	0.296	0.634	0.270	1.491
Wind (km/h)	0.276	0.717	0.700	1.318	0.323	5.373
Rainfall (mm)	1.165	0.446	< 0.01 **	3.206	1.337	7.687
Sunshine (%)	-0.068	0.906	0.940	0.934	0.158	5.518
Predictor(s)	11. Back Grassland Water					
	β	SE	p	OR	95% CI \pm	
Intercept	-10.303	5.928	0.082	3.35E-05	3.02E-10	3.724
Visitor Blocking Variable						
Zoo Status (Closed)	2.715	4.210	0.519	15.110	0.004	5.80E+04
Observation Periods						
Early Afternoon (Morn)	6.514	8.038	0.418	674.635	< 0.001	4.69E+09
Late Afternoon (Morn)	3.720	5.164	0.471	41.267	0.002	1.03E+06
Late Afternoon (Early)	-2.794	6.587	0.671	0.061	< 0.001	2.48E+04
Climatic Variables						
Wind (km/h)	-2.886	3.299	0.382	0.056	8.69E-05	35.866
Rainfall (mm)	1.955	2.698	0.469	7.062	0.036	1.40E+03
Predictor(s)	Unknown					
	β	SE	p	OR	95% CI \pm	
Intercept	-2.508	0.592	< 0.001 ***	0.081	0.025	0.260
Visitor Blocking Variable						
Zoo Status (Closed)	0.119	0.754	0.874	1.127	0.257	4.936
Observation Periods						
Early Afternoon (Morn)	1.716	0.142	< 0.001 ***	5.564	4.212	7.351
Late Afternoon (Morn)	2.458	0.169	< 0.001 ***	11.687	8.393	16.273

Late Afternoon (Early)	0.742	0.118	< 0.001 ***	2.100	1.666	2.649
Climatic Variables						
Temperature (°C)	-0.463	0.137	< 0.001 ***	0.629	0.481	0.822
Wind (km/h)	-0.369	0.164	< 0.05 *	0.691	0.501	0.954
Rainfall (mm)	0.096	0.085	0.259	1.100	0.932	1.299
Humidity (%)	0.461	0.131	< 0.001 ***	1.585	1.227	2.048
Sunshine (%)	0.888	0.115	< 0.001 ***	2.430	1.939	3.044

For the levels of visitor blocking and observation period, items within parentheses correspond to the reference level that comparison are being made to. β = beta coefficient; SE = standard error; p = significance value; OR = odds ratio; CI = confidence interval. Significance codes: '*' $p < 0.05$, '**' $p < 0.01$, '***' $p < 0.001$

Table S18. Full conditional negative binomial GLMMs investigating the influence of predictors on the occupancy of enclosure zones by Chilean Flamingos.

Predictor(s)	3. Beach					
	β	SE	p	OR	95% CI \pm	
Intercept	-12.901	4.188	< 0.001 **	0.000	< 0.001	0.009
Visitor Blocking Variable						
Zoo Status (Closed)	0.024	4.364	0.996	1.025	< 0.001	5308.30
Observation Periods						
Early Afternoon (Morn)	1.050	1.835	0.066	2.86E+00	0.931	8.764
Late Afternoon (Morn)	3.297	5.071	< 0.001 ***	27.019	7.557	96.605
Late Afternoon (Early)	2.253	0.651	< 0.001 ***	9.518	2.657	34.098
Climatic Variables						
Wind (km/h)	-2.677	-4.241	< 0.001 ***	0.069	0.020	0.237
Rainfall (mm)	1.011	2.319	< 0.05 *	2.748	1.169	6.457
Humidity (%)	1.233	3.036	< 0.01 **	3.431	1.548	7.603
Sunshine (%)	-0.461	-0.519	0.604	0.631	0.111	3.596
Predictor(s)	4. FSW					
	β	SE	p	OR	95% CI \pm	
Intercept	-15.424	5.098	< 0.01 **	0.000	9.16E-12	0.004
Visitor Blocking Variable						
Zoo Status (Closed)	-2.420	5.014	0.629	0.089	4.80E-06	1.65E+03
Observation Periods						
Early Afternoon (Morn)	3.210	0.313	< 0.001 ***	24.786	13.416	45.793
Late Afternoon (Morn)	6.466	0.400	< 0.001 ***	642.641	293.267	1.41E+03
Late Afternoon (Early)	3.259	0.286	< 0.001 ***	26.016	14.856	4.56E+00
Climatic Variables						
Wind (km/h)	-2.358	0.479	< 0.001 ***	0.095	0.037	0.242
Rainfall (mm)	1.950	0.132	< 0.001 ***	7.032	5.430	9.106
Humidity (%)	0.608	0.196	< 0.01 **	1.837	1.251	2.697
Sunshine (%)	2.747	0.258	< 0.001 **	15.598	9.417	25.835
Predictor(s)	5. Hill					
	β	SE	p	OR	95% CI \pm	
Intercept	2.786	0.529	< 0.001 ***	16.217	5.747	45.766
Visitor Blocking Variable						
Zoo Status (Closed)	0.516	0.700	0.461	1.675	0.424	6.610
Observation Periods						
Early Afternoon (Morn)	-0.145	0.047	< 0.01 **	0.865	0.789	0.949
Late Afternoon (Morn)	-0.962	0.051	< 0.001 ***	0.382	0.346	0.422
Late Afternoon (Early)	-0.817	0.049	< 0.001 ***	0.442	0.402	0.486
Climatic Variables						
Wind (km/h)	-0.732	0.062	< 0.001 ***	0.481	0.426	0.543
Rainfall (mm)	-0.222	0.026	< 0.001 ***	0.801	0.761	0.843
Humidity (%)	0.190	0.038	< 0.001 ***	1.210	1.123	1.303
Sunshine (%)	0.074	0.042	0.081	1.076	0.991	1.169
Predictor(s)	6. Slope					
	β	SE	p	OR	95% CI \pm	

	β	SE	p	OR	95% CI \pm	
Intercept	-3.863	1.155	< 0.001 ***	0.021	0.002	0.202
Visitor Blocking Variable						
Zoo Status (Closed)	-0.027	1.474	0.985	0.973	0.054	17.483
Observation Periods						
Early Afternoon (Morn)	0.277	0.213	0.194	1.320	0.869	2.004
Late Afternoon (Morn)	1.720	0.257	< 0.001 ***	5.583	3.373	9.239
Late Afternoon (Early)	1.443	0.292	< 0.001 ***	4.235	2.388	7.509
Climatic Variables						
Wind (km/h)	-0.634	0.248	< 0.05 *	0.530	0.326	0.862
Rainfall (mm)	-0.300	0.093	< 0.01 **	0.741	0.617	0.889
Humidity (%)	0.642	0.148	< 0.001 ***	1.901	1.424	2.539
Sunshine (%)	-0.524	0.217	< 0.05 *	0.592	0.387	0.906
Predictor(s)	8. LSW					
	β	SE	p	OR	95% CI \pm	
Intercept	-2.557	1.510	0.091	0.078	0.004	1.497
Visitor Blocking Variable						
Zoo Status (Closed)	-3.929	2.063	0.057	0.020	3.45E-04	1.121
Observation Periods						
Early Afternoon (Morn)	3.412	1.670	< 0.05 *	30.315	1.148	800.692
Late Afternoon (Morn)	3.913	1.880	< 0.05 *	50.052	1.256	1.99E+03
Late Afternoon (Early)	0.501	1.620	0.757	1.650	0.069	3.95E+01
Climatic Variables						
Rainfall (mm)	1.149	1.200	0.339	3.154	0.300	33.167
Humidity (%)	-0.540	0.952	0.571	0.583	0.090	3.767
Sunshine (%)	-1.178	1.137	0.300	0.308	0.033	2.858
Predictor(s)	9. MDW					
	β	SE	p	OR	95% CI \pm	
Intercept	-7.821	4.086	0.056	0.000	1.33E-07	1.206
Visitor Blocking Variable						
Zoo Status (Closed)	-2.682	3.906	0.492	0.068	3.24E-05	144.496
Observation Periods						
Early Afternoon (Morn)	1.738	0.219	< 0.001 ***	5.684	3.704	8.722
Late Afternoon (Morn)	4.980	0.246	< 0.001 **	145.490	89.809	235.694
Late Afternoon (Early)	3.241	0.184	< 0.001 ***	25.557	17.836	36.622
Climatic Variables						
Humidity (%)	0.783	0.093	< 0.001 ***	2.188	1.825	2.624
Sunshine (%)	-0.567	0.179	< 0.01 **	0.568	0.400	0.805
Predictor(s)	Unknown					
	β	SE	p	OR	95% CI \pm	
Intercept	0.661	0.200	< 0.001 ***	1.936	1.309	2.863
Visitor Blocking Variable						
Zoo Status (Closed)	-0.073	0.264	0.781	0.929	0.554	1.560
Observation Periods						
Early Afternoon (Morn)	-0.235	0.049	< 0.001 ***	0.791	0.719	0.870
Late Afternoon (Morn)	-0.261	0.057	< 0.001 ***	0.770	0.689	0.861
Late Afternoon (Early)	-0.027	0.054	0.621	0.974	0.876	1.082
Climatic Variables						
Wind (km/h)	-0.154	0.064	< 0.05 *	0.857	0.757	0.971
Rainfall (mm)	-0.069	0.030	< 0.05 *	0.933	0.880	0.990
Humidity (%)	-0.059	0.038	0.119	0.943	0.876	1.015
Sunshine (%)	-0.285	0.047	< 0.001 ***	0.752	0.686	0.824

For the levels of visitor blocking and observation period, items within parentheses correspond to the reference level that comparison are being made to. β = beta coefficient; SE = standard error; p = significance value; OR = odds ratio; CI = confidence interval. Significance codes: '*' $p < 0.05$, '**' $p < 0.01$, '***' $p < 0.001$

Table S19. Average percentage of time spent occupying enclosure zones by Greater Flamingos.

Status	Observation	1. Overlooked		2. Front Left Water		3. Back Left Water		4. Front Left Water		5. Back Right Water	
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	65.09	2.408	8.73	1.426	0.01	0.060	24.55	2.174	0.71	0.424
	Early										
	Afternoon	25.33	2.127	14.33	1.714	0.93	0.470	56.35	2.426	1.65	0.623
	Late Afternoon	29.26	2.365	16.68	1.938	3.63	0.972	46.58	2.593	1.06	0.532
Open	Morning	69.41	1.880	2.76	0.668	0.11	0.136	26.48	1.800	0.39	0.254
	Early										
	Afternoon	25.39	1.669	11.76	1.236	4.22	0.771	47.93	1.916	8.27	1.056
	Late Afternoon	25.93	1.890	17.78	1.649	8.80	1.221	64.75	2.060	41.70	2.126
	Total Closed	39.89	1.426	13.25	0.987	1.52	0.357	42.49	1.439	1.14	0.309
	Total Open	40.24	1.150	9.23	0.679	3.23	0.415	36.79	1.131	5.61	0.539
	Total	40.07	0.895	11.24	0.577	2.38	0.278	39.64	0.893	3.37	0.330
Status		6. Front High Bank		7. Back Low Bank		8. Back Grassland Path		9. Front Grassland Path		10. Front Grassland Water	
	Observation	Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.074	0.02	0.074
	Early										
	Afternoon	0.01	0.040	0.00	0.000	0.00	0.000	0.00	0.056	0.01	0.056
	Late Afternoon	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.045	0.01	0.045
Open	Morning	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.211	0.27	0.211
	Early										
	Afternoon	0.00	0.025	0.16	0.153	0.00	0.000	0.00	0.267	0.49	0.267
	Late Afternoon	0.00	0.000	0.04	0.088	0.00	0.000	0.01	0.362	0.71	0.362
	Total Closed	0.00	0.014	0.00	0.000	0.00	0.000	0.00	0.034	0.01	0.034
	Total Open	0.00	0.009	0.06	0.057	0.00	0.000	0.00	0.160	0.47	0.160
	Total	0.00	0.008	0.03	0.031	0.00	0.000	0.00	0.090	0.24	0.090
Status		11. Back Grassland Water		12. Nesting Zone		13. Woodland		Unknown			
	Observation	Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE		
Closed	Morning	0.00	0.000	0.00	0.000	0.00	0.000	0.89	0.475		
	Early										
	Afternoon	0.03	0.089	0.05	0.113	0.00	0.000	1.32	0.557		
	Late Afternoon	0.02	0.078	0.02	0.078	0.00	0.000	2.74	0.849		
Open	Morning	0.19	0.180	0.00	0.000	0.00	0.000	0.38	0.252		

Early								
Afternoon	0.03	0.065	0.01	0.042	0.02	0.055	1.72	0.498
Late Afternoon	2.95	0.729	4.95	0.935	0.12	0.152	3.20	0.759
Total Closed	0.02	0.040	0.03	0.046	0.00	0.000	1.65	0.371
Total Open	1.05	0.239	1.59	0.294	0.04	0.050	1.68	0.301
Total	0.53	0.133	0.81	0.164	0.02	0.027	1.66	0.233

Table S20. Average percentage of time spent occupying enclosure zones by Chilean Flamingos.

Status	Observation	1. Yard		2. Shelter		3. Beach		4. Front Shallow Water	
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	0.00	0.000	0.00	0.000	1.67	0.586	7.98	1.241
	Early								
	Afternoon	0.00	0.000	0.00	0.000	0.01	0.041	16.91	1.867
	Late Afternoon	0.00	0.000	0.00	0.000	0.00	0.000	12.63	1.655
Open	Morning	0.00	0.000	0.00	0.000	0.00	0.000	10.24	1.188
	Early								
	Afternoon	0.00	0.000	0.00	0.000	1.40	0.452	7.19	0.995
	Late Afternoon	0.00	0.000	0.00	0.000	1.93	0.567	14.36	1.444
	Total Closed	0.00	0.000	0.00	0.000	0.56	0.208	12.51	0.924
	Total Open	0.00	0.000	0.00	0.000	1.11	0.240	10.50	0.701
	Total	0.00	0.000	0.00	0.000	0.83	0.161	11.51	0.564
Status	Observation	5. Hill		6. Slope		7. Canopy Cover		8. Left Shallow Water	
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	80.50	1.814	0.70	0.382	2.65	0.735	0.37	0.279
	Early								
	Afternoon	48.23	2.489	0.60	0.384	24.85	2.153	3.76	0.948
	Late Afternoon	13.30	1.691	0.54	0.366	31.14	2.307	7.98	1.350
Open	Morning	82.04	1.504	0.33	0.224	0.34	0.230	0.00	0.000
	Early								
	Afternoon	85.28	1.365	0.21	0.176	0.11	0.129	0.65	0.308
	Late Afternoon	89.67	1.253	8.14	1.125	6.84	1.039	14.88	1.465
	Total Closed	47.34	1.394	0.61	0.218	19.55	1.107	4.04	0.550
	Total Open	80.88	0.899	0.41	0.147	0.33	0.132	0.58	0.174
	Total	64.11	0.848	0.51	0.126	9.94	0.529	2.31	0.266
Status	Observation	9. Middle Deep Water		10. Far Deep Water		11. Overgrown Bank		Unknown	
		Mean%	SE	Mean%	SE	Mean%	SE	Mean%	SE
Closed	Morning	2.09	0.654	0.00	0.000	0.01	0.049	4.04	0.902
	Early								
	Afternoon	1.96	0.690	0.00	0.000	0.00	0.000	3.68	0.938
	Late Afternoon	29.25	2.266	0.02	0.071	0.00	0.000	5.13	1.099
Open	Morning	0.00	0.000	0.00	0.000	0.00	0.000	7.05	1.003
	Early								
	Afternoon	0.51	0.274	0.00	0.000	0.00	0.000	4.66	0.812
	Late Afternoon	22.88	1.729	0.34	0.238	0.00	0.000	4.52	0.856
	Total Closed	11.10	0.877	0.01	0.023	0.00	0.017	4.28	0.565
	Total Open	0.80	0.203	0.02	0.035	0.00	0.000	5.36	0.514
	Total	5.95	0.418	0.01	0.022	0.00	0.008	4.82	0.379

Table S21. Spearman's rank correlation outputs, testing for associations between climatic and visitor numbers against enclosure zones occupied by Greater Flamingos.

Correlates	1. Overlooked		2. FLW		3. BLW		4. FRW	
	rho	p	rho	p	rho	p	rho	p
No. Vis	0.004	0.877	0.014	0.548	-0.090	< 0.001 ***	0.065	< 0.01 **
Temp	-0.036	0.121	-0.034	0.152	0.097	< 0.001 ***	0.187	< 0.001 ***
Wind	0.057	< 0.05 *	0.097	< 0.001 ***	-0.066	< 0.01 **	0.047	< 0.05 *
Precipitation	-0.185	< 0.001 ***	0.325	< 0.001 ***	0.216	< 0.001 ***	-0.153	< 0.001 ***

Humid	-0.108	< 0.001 ***	0.077	< 0.001 ***	-0.127	< 0.001 ***	0.179	< 0.001 ***
Sunshine	0.248	< 0.001 ***	-0.184	< 0.001 ***	-0.040	0.087	-0.173	< 0.001 ***
	5. BRW		10. FGW		11. BGW		Unknown	
Correlates	rho	<i>p</i>	rho	<i>p</i>	rho	<i>p</i>	rho	<i>p</i>
No. Vis	-0.059	< 0.05 *	0.022	0.354	-0.098	< 0.001 ***	-0.082	< 0.001 ***
Temp	0.068	< 0.01 **	-0.162	< 0.001 ***	-0.177	< 0.001 ***	-0.046	0.050
Wind	-0.133	< 0.001 ***	-0.058	< 0.05 *	-0.215	< 0.001 ***	0.052	< 0.05 *
Precipitation	0.141	< 0.001 ***	0.219	< 0.001 ***	0.198	< 0.001 ***	0.091	< 0.001 ***
Humid	-0.100	< 0.001 ***	0.054	< 0.05 *	0.170	< 0.001 ***	-0.116	< 0.001 ***
Sunshine	0.024	0.315	-0.066	< 0.01 **	-0.138	< 0.001 ***	-0.015	0.511

No correlation: $\rho = 0 - \pm 0.09$; weak correlation: $\rho = \pm 0.10 - \pm 0.29$; moderate correlation: $\rho = \pm 0.3 - \pm 0.49$; strong correlation: $\rho = \pm 0.5 - 1$. *p* values indicate whether the association occurred by chance, they do not infer strength of association. A significant *p* value means association did not occur by chance. Significance codes: '*' $p < 0.05$, '**' $p < 0.01$, '***' $p < 0.001$.

Table S22. Spearman's rank correlation outputs, testing for associations between climatic and visitor numbers against enclosure zones occupied by Chilean Flamingos.

	3. Beach		4. FSW		5. Hill		6. Slope	
Correlates	rho	<i>p</i>	rho	<i>p</i>	rho	<i>p</i>	rho	<i>p</i>
No. Vis	-0.060	< 0.01 **	0.000	0.984	-0.017	0.458	-0.147	< 0.001 ***
Temp	0.079	< 0.001 ***	0.153	< 0.001 ***	-0.036	0.112	-0.129	< 0.001 ***
Wind	-0.182	< 0.001 ***	-0.315	< 0.001 ***	0.277	< 0.001 ***	0.153	< 0.001 ***
Precipitation	0.224	< 0.001 ***	0.152	< 0.001 ***	-0.046	< 0.05 *	-0.049	< 0.001 ***
Humid	-0.098	< 0.001 ***	-0.225	< 0.001 ***	0.027	0.238	-0.139	< 0.001 ***
Sunshine	-0.076	< 0.001 ***	0.063	< 0.01 **	-0.001	0.976	0.068	< 0.01 **
	8. LSW		9. MDW		Unknown			
Correlates	rho	<i>p</i>	rho	<i>p</i>	rho	<i>p</i>		
No. Vis	-0.020	0.385	-0.067	< 0.01 **	0.056	< 0.05 *		
Temp	0.109	< 0.001 ***	0.101	< 0.001 ***	-0.064	< 0.01 **		
Wind	-0.236	< 0.001 ***	-0.184	< 0.001 ***	-0.049	< 0.05 *		
Precipitation	0.280	< 0.001 ***	0.123	< 0.001 ***	-0.110	< 0.01 **		
Humid	-0.093	< 0.001 ***	-0.008	0.715	0.172	< 0.001 ***		
Sunshine	-0.038	0.098	0.037	0.104	-0.039	0.090		

No correlation: $\rho = 0 - \pm 0.09$; weak correlation: $\rho = \pm 0.10 - \pm 0.29$; moderate correlation: $\rho = \pm 0.3 - \pm 0.49$; strong correlation: $\rho = \pm 0.5 - 1$. *p* values indicate whether the association occurred by chance, they do not infer strength of association. A significant *p* value means association did not occur by chance. Significance codes: '*' $p < 0.05$, '**' $p < 0.01$, '***' $p < 0.001$.