

Supplement to: The challenge of interrupted monitoring in a perturbed ecosystem.

Supplement 2 — AIC tables

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This supplementary documents includes four tables comparing null and spatial covariate models for each of the four combinations of input data (photographic records and off-camera sightings) and sampling regions (Warapata and Kavanayen).

Response variable y is the binary response with values of one (1) for detected and zero (0) for not detected. In all models a complementary log-log link function is used for the occurrence component and a logit link function is used for the detection component.

For each species the null model includes a fixed, spatially implicit effects of sampling block. The best spatial covariates model is shown when the difference in AICc (ΔAICc) is higher than zero.

Table 1: AIC table for models fitted using photographic records from Warapata as input. Response variable y is the binary response with values of one (1) for detected and zero (0) for not detected. Sample is limited to sampling units with cameras. The null model includes different occurrence probabilities for each sampling block and uses $cam = camera * days$ as covariate of detection probability. Occurrence covariates for the spatial covariate model are: bsq is tree cover; $dbsq$ is distance to nearest deforestation events; frs distance to nearest fire events; $dcom$ distance to nearest human communities or settlements; $dcon$ distance to nearest conucos. The spatial covariates models uses $cam = camera * days$ as covariate of detection probability. LL: Log Likelihood, par: Number of parameters, n: number of observations, AICc: corrected Akaike Information Criterion, $\Delta AICc$: difference between null and spatial covariates model.

	Null model			Spatial covariate model				
Species	Detect. covars.	LL (par, n)	AICc	Occurrence covariates	Detect. covars.	LL (par, n)	AICc	$\Delta AICc$
<i>C. alector</i>	cam	-8.48 (8, 57)	35.96	—	—	—	—	—
<i>C. olivaceus</i>	cam	-5.55 (8, 57)	30.09	bsq + frs	cam	-5.07 (5, 57)	21.31	8.78
<i>C. paca</i>	cam	-24.82 (8, 57)	68.65	bsq + dcon	cam	-26.04 (5, 57)	63.27	5.38
<i>C. thous</i>	cam	-24.14 (8, 57)	67.29	bsq + dbsq	cam	-24.35 (5, 57)	59.87	7.42
<i>C. uncinctus</i>	cam	-5.21 (8, 57)	29.42	—	—	—	—	—
<i>D. imperfecta</i>	cam	-10.72 (8, 57)	40.45	bsq + dcom	cam	-13.32 (5, 57)	37.81	2.64
<i>D. kappleri</i>	cam	-17.61 (8, 57)	54.23	bsq + dbsq	cam	-18.40 (5, 57)	47.98	6.25
<i>D. leporina</i>	cam	-14.27 (8, 57)	47.53	bsq + frs	cam	-17.34 (5, 57)	45.86	1.67
<i>D. marsupialis</i>	cam	-2.77 (8, 57)	24.55	bsq + frs	cam	-5.16 (5, 57)	21.49	3.06
<i>D. novemcinctus</i>	cam	-25.59 (8, 57)	70.17	bsq + frs	cam	-25.43 (5, 57)	62.03	8.14
<i>E. barbara</i>	cam	-17.73 (8, 57)	54.47	—	—	—	—	—
<i>H. hydrochaeris</i>	cam	-3.82 (8, 57)	26.64	—	—	—	—	—
<i>L. pardalis</i>	cam	-14.39 (8, 57)	47.78	bsq + dcom	cam	-16.13 (5, 57)	43.44	4.35
<i>L. rufaxilla</i>	cam	-18.49 (8, 57)	55.97	—	—	—	—	—
<i>L. wiedii</i>	cam	-4.03 (8, 57)	27.05	bsq + dcom	cam	-6.39 (5, 57)	23.96	3.10
<i>M. americana</i>	cam	-19.54 (8, 57)	58.07	bsq + frs	cam	-18.05 (5, 57)	47.27	10.80
<i>M. gouazoubira</i>	cam	-12.72 (8, 57)	44.44	bsq + dcon + frs + dbsq	cam	-9.19 (7, 57)	34.66	9.78
<i>M. tridactyla</i>	cam	-22.37 (8, 57)	63.73	bsq + frs	cam	-22.98 (5, 57)	57.13	6.60
<i>N. nasua</i>	cam	-3.29 (8, 57)	25.57	—	—	—	—	—
<i>O. virginianus</i>	cam	-6.70 (8, 57)	32.40	bsq + dbsq	cam	-7.96 (5, 57)	27.09	5.30
<i>P. concolor</i>	cam	-11.19 (8, 57)	41.38	bsq + dbsq	cam	-13.06 (5, 57)	37.30	4.08
<i>P. maximus</i>	cam	-10.42 (8, 57)	39.85	bsq + dcom	cam	-8.47 (5, 57)	28.11	11.74
<i>P. onca</i>	cam	-14.65 (8, 57)	48.30	—	—	—	—	—
<i>P. tajacu</i>	cam	-5.05 (8, 57)	29.10	—	—	—	—	—
<i>T. major</i>	cam	-12.98 (8, 57)	44.97	bsq + dbsq	cam	-15.75 (5, 57)	42.68	2.29
<i>T. pecari</i>	cam	-1.92 (8, 57)	22.84	bsq + dcom	cam	-4.17 (5, 57)	19.51	3.33
<i>T. terrestris</i>	cam	-10.13 (8, 57)	39.26	—	—	—	—	—
<i>T. tetradactyla</i>	cam	-9.84 (8, 57)	38.69	bsq + dcon + frs	cam	-11.03 (6, 57)	35.74	2.95

Table 2: AIC table for models fitted using photographic records from Warapata and Kavanayen as input. Response variable y is the binary response with values of one (1) for detected and zero (0) for not detected. Sample is limited to sampling units with cameras. The null model includes different occurrence probabilities for each sampling block. Occurrence covariates for the spatial covariate model are: *bsq* is tree cover; *dbsq* is distance to nearest deforestation events; *frs* distance to nearest fire events; *dcom* distance to nearest human communities or settlements; *dcon* distance to nearest conucos. Covariates for the detection probability include *region* and *cam* = *camera* * *days* . LL: Log Likelihood, par: Number of parameters, n: number of observations, AICc: corrected Akaike Information Criterion, Δ AICc: difference between null and spatial covariates model.

	Null model			Spatial covariate model				
Species	Detect. covars.	LL (par, n)	AICc	Occurrence covariates	Detect. covars.	LL (par, n)	AICc	Δ AICc
<i>C. alector</i>	cam	-8.48 (12, 72)	46.25	—	—	—	—	—
<i>C. olivaceus</i>	cam	-5.55 (12, 72)	40.38	bsq + frs	cam	-5.07 (5, 72)	21.04	19.33
<i>C. paca</i>	cam	-33.49 (12, 72)	96.27	bsq + dcon + dbsq	cam	-34.82 (6, 72)	82.93	13.34
<i>C. thous</i>	cam	-24.14 (12, 72)	77.58	bsq + dbsq	cam	-27.47 (5, 72)	65.86	11.72
<i>C. unicinctus</i>	cam	-5.21 (12, 72)	39.70	—	—	—	—	—
<i>D. imperfecta</i>	cam	-10.72 (12, 72)	50.74	bsq + frs	cam	-13.45 (5, 72)	37.80	12.94
<i>D. kappleri</i>	region + cam	-20.00 (13, 72)	72.28	bsq + frs	region + cam	-21.42 (6, 72)	56.14	16.14
<i>D. leporina</i>	region + cam	-16.49 (13, 72)	65.26	bsq + dcon + frs	region + cam	-20.15 (7, 72)	56.05	9.21
<i>D. marsupialis</i>	cam	-2.77 (12, 72)	34.83	bsq + dbsq	cam	-5.41 (5, 72)	21.72	13.11
<i>D. novemcinctus</i>	region + cam	-27.84 (13, 72)	87.95	bsq + dbsq	region + cam	-29.12 (6, 72)	71.54	16.41
<i>E. barbara</i>	region + cam	-17.71 (13, 72)	67.70	bsq + dcon + frs + dbsq	region + cam	-17.95 (8, 72)	54.19	13.52
<i>H. hydrochaeris</i>	region + cam	-4.33 (13, 72)	40.94	bsq + dcom	region + cam	-5.95 (6, 72)	25.19	15.75
<i>L. pardalis</i>	cam	-17.23 (12, 72)	63.75	bsq + dcom	cam	-19.11 (5, 72)	49.12	14.62
<i>L. rufaxilla</i>	cam	-18.49 (12, 72)	66.26	—	—	—	—	—
<i>L. wiedii</i>	cam	-4.03 (12, 72)	37.34	bsq + dcom	cam	-6.28 (5, 72)	23.47	13.87
<i>M. americana</i>	region + cam	-21.79 (13, 72)	75.85	bsq + frs	region + cam	-21.12 (6, 72)	55.54	20.31
<i>M. gouazoubira</i>	cam	-15.72 (12, 72)	60.72	—	—	—	—	—
<i>M. tridactyla</i>	cam	-22.37 (12, 72)	74.02	—	—	—	—	—
<i>N. nasua</i>	cam	-3.29 (12, 72)	35.86	—	—	—	—	—
<i>O. virginianus</i>	region + cam	-7.06 (13, 72)	46.39	bsq + dcon	region + cam	-7.30 (6, 72)	27.89	18.50
<i>P. concolor</i>	cam	-11.19 (12, 72)	51.67	bsq + dbsq	cam	-13.40 (5, 72)	37.72	13.95
<i>P. maximus</i>	cam	-10.42 (12, 72)	50.14	bsq + dcom	cam	-9.48 (5, 72)	29.86	20.28
<i>P. onca</i>	region + cam	-16.90 (13, 72)	66.08	bsq + dcon + dcom	region + cam	-21.76 (7, 72)	59.27	6.80
<i>P. tajacu</i>	cam	-5.05 (12, 72)	39.39	—	—	—	—	—
<i>T. major</i>	cam	-12.98 (12, 72)	55.26	bsq + dcon + dbsq	cam	-15.84 (6, 72)	44.98	10.28
<i>T. pecari</i>	cam	-1.91 (12, 72)	33.11	bsq + dcom	cam	-4.17 (5, 72)	19.24	13.86
<i>T. terrestris</i>	cam	-10.13 (12, 72)	49.55	—	—	—	—	—
<i>T. tetradactyla</i>	region + cam	-9.84 (13, 72)	51.96	bsq + dcon	region + cam	-12.47 (6, 72)	38.23	13.73

Table 3: AIC table for models fitted using **photographic records** and **off-camera sightings** from **Warapata** as input. Response variable y is the binary response with values of one (1) for detected and zero (0) for not detected. Sample includes all sampling units visited during field work. The null model includes different occurrence probabilities for each sampling block. Occurrence covariates for the spatial covariate model are: *bsq* is tree cover; *dbsq* is distance to nearest deforestation events; *frs* distance to nearest fire events; *dcom* distance to nearest human communities or settlements; *dcon* distance to nearest conucos. Covariates for the detection probability are: *walk* is the distance walked in meters, and *cam* is the number of camera*days, either as additive (+) term or in interactions (*). LL: Log Likelihood, par: Number of parameters, n: number of observations, AICc: corrected Akaike Information Criterion, $\Delta AICc$: difference between null and spatial covariates model.

Species	Null model			Spatial covariate model				$\Delta AICc$
	Detect. covars.	LL (par, n)	AICc	Occurrence covariates	Detect. covars.	LL (par, n)	AICc	
<i>C. alector</i>	walk + cam	-2.71 (9, 72)	26.32	—	—	—	—	—
<i>C. olivaceus</i>	walk + cam	-2.78 (9, 72)	26.45	bsq + frs	walk + cam	-3.02 (6, 72)	19.33	7.13
<i>C. paca</i>	walk * cam	-28.50 (10, 72)	80.61	bsq + dcon + dcom	walk * cam	-19.67 (8, 72)	57.62	22.99
<i>C. thous</i>	walk + cam	-37.20 (9, 72)	95.30	bsq + dcon + dcom + frs	walk + cam	-28.22 (8, 72)	74.72	20.58
<i>C. uncinatus</i>	walk * cam	-5.00 (10, 72)	33.62	—	—	—	—	—
<i>D. imperfecta</i>	walk * cam	-9.29 (10, 72)	42.20	bsq + frs	walk * cam	-10.62 (7, 72)	37.00	5.20
<i>D. kappleri</i>	walk * cam	-29.87 (10, 72)	83.34	bsq + dcon	walk * cam	-30.94 (7, 72)	77.63	5.71
<i>D. leporina</i>	walk + cam	-17.69 (9, 72)	56.28	bsq + frs	walk + cam	-9.27 (6, 72)	31.83	24.45
<i>D. marsupialis</i>	walk * cam	-2.77 (10, 72)	29.15	bsq + dbdq	walk * cam	-4.55 (7, 72)	24.84	4.31
<i>D. novemcinctus</i>	walk + cam	-26.88 (9, 72)	74.66	bsq + dcom	walk + cam	-29.12 (6, 72)	71.54	3.12
<i>E. barbara</i>	walk + cam	-17.03 (9, 72)	54.96	—	—	—	—	—
<i>H. hydrochaeris</i>	walk + cam	-9.65 (9, 72)	40.20	bsq + frs	walk + cam	-10.79 (6, 72)	34.88	5.33
<i>L. pardalis</i>	walk + cam	-19.27 (9, 72)	59.45	bsq + dbdq	walk + cam	-19.80 (6, 72)	52.90	6.55
<i>L. rufaxilla</i>	walk + cam	-18.27 (9, 72)	57.45	—	—	—	—	—
<i>L. wiedii</i>	walk * cam	-3.50 (10, 72)	30.60	bsq + dcom	walk * cam	-5.37 (7, 72)	26.50	4.10
<i>M. americana</i>	walk * cam	-21.87 (10, 72)	67.36	bsq + dcon	walk * cam	-20.55 (7, 72)	56.84	10.51
<i>M. gouazoubira</i>	walk * cam	-33.73 (10, 72)	91.07	bsq + dcom	walk * cam	-33.17 (7, 72)	82.08	8.99
<i>M. tridactyla</i>	walk + cam	-31.88 (9, 72)	84.66	bsq + dcon	walk + cam	-33.64 (6, 72)	80.56	4.09
<i>N. nasua</i>	walk * cam	-0.00 (10, 72)	23.61	—	—	—	—	—
<i>O. virginianus</i>	walk + cam	-7.82 (9, 72)	36.54	bsq + dcon	walk + cam	-6.88 (6, 72)	27.06	9.48
<i>P. concolor</i>	walk * cam	-15.60 (10, 72)	54.81	bsq + dbdq	walk * cam	-14.83 (7, 72)	45.42	9.40
<i>P. maximus</i>	walk + cam	-9.22 (9, 72)	39.35	bsq + dbdq	walk + cam	-12.51 (6, 72)	38.32	1.04
<i>P. onca</i>	walk + cam	-15.83 (9, 72)	52.57	—	—	—	—	—
<i>P. tajacu</i>	walk * cam	-7.84 (10, 72)	39.29	bsq + dcom	walk * cam	-5.11 (7, 72)	25.97	13.31
<i>T. major</i>	walk + cam	-12.64 (9, 72)	46.18	bsq + dcon + dbdq	walk + cam	-15.08 (7, 72)	45.90	0.28
<i>T. pecari</i>	walk + cam	-3.30 (9, 72)	27.50	—	—	—	—	—
<i>T. terrestris</i>	walk + cam	-16.24 (9, 72)	53.39	bsq + frs + dbdq	walk + cam	-14.22 (7, 72)	44.18	9.21
<i>T. tetradactyla</i>	walk * cam	-7.98 (10, 72)	39.57	bsq + dcon + dcom	walk * cam	-6.71 (8, 72)	31.70	7.87

Table 4: AIC table for models fitted using **photographic records** and **off-camera sightings** from **Warapata** and **Kavanayen** as input. Response variable y is the binary response with values of one (1) for detected and zero (0) for not detected. Sample includes all sampling units visited during field work. The null model includes different occurrence probabilities for each sampling block. Occurrence covariates for the spatial covariate model are: *bsq* is tree cover; *dbsq* is distance to nearest deforestation events; *frs* distance to nearest fire events; *dcom* distance to nearest human communities or settlements; *dcon* distance to nearest conucos. Covariates for the detection probability are: *region* (1 for Warapata, 0 for Kavanayen), *walk* is the distance walked in meters, and *cam* is the number of camera*days, either as additive (+) term or in interactions (*). LL: Log Likelihood, par: Number of parameters, n: number of observations, AICc: corrected Akaike Information Criterion, $\Delta AICc$: difference between null and spatial covariates model.

Species	Null model			Spatial covariate model			$\Delta AICc$
	Detect. covars.	LL (par, n)	AICc	Covariates (occurrence detection)	LL (par, n)	AICc	
<i>C. alector</i>	walk + cam	-2.71 (13, 112)	35.13	—	—	—	—
<i>C. olivaceus</i>	walk + cam	-2.78 (13, 112)	35.27	bsq + frs walk + cam	-3.02 (6, 112)	18.84	16.43
<i>C. paca</i>	region + (walk * cam)	-34.89 (15, 112)	104.77	bsq + dcon region + (walk * cam)	-33.53 (8, 112)	84.47	20.30
<i>C. thous</i>	region + (walk * cam)	-45.72 (15, 112)	126.44	bsq + dcon + dcom + frs region + (walk * cam)	-40.77 (10, 112)	103.72	22.72
<i>C. unicinctus</i>	walk * cam	-5.41 (14, 112)	43.14	—	—	—	—
<i>D. imperfecta</i>	region + walk + cam	-9.75 (14, 112)	51.83	bsq + dcom region + walk + cam	-11.42 (7, 112)	37.92	13.91
<i>D. kappleri</i>	region + (walk * cam)	-32.43 (15, 112)	99.85	bsq + dcom region + (walk * cam)	-34.74 (8, 112)	86.88	12.97
<i>D. leporina</i>	walk + cam	-21.17 (13, 112)	72.05	bsq + dcon walk + cam	-14.86 (6, 112)	42.51	29.54
<i>D. marsupialis</i>	walk + cam	-2.77 (13, 112)	35.26	bsq + dbsq walk + cam	-4.55 (6, 112)	21.89	13.37
<i>D. novemcinctus</i>	region + walk + cam	-30.21 (14, 112)	92.75	bsq + dcom region + walk + cam	-37.43 (7, 112)	89.93	2.82
<i>E. barbara</i>	walk * cam	-26.36 (14, 112)	85.05	bsq + dcon walk * cam	-25.44 (7, 112)	65.96	19.09
<i>H. hydrochaeris</i>	walk + cam	-9.64 (13, 112)	49.00	bsq + dcon + frs + dbsq walk + cam	-10.40 (8, 112)	38.19	10.81
<i>L. pardalis</i>	region + walk + cam	-21.68 (14, 112)	75.68	bsq + dcom + dbsq region + walk + cam	-23.20 (8, 112)	63.80	11.88
<i>L. rufaxilla</i>	walk * cam	-18.18 (14, 112)	68.69	bsq + dcom + dbsq walk * cam	-23.44 (8, 112)	64.28	4.41
<i>L. wiedii</i>	walk * cam	-3.50 (14, 112)	39.33	bsq + dcom walk * cam	-5.37 (7, 112)	25.82	13.50
<i>M. americana</i>	walk * cam	-25.61 (14, 112)	83.56	bsq + dcon walk * cam	-26.49 (7, 112)	68.05	15.51
<i>M. gouazoubira</i>	region + walk + cam	-36.64 (14, 112)	105.62	bsq + dcon + dcom region + walk + cam	-35.66 (8, 112)	88.72	16.90
<i>M. tridactyla</i>	region + (walk * cam)	-34.74 (15, 112)	104.48	bsq + dcon region + (walk * cam)	-39.23 (8, 112)	95.87	8.61
<i>N. nasua</i>	walk * cam	-0.00 (14, 112)	32.33	—	—	—	—
<i>O. virginianus</i>	region + (walk * cam)	-9.28 (15, 112)	53.55	bsq + dcon + dbsq region + (walk * cam)	-5.70 (9, 112)	31.17	22.38
<i>P. concolor</i>	region + (walk * cam)	-13.93 (15, 112)	62.86	bsq + frs + dbsq region + (walk * cam)	-13.91 (9, 112)	47.58	15.28
<i>P. maximus</i>	walk + cam	-9.22 (13, 112)	48.16	bsq + frs walk + cam	-11.61 (6, 112)	36.01	12.15
<i>P. onca</i>	region + (walk * cam)	-21.98 (15, 112)	78.96	bsq + dcon region + (walk * cam)	-24.29 (8, 112)	65.97	12.98
<i>P. tajacu</i>	region + (walk * cam)	-7.84 (15, 112)	50.68	bsq + dcom region + (walk * cam)	-5.11 (8, 112)	27.62	23.06
<i>T. major</i>	walk + cam	-12.63 (13, 112)	54.97	bsq + dbsq walk + cam	-17.19 (6, 112)	47.17	7.79
<i>T. pecari</i>	walk + cam	-3.30 (13, 112)	36.31	—	—	—	—
<i>T. terrestris</i>	region + walk + cam	-19.33 (14, 112)	70.99	bsq + dcon + frs + dbsq region + walk + cam	-17.58 (9, 112)	54.93	16.06
<i>T. tetradactyla</i>	region + (walk * cam)	-7.18 (15, 112)	49.37	bsq + dcom + frs region + (walk * cam)	-7.10 (9, 112)	33.96	15.41