

## Supplementary Material

Table S1: General results of the camera trapping survey, presented per family and species. The naïve occupancy is the proportion of sampled locations at which the species was detected. The detection frequency, or relative abundance index (RAI), is the camera trapping rate and corresponds to the number of independent captures per 100 trap nights. It is also referred to as capture success.

Family Species	Number of independent captures	Naïve occupancy	Detection frequency (RAI)
<b>Bovidae</b>			
African buffalo <i>Syncerus caffer</i>	14	0.133	0.768
Black wildebeest <i>Connochaetes gnou</i>	50	0.100	2.741
Cape grysbok <i>Raphicerus melanotis</i>	7	0.200	0.384
Common duiker <i>Sylvicapra grimmia</i>	311	0.967	17.050
Common eland <i>Taurotragus oryx</i>	451	0.867	24.726
Gemsbok <i>Oryx gazella</i>	509	0.900	27.906
Greater kudu <i>Tragelaphus strepsiceros</i>	65	0.567	3.564
Grey rhebuck <i>Pelea capreolus</i>	43	0.367	2.358
Red hartebeest <i>Alcelaphus buselaphus caama</i>	25	0.167	1.371
Springbok <i>Antidorcas marsupialis</i>	561	0.367	30.757
Steenbok <i>Raphicerus campestris</i>	165	0.767	9.046
<b>Canidae</b>			
Black-backed jackal <i>Canis mesomelas</i>	205	0.900	11.239
<b>Cercopithecidae</b>			
Chacma baboon <i>Papio ursinus</i>	385	0.900	21.108
Vervet monkey <i>Chlorocebus pygerythrus</i>	1	0.033	0.055
<b>Elephantidae</b>			
African elephant <i>Loxodonta africana</i>	2	0.067	0.110
<b>Equidae</b>			
Cape mountain zebra <i>Equus zebra zebra</i>	5	0.133	0.274
Plains zebra <i>Equus quagga</i>	342	0.733	18.75
<b>Felidae</b>			

African wildcat <i>Felis sylvestrus</i>	47	0.800	2.577
Caracal <i>Caracal caracal</i>	13	0.300	0.713
Leopard <i>Panthera pardus</i>	1	0.033	0.055
<b>Herpestidae</b>			
Cape grey mongoose <i>Galerella pulverulenta</i>	20	0.133	1.097
<b>Hippopotamidae</b>			
Hippopotamus <i>Hippopotamus amphibius</i>	14	0.167	0.768
<b>Hyaenidae</b>			
Brown hyena <i>Hyaena brunnea</i>	8	0.200	0.439
<b>Hystricidae</b>			
Cape porcupine <i>Hystrix africaenustralis</i>	69	0.667	3.783
<b>Leporidae</b>			
Hare spp. <i>Lepus spp.</i>	114	0.368	6.195
Riverine rabbit <i>Bunolagus monticularis</i>	58	0.167	3.180
Smith's red rock hare <i>Pronolagus rupestris</i>	1	0.033	0.055
<b>Mustelidae</b>			
Honey badger <i>Mellivora capensis</i>	26	0.400	1.425
<b>Orycteropodidae</b>			
Aardvark <i>Orycteropus afer</i>	75	0.800	4.112
<b>Viverridae</b>			
Small-spotted genet <i>Genetta genetta</i>	8	0.233	0.439

Table S2: Structure,  $\hat{R}$  values and WAIC values of the all occurrence models fitted. Empty cells indicate covariates not included in the model. Nuisance covariates (latitude, longitude and latitude.longitude) are included in all models. All marginal models set pairwise interaction components to zero. WAIC weight for model  $i$  was calculated as  $\frac{likelihood_i}{\sum likelihood_{i...n}}$  where  $n$  is the total number of models.

Model	Species occupancy	Detection covariate	Vegetation type	Distance to drainage (m)	Predator RAI	Land degradation	Terrain Ruggedness	$\hat{R}$	WAIC	$\Delta$ WAIC	wWAIC
<b>M1</b>	<b>Conditional</b>	NA					*	<b>1.004</b>	<b>893.604</b>	<b>0.000</b>	<b>0.199</b>
M2	Conditional	NA			*			1.008	895.956	2.352	0.062
M3	Conditional	NA			*		*	1.011	895.969	2.366	0.061
M5	Conditional	NA	*		*	*		1.360	895.997	2.393	0.060
M6	Conditional	NA						1.005	896.092	2.488	0.057
M7	Conditional	NA		*	*			1.011	896.512	2.909	0.047
M4	Conditional	NA		*	*			1.003	896.612	3.009	0.044
M8	Conditional	NA	*		*		*	1.007	896.777	3.173	0.041
M9	Conditional	NA		*				1.003	896.835	3.231	0.040
M10	Conditional	NA				*	*	1.007	896.886	3.282	0.039
M11	Conditional	NA						1.004	897.059	3.455	0.035
M12	Marginal	NA			*		*	1.012	897.645	4.041	0.026
M13	Conditional	Habitat						1.005	897.961	4.358	0.023
M14	Marginal	NA			*			1.026	897.999	4.395	0.022
M15	Conditional	Habitat			*		*	1.010	898.018	4.414	0.022
M16	Conditional	NA	*			*		1.008	898.669	5.066	0.016
M17	Conditional	NA	*				*	1.011	898.683	5.079	0.016
M18	Conditional	Habitat				*	*	1.009	898.777	5.174	0.015
M19	Marginal	NA	*					1.009	898.834	5.230	0.015
M20	Conditional	Habitat	*		*		*	1.013	898.932	5.328	0.014
M21	Conditional	Habitat	*				*	1.001	899.085	5.481	0.013
M22	Conditional	NA	*				*	1.001	899.272	5.669	0.012
M23	Marginal	NA	*		*			1.004	899.569	5.966	0.010
M24	Conditional	NA		*	*	*		1.004	899.576	5.972	0.010
M25	Conditional	Habitat	*		*	*		1.002	899.605	6.001	0.010
M26	Marginal	Habitat	*		*			1.002	899.947	6.344	0.008
M27	Conditional	Habitat	*		*	*	*	1.002	900.155	6.552	0.008
M28	Marginal	NA					*	1.009	900.169	6.565	0.007

M29	Marginal	Habitat		*				1.002	900.364	6.761	0.007
M30	Marginal	NA						1.002	900.438	6.835	0.007
M31	Conditional	Habitat	*	*	*			1.002	900.590	6.986	0.006
M32	Marginal	Habitat						1.002	900.834	7.230	0.005
M33	Marginal	NA				*		1.005	900.997	7.393	0.005
M34	Conditional	NA	*	*			*	1.002	901.127	7.524	0.005
M35	Conditional	NA	*				*	1.002	901.517	7.914	0.004
M36	Marginal	Habitat			*	*		1.004	901.565	7.962	0.004
M37	Marginal	NA	*	*	*		*	1.005	901.609	8.005	0.004
M38	Conditional	NA	*			*	*	1.002	902.455	8.851	0.002
M39	Marginal	NA				*		1.007	902.473	8.870	0.002
M40	Conditional	NA	*	*	*		*	1.002	902.780	9.177	0.002
M41	Marginal	Habitat				*		1.015	902.950	9.346	0.002
M42	Marginal	Habitat					*	1.003	903.064	9.460	0.002
M43	Marginal	NA	*					1.003	903.247	9.644	0.002
M44	Marginal	Habitat			*		*	1.002	903.321	9.718	0.002
M45	Conditional	Habitat				*	*	1.002	903.574	9.971	0.001
M46	Conditional	Habitat	*	*			*	1.002	903.633	10.029	0.001
M47	Marginal	Habitat	*					1.002	903.644	10.040	0.001
M48	Marginal	NA	*	*	*		*	1.009	903.788	10.185	0.001
M49	Marginal	Habitat	*					1.009	904.205	10.601	0.001
M50	Conditional	Habitat	*				*	1.002	904.570	10.966	0.001
M51	Conditional	NA	*			*	*	1.003	905.225	11.622	0.001
M52	Marginal	NA				*	*	1.001	905.968	12.364	0.000
M53	Conditional	Habitat	*	*	*		*	1.002	906.136	12.532	0.000
M54	Conditional	Habitat	*			*	*	1.002	906.166	12.562	0.000
M55	Conditional	Habitat	*			*	*	1.011	907.129	13.526	0.000
M56	Marginal	Habitat				*	*	1.001	907.994	14.391	0.000
M57	Marginal	Habitat	*	*	*		*	1.003	909.811	16.207	0.000