Supplementary Material

Section S1. Summary statistics

Table S1. Additional capture recapture summary statistics at the coastal and inland study sites for both the left and right-sided datasets. Recaptures include ocelot that were recaptured at the same trap and/or multiple traps (i.e., spatial recaptures) across sampling occasions.

Site	Dataset	Total unique ocelots detected	Total recaptured ocelots	Mean # detections of ocelots with recaptures	Mean # traps visited by ocelots with recaptures	Range of detections of ocelots with recaptures	Range of # traps visited by ocelots with recaptures
Coastal	Right	40	27	6.93	1.85	2 - 18	1 - 5
Inland	Right	18	10	9	5.44	2 - 24	1 - 12
Coastal	Left	37	26	7.12	1.88	2 - 18	1 - 5
Inland	Left	15	9	9.78	5.22	3 - 24	1 - 12

Section S2. General left-side data results

Trapping effort for the inland site covered 3,750 trap-nights, yielding a total of 102 ocelot Leopardus pardalis detections, including 94 detections for the left-side dataset. Trapping effort at the coastal site covered 5,168 trap-nights, yielding a total of 234 ocelot detections, including 196 detections for the left-side dataset.

At the inland site, 21 ocelots were identified (13 photographed using both flanks); the left-side dataset consisted of 15 ocelots (7 females, 8 males). At the coastal site, 51 ocelots were identified (25 photographed using both flanks); the left-side dataset consisted of 37 ocelots (18 females, 14 males, 5 sex-unknown).

Section S3. Program CAPTURE

3.1 Assumption of closure

Program CAPTURE was used to assess the capture histories for closure at each study site, and to provide abundance and density estimates with which to compare to other studies (Otis et al. 1978, White et al. 1978, Rexstad & Burnham 1992). Capture histories for the inland site met the assumption of closure (left-side: z-value = 0.352, P = 0.638), but the coastal site did not meet the assumption of closure (left-side: z-value = -2.080, P = 0.019).

3.2 Densities estimated with MMDM and Half-MMDM: right- and left-side datasets

The ESAs derived from MMDM for the inland and coastal sites were 108.98 km^2 and 76.52 km^2. The ESAs derived using Half-MMDM for the inland and coastal sites were 59.97 km^2 and 64.82 km^2, respectively.

Results from Program CAPTURE for the right- and left-side datasets for the inland site were quite similar. The right-side dataset from the inland population demonstrated the highest selection being the individual heterogeneity model (M_h) with an abundance estimate of 37 ocelots (SE = 8.49; 95% CI = 26 to 63) in the minimum convex polygon (MCP). Using the MMDM and Half-MMDM for ocelots among the right-side dataset from the inland site, provided estimated densities of 33.95 (SE = 2.75; 95% CI = 28.56 to 39.34) and 61.70 (SE = 5.00; 95% CI = 51.91 to 71.49), respectively.

The highest selection from Program CAPTURE for the left-side dataset at the inland population was for the individual heterogeneity model (M_h) with an abundance estimate of 36 ocelots (SE = 10.78; 95% CI = 24 to 69) in the MCP. Using the MMDM and Half-MMDM for ocelots among the left-side dataset from the inland site, provided estimated densities of 33.03/100 km2 (SE = 3.01; 95% CI = 27.13 to 38.94) and 60.03/100 km2 (SE = 5.47; 95% CI = 49.30 to 70.76), respectively.

Although the assumption of closure for the coastal population was not met, model fit was evaluated in CAPTURE. Results from Program CAPTURE for the right- and left-side datasets for the coastal site were somewhat similar. Although the model for time, behjavior, and individual heterogeneity (M_{tbh}) was comparable, the individual heterogeneity model (M_h) was selected, and it provided an abundance estimate of 52 ocelots (SE = 6.98; 95% CI = 44 to 74) in the MCP. Using the MMDM and Half-MMDM for ocelots among the right-side dataset from the coastal site, provided estimated densities of 67.96/100 km2 (SE = 3.45; 95% CI = 61.19 to 74.72) and 80.22/100 km2 (SE = 4.08; 95% CI = 72.24 to 88.21), respectively.

The individual heterogeneity model (M_h) was the highest from Program CAPTURE for the left-side dataset at the coastal population and provided an abundance estimate of 47 ocelots (SE =

7.50; 95% CI = 40 to 73) in the MCP. Using the MMDM and Half-MMDM for ocelots among the left-side dataset from the coastal site, provided estimated densities of 61.42/100 km2 (SE = 3.58; 95% CI = 54.41 to 68.44) and 72.51/100 km2 (SE = 4.22; 95% CI = 64.23 to 80.79), respectively.

Section S4. Program MARK

4.1 Results of ocelot abundance models: left-side dataset

Table S2. Ocelot (*Leopardus pardalis*) abundance models, quasi-likelihood adjusted Akaike's Information Criterion values (QAICc's), measures of dispersion (ĉ), parameters, and deviances used to select abundance estimator for inland and coastal study sites in Tamaulipas, Mexico. Includes ocelots photographed from both profiles and left-side only. Models evaluated using POPAN formulation in Jolly-Seber within Program MARK

Area	Model	QAICc	ĉ	Parameters	Deviance
Inland	*Phi(.) p(.) PENT(t) N(.)*	125.5	1.205	7	44.3
	Phi(t) p(.) PENT(t) N(.)	133.4		11	40.7
	Phi(.) p(t) PENT(t) N(.)	140.0		14	37.5
	Phi(t) p(t) PENT(t) N(.)	147.1		17	33.4
	Phi(.) p(.) PENT(.) N(.)	11862.5		4	11788.7
Coastal	*Phi(.) p(.) PENT(t) N(.)*	609.1	1.062	7	348.0
	Phi(t) p(.) PENT(t) N(.)	626.7		17	342.4
	Phi(t) p(t) PENT(t) N(.)	658.3		34	326.8
	Phi(t) p(.) PENT(.) N(.)	15163.5		13	14888.8
	Phi(.) p(t) PENT(t) N(.)	15250.0		27	14939.3
	Phi(.) p(.) PENT(.) N(.)	24653.5		3	24401.0

4.2 Densities with MMDM and Half-MMDM: right- and left-side datasets

The ocelot abundance estimate from MARK for the inland and coastal study sites (left-side datasets) was 15.48 (SE = 1.18; 95% CI = 13.30 to 18.00), and 40.12 ocelots (SE = 2.15; 95% CI = 36.20 to 44.60), respectively (Table S3).

Using the MMDM and Half-MMDM for ocelots, densities of ocelots at the inland site (right-side datasets) were 17.57/100 km2 (SE = 1.10; 95% CI = 15.41 to 19.73) and 31.93/100 km^2 (SE = 2.00; 95% CI = 28.01 to 35.85), respectively. Based on the MMDM and Half-MMDM for ocelots, densities of ocelots at the inland site (left-side dataset) were 14.20/100 km^2 (SE = 1.00; 95% CI = 12.25 to 16.16) and 25.81/100 km^2 (SE = 1.81; 95% CI = 22.26 to 29.36), respectively.

Using the MMDM and Half-MMDM for ocelots, densities of ocelots at the coastal site (right-side dataset) were 59.03/100 km2 (SE = 2.32; 95% CI = 54.49 to 63.57) and 69.69/100 km^2 (SE

= 2.73; 95% CI = 64.33 to 75.04), respectively. Using the MMDM and Half-MMDM for ocelots, densities of ocelots at the coastal site (left-side dataset) were 52.43/100 km2 (SE = 1.92; 95% CI = 48.68 to 56.19) and 61.89/100 km^2 (SE = 2.26; 95% CI = 57.46 to 66.33), respectively.

Table S3. Estimates of ocelot (*Leopardus pardalis*) abundance from Program MARK, estimated sampling area (ESA), and ocelot density for the right-side dataset and left-side dataset for the inland and the coastal populations. Some right-side dataset values are also presented in the main text. Density values are ocelots/100 km^2

	Abundance	ESA_1	$Density_1$	ESA_2	$Density_2$
Inland					
Right	19.15	108.98	17.57	59.97	31.93
(SE; 95%CI)	(1.44; 16.53 – 22.20)		(1.10; 15.41 – 19.73)		(2.00; 28.01 – 35.85)
Left	15.48	108.98	14.20	59.97	25.81
(SE; 95%CI)	(1.18; 13.30 – 18.00)		(1.00; 12.25 – 16.16)		(1.81; 22.26 – 29.36)
Coastal					
Right	45.17	76.52	59.03	64.82	69.69
(SE; 95%CI)	(3.14; 39.43 – 51.74)		(2.32; 54.49 – 63.57)		(2.73; 64.33 – 75.04)
Left	40.12	76.52	52.43	64.82	61.89
(SE; 95%CI)	(2.15; 36.20 – 44.60)		(1.92; 48.68 – 56.19)		(2.26; 57.46 – 66.33)

Subscript "1": full mean maximum distance moved. Subscript "2": half mean maximum distance moved

Section S5. Spatial capture recapture

5.1 Multi-session modeling

Table S4. Left-sided dataset SCR results and transformed parameter estimates with associated interpretations at inland and coastal sites using the multi-session modeling framework presented in the manuscript. "HR" refers to Home Range.

Model Results			***Transformed Model Results***	
Parameter	**Estimate**	**SE**	**Interpretation**	**Estimate (95% CI)**
d0.(Intercept)	-2.83	0.27	Inland site density (ocelots/100km2)	23.53 (14.05 – 39.42)
d.coastal	0.53	0.31	Coastal site density (ocelots/100km2)	39.78 (28.32 – 55.89)
p0.(Intercept)	-0.79	0.2	Inland site baseline detection	0.31 (0.23 – 0.40)
p0.coastal	0.53	0.29	Coastal site baseline detection	0.43 (0.33 – 0.54)
sig.(Intercept)	-0.34	0.06	Female HR scaling parameter (km)	0.71 (0.63 – 0.80)
sig.male	0.52	0.09	Male HR scaling parameter (km)	1.19 (1.04 – 1.37)
psi.constant	-0.73	0.31	Probability of being male	0.33 (0.19 – 0.46)

5.2 Single-session modeling: right- and left-side datasets

Table S5. SCR results and transformed parameter estimates with associated interpretations at inland and coastal sites using the right- or left-side datasets in a single-session modeling framework. The small scaling parameter at the coastal site, likely a result of trap spacing and not reflective of ocelot (*Leopardus pardalis*) movement, appears to result in overinflated density estimates, which motivated the use of the multi-session framework presented in the manuscript. "HR" refers to Home Range.

		Model Results			**Transformed Model Results**			
Site	**Side**	**Parameter**	**Estimate**	**SE**	**Interpretation**	**Estimate**	**Lower 95% CI**	**Upper 95% CI**
Inland	Right	d0.(Intercept)	-2.93	0.27	Density (ocelots/100km2)	21.43	13.06	35.16
Inland	Right	p0.(Intercept)	-0.98	0.23	Baseline Detection Probability	0.27	0.19	0.37
Inland	Right	sig.(Intercept)	-0.22	0.11	Female HR scaling parameter (km)	0.80	0.64	1.00
Inland	Right	sig.male	0.73	0.16	Male HR scaling parameter (km)	1.66	1.33	2.07
Inland	Right	psi.constant	-0.59	0.54	Probability of being male	0.36	0.12	0.60
Inland	Left	d0.(Intercept)	-3.06	0.29	Density (ocelots/100km2)	18.80	11.00	32.13
Inland	Left	p0.(Intercept)	-0.95	0.24	Baseline Detection Probability	0.28	0.19	0.38
Inland	Left	sig.(Intercept)	-0.26	0.11	Female HR scaling parameter (km)	0.77	0.61	0.96
Inland	Left	sig.male	0.79	0.16	Male HR scaling parameter (km)	1.69	1.34	2.13
Inland	Left	psi.constant	-0.81	0.55	Probability of being male	0.31	0.08	0.54
Coastal	Right	d0.(Intercept)	-1.90	0.20	Density (ocelots/100km2)	60.10	41.19	87.71
Coastal	Right	p0.(Intercept)	-0.07	0.26	Baseline Detection Probability	0.48	0.36	0.61
Coastal	Right	sig.(Intercept)	-0.45	0.15	Female HR scaling parameter (km)	0.64	0.48	0.85
Coastal	Right	sig.male	0.00	0.18	Male HR scaling parameter (km)	0.64	0.54	0.76
Coastal	Right	psi.constant	-0.07	0.44	Probability of being male	0.48	0.27	0.70
Coastal	Left	d0.(Intercept)	-2.04	0.18	Density (ocelots/100km2)	52.09	36.35	74.65
Coastal	Left	p0.(Intercept)	-0.05	0.25	Baseline Detection Probability	0.49	0.37	0.61
Coastal	Left	sig.(Intercept)	-0.39	0.08	Female HR scaling parameter (km)	0.68	0.58	0.80
Coastal	Left	sig.male	-0.04	0.13	Male HR scaling parameter (km)	0.65	0.54	0.79
Coastal	Left	psi.constant	-0.20	0.39	Probability of being male	0.45	0.26	0.64

5.3 Modeling for trap-specific behavioral effect

5.3.1 Single-session modeling

Table S6. Model selection results to evaluate support for a trap-specific behavioral effect at the inland study site where scent attractant was used. Here we consider a single-session approach in addition to the multi-session model presented in the manuscript. Further, both the left and right-sided datasets are presented. Therefore, four separate model comparisons are shown, all suggesting there is no overwhelming support for a trap-specific behavioral effect at the coastal study site.

Side	Framework	Model Specification	logL	nPars	AIC	dAIC	weight	CumWt
Right	Single-session	D(~1) p(~1) sig(~sex)	354.62	5	719.24	0.00	0.61	0.61
Right	Single-session	D(~1) p(~b) sig(~sex)	354.06	6	720.12	0.88	0.39	1.00
Right	Multi-session	D(~session) p(~session) sig(~sex)	923.01	7	1860.01	0.00	0.71	0.71
Right	Multi-session	D(~session) p(~session + b) sig(~sex)	922.92	8	1861.83	1.82	0.29	1.00
Left	Single-session	D(~1) p(~1) sig(~sex)	341.40	5	692.80	0.00	0.55	0.55
Left	Single-session	D(~1) p(~b) sig(~sex)	340.60	6	693.21	0.41	0.45	1.00
Left	Multi-session	D(~session) p(~session + b) sig(~sex)	895.90	8	1807.79	0.00	0.52	0.52
Left	Multi-session	D(~session) p(~session) sig(~sex)	896.98	7	1807.97	0.18	0.48	1.00

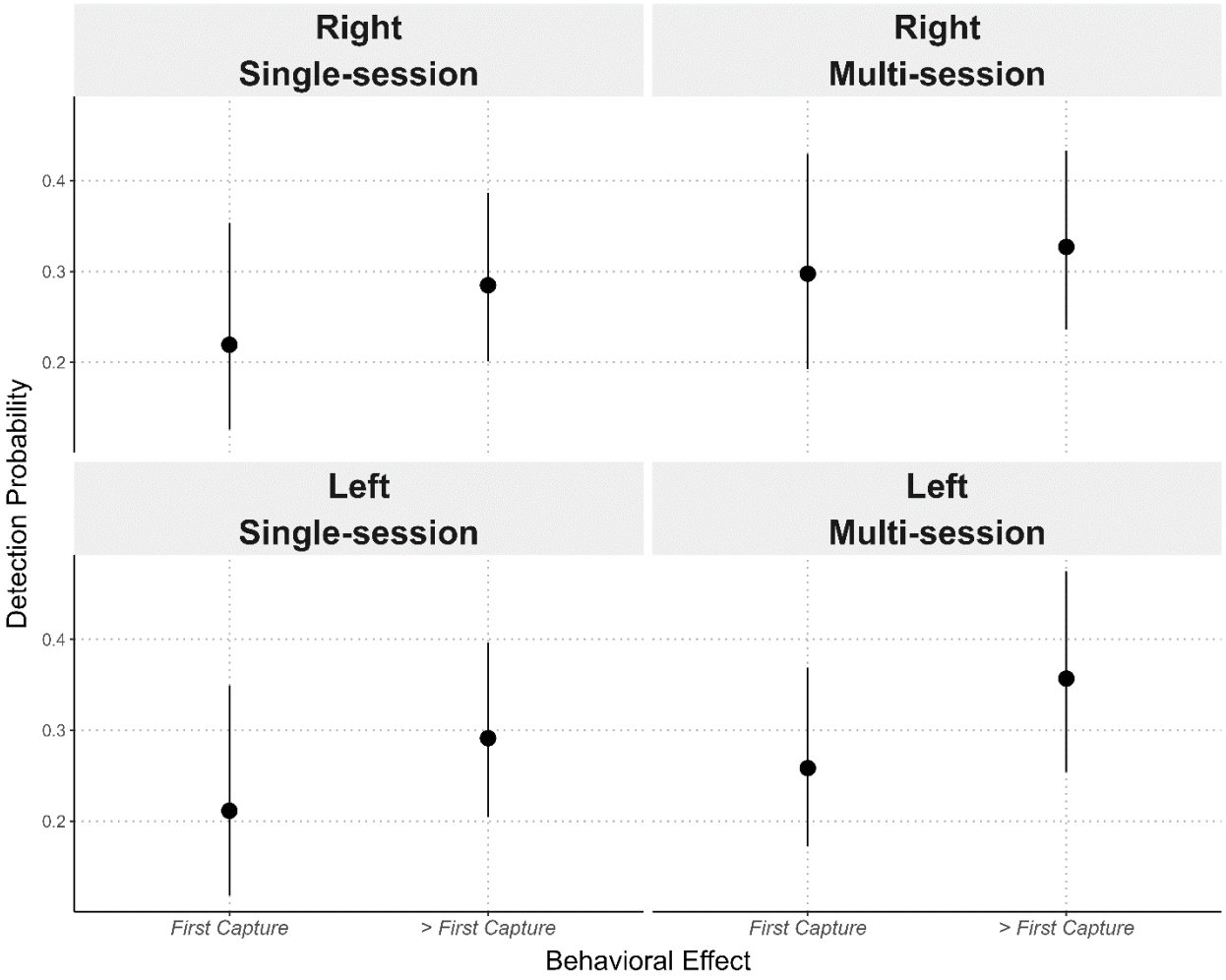
5.3.2 Multi-session modeling

Table S7. SCR results and transformed parameter estimates with associated interpretations at inland and coastal sites using the right-sided dataset in a multi-session modeling framework, as in the results presented in the manuscript, but in this case adding a trap-specific behavioral effect to the coastal study site. These results presented here can be compared with SCR results presented in the manuscript to illustrate that the addition of a behavioral effect has a negligible influence on density estimates. "HR" refers to Home Range.

Model Results			***Transformed Model Results***			
Parameter	**Estimate**	**SE**	**Interpretation**	**Estimate**	**Lower 95% CI**	**Upper 95% CI**
d0.(Intercept)	-2.64	0.25	Inland site density (ocelots/100km2)	28.45	17.69	45.78
d.coastal	0.41	0.29	Coastal site density (ocelots/100km2)	43.07	31.02	59.80
p0.(Intercept)	-0.86	0.29	Inland site baseline detection	0.30	0.19	0.43
p0.coastal	0.56	0.35	Coastal site baseline detection	0.43	0.33	0.53
p.inland.behavior	0.14	0.32	Inland site detection probability after first capture	0.33	0.24	0.43
sig.(Intercept)	-0.36	0.06	Female HR scaling parameter (km)	0.70	0.62	0.79
sig.male	0.52	0.09	Male HR scaling parameter (km)	1.18	1.03	1.36
psi.constant	-0.62	0.31	Probability of being male	0.35	0.21	0.49

5.3.3 Summary of modeling for trap-specific behavioral effect

Figure S1. Visualized behavioral effect for all models considering a trap-specific behavioral effect on detection at the coastal study site. Here we consider a single-session approach in addition to the multi-session model presented in the manuscript. Further, both the right- and left-sided datasets are presented here. Only a multi-session model using the right-sided dataset is presented in the manuscript, but here we demonstrate that the lack of support for a behavioral effect is consistent across all modeling options. Only the inland site was evaluated for a behavioral effect because scent attractant was not used at the coastal site.



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