Status of terrestrial mammals in the Yangambi Landscape, Democratic Republic of the Congo

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SUPPLEMENTARY TABLE 1 Descriptive statistics for each of the site and observation covariates considered in the dynamic occupancy model.

Variable	Mean	SD	Min	Max	n
Percentage of forest cover	0.977	0.041	0.775	0.999	67
Percentage of deforestation	0.005	0.014	0.000	0.106	67
Distance to nearest trail (km)	1.549	1.826	0.037	8.601	67
Distance to nearest road (km)	11.786	6.012	1.460	25.269	67
Distance to nearest river (km)	0.525	0.374	0.007	1.625	67
Distance to nearest camp site (km)	2.419	1.880	0.209	8.559	67
Distance to nearest village (km)	9.082	3.632	0.757	19.272	67

SUPPLEMENTARY TABLE 2 Summary table for the yearly camera trap surveys.

Year	Total stations	Total effort (trap-days)	Mean minimum distance between camera traps in km (SD)*	Surveyed period	Total detections*
Ngazi					
2018	29	1490	3.9(0.43)	09/10-04/12	86
2019	25	1011	4.2(<0.01)	30/10-12/12	90
2020	25	1176	3.9(0.64)	10/09-30/11	105
2021	30	1849	3.8(0.42)	08/09-13/11	120
Yangambi					
2018	31	1356	3.9(0.61)	10/08-29/09	55
2019	28	1419	4.2(<0.01)	22/08-16/10	57
2020	27	1264	4.0(0.61)	19/11-28/02	69
2021	19	1337	4.4(0.84)	29/10-27/01	54
Both					
2018	60	2846	3.9(0.53)	10/08-04/12	141
2019	53	2430	4.2(<0.01)	22/08-12/12	147
2020	52	2440	3.9(0.63)	10/09-28/02	174
2021	49	3186	4.0(0.69)	08/09-27/01	174

* Blocks were measured separately.

** Within 30-minutes sampling periods.

SUPPLEMENTARY TABLE 3 Spearman correlation index (r) between habitat covariates considered in the dynamic community model. Covariates were assumed to be correlated when r > |0.7| (depicted in bold). Proximity to nearest trail (DTrail) and to fishing/hunting camp site (DCamp) correlates positively, and so the later was discarded from the DCM. DRiver: distance to nearest river, FCover: percentage of forest cover at a 2 km radius, DRoad: distance to nearest river, DVill: distance to nearest village, and Degraded: percentage of recent deforestation at a 4 km radius.

	DTrail	FCover	DTown	DRoad	Degraded	DCamp
DRiver	0.05	0.08	-0.14	0.12	-0.01	0.10
DTrail		0.06	0.03	-0.33	-0.07	**0.89**
FCover			0.38	0.06	-0.69	0.06
DVill				0.22	-0.38	-0.01
DRoad					-0.18	-0.33
Degraded						-0.08

SUPPLEMENTARY TABLE 4 Estimated parameters at the species levels based on the dynamic community model with data augmentation. Here we present only results for those parameters for which the 95% CRI of the posterior distribution excluded zero. Rhat: Gelman-Rubin convergence diagnostic statistic, n.eff: effective sample size, overlap: if the 95% CRI of the posterior distribution overlaps zero.

Parameter	Year/covariate	Species	mean	sd	2.50%	97.50%	Rhat	n.eff	overlap0
alpha.lpsi1[2]	2018	*Cricetomys emini*	6.06	4.09	0.48	16.52	1.08	38	0
alpha.lpsi1[3]	2018	*Rhynchocyon cirnei*	-3.10	0.84	-5.17	-1.77	1.02	142	0
alpha.lpsi1[8]	2018	*Tragelaphus spekii*	-6.06	2.68	-12.81	-2.62	1.08	55	0
alpha.lpsi1[10]	2018	*Hyemoschus aquaticus*	-6.68	2.55	-13.05	-3.43	1.07	49	0
alpha.lpsi1[13]	2018	*Atilax paludinosus*	-6.37	3.8	-15.36	-0.73	1.01	360	0
beta.lpsi1[3,3]	Forest cover	*Rhynchocyon cirnei*	-2.14	1.21	-4.99	-0.33	1.05	54	0
beta.lpsi1[6,3]	Percentage of deforestation	*Rhynchocyon cirnei*	-2.36	1.66	-6.35	-0.16	1.04	92	0
beta.lpsi1[6,7]	Percentage of deforestation	*Philantomba monticola*	-2.39	1.33	-5.46	-0.39	1.02	136	0
beta.lphi[5,5]	Distance to roads	*Cephalophus dorsalis*	1.79	1.63	0.19	6.49	1.05	148	0
beta.lphi[5,7]	Distance to roads	*Philantomba monticola*	1.59	1.43	0.12	5.7	1.04	180	0
beta.lphi[5,16]	Distance to roads	*Geneta* spp	1.92	1.97	0.06	7.64	1.03	236	0
alpha.lgamma[3,3]	2021	*Rhynchocyon cirnei*	-1.91	1.12	-4.48	-0.22	1.01	421	0
alpha.lgamma[1,7]	2019	*Philantomba monticola*	-1.79	1.12	-4.41	-0.13	1	3000	0
alpha.lgamma[2,8]	2020	*Tragelaphus spekii*	-2.97	1.65	-6.75	-0.26	1.01	468	0
alpha.lgamma[3,8]	2021	*Tragelaphus spekii*	-2.22	0.99	-4.41	-0.57	1.02	2220	0
alpha.lgamma[1,13]	2019	*Atilax paludinosus*	-3.33	1.76	-7.61	-0.52	1.02	3000	0
beta.lgamma[2,3]	Distance to trails	*Rhynchocyon cirnei*	0.97	0.49	0.17	2.08	1.02	210	0
beta.lgamma[4,3]	Distance to towns	*Rhynchocyon cirnei*	0.56	0.32	0.01	1.28	1	687	0
alpha.lp[1,1]	2018	*Atherurus africanus*	-2.44	0.53	-3.36	-1.24	1	451	0
alpha.lp[3,1]	2020	*Atherurus africanus*	-1.39	0.31	-1.98	-0.77	1.01	386	0
alpha.lp[4,1]	2021	*Atherurus africanus*	-1.13	0.26	-1.66	-0.61	1	2632	0
alpha.lp[1,2]	2018	*Cricetomys emini*	-2.02	0.27	-2.5	-1.4	1.01	396	0
alpha.lp[3,2]	2020	*Cricetomys emini*	-1.27	0.33	-1.9	-0.6	1	515	0
alpha.lp[4,2]	2021	*Cricetomys emini*	-0.97	0.31	-1.6	-0.39	1	1029	0
alpha.lp[2,4]	2019	*Smutsia gigantea*	-3.63	1.66	-6.78	-0.22	1.02	130	0
alpha.lp[3,4]	2020	*Smutsia gigantea*	-3.55	1.19	-5.77	-0.98	1.01	268	0
alpha.lp[4,4]	2021	*Smutsia gigantea*	-4.46	1.33	-7.11	-1.65	1.00	750	0
alpha.lp[1,5]	2018	*Cephalophus dorsalis*	-1.63	0.40	-2.34	-0.80	1.01	263	0
alpha.lp[2,5]	2019	*Cephalophus dorsalis*	-1.78	0.37	-2.50	-1.04	1.00	1648	0

alpha.lp[3,5]	2020	*Cephalophus dorsalis*	-1.53	0.29	-2.07	-0.93	1.00	3000	0
alpha.lp[4,5]	2021	*Cephalophus dorsalis*	-1.74	0.33	-2.40	-1.12	1.00	3000	0
alpha.lp[1,6]	2018	*Red diurnal duikers*	-2.89	0.76	-4.28	-1.38	1.01	493	0
alpha.lp[2,6]	2019	*Red diurnal duikers*	-3.66	0.98	-5.63	-1.82	1.00	434	0
alpha.lp[3,6]	2020	*Red diurnal duikers*	-2.01	0.62	-3.15	-0.71	1.00	2781	0
alpha.lp[4,6]	2021	*Red diurnal duikers*	-2.26	0.62	-3.44	-1.01	1.00	3000	0
alpha.lp[1,7]	2018	*Philantomba monticola*	-0.74	0.40	-1.62	-0.01	1.00	1013	0
alpha.lp[4,7]	2021	*Philantomba monticola*	-1.45	0.44	-2.29	-0.60	1.00	1641	0
alpha.lp[2,8]	2019	*Tragelaphus spekii*	-2.43	0.78	-4.03	-0.99	1.01	170	0
alpha.lp[1,9]	2018	*Potamochoerus porcus*	-2.97	0.57	-3.96	-1.64	1.01	269	0
alpha.lp[2,9]	2019	*Potamochoerus porcus*	-4.03	0.90	-5.87	-2.35	1.00	532	0
alpha.lp[3,9]	2020	*Potamochoerus porcus*	-3.22	0.63	-4.44	-1.99	1.01	364	0
alpha.lp[4,9]	2021	*Potamochoerus porcus*	-2.37	0.48	-3.32	-1.40	1.00	3000	0
alpha.lp[2,10]	2019	*Hyemoschus aquaticus*	-3.54	1.66	-6.76	-0.04	1.02	122	0
alpha.lp[3,10]	2020	*Hyemoschus aquaticus*	-3.34	0.92	-5.12	-1.49	1.00	523	0
alpha.lp[4,10]	2021	*Hyemoschus aquaticus*	-4.59	1.26	-7.08	-2.17	1.00	448	0
alpha.lp[1,11]	2018	*Papio anubis*	-2.67	1.14	-4.93	-0.53	1.01	325	0
alpha.lp[2,11]	2019	*Papio anubis*	-3.99	1.53	-6.95	-0.85	1.01	169	0
alpha.lp[3,11]	2020	*Papio anubis*	-3.94	1.02	-5.94	-1.91	1.00	605	0
alpha.lp[4,11]	2021	*Papio anubis*	-3.69	0.83	-5.31	-2.02	1.00	1247	0
alpha.lp[1,12]	2018	*Pan troglodytes*	-2.70	1.02	-4.80	-0.86	1.02	142	0
alpha.lp[2,12]	2019	*Pan troglodytes*	-4.08	1.42	-6.96	-1.29	1.01	142	0
alpha.lp[3,12]	2020	*Pan troglodytes*	-3.81	1.04	-5.85	-1.70	1.01	142	0
alpha.lp[4,12]	2021	*Pan troglodytes*	-4.03	0.98	-5.97	-2.12	1.01	348	0
alpha.lp[3,13]	2020	*Atilax paludinosus*	-4.34	1.33	-7.05	-1.74	1.00	420	0
alpha.lp[4,13]	2021	*Atilax paludinosus*	-3.31	0.92	-5.16	-1.56	1.00	791	0
alpha.lp[1,14]	2018	*Crossarchus alexandri*	-3.10	1.41	-5.80	-0.45	1.02	124	0
alpha.lp[2,14]	2019	*Crossarchus alexandri*	-3.11	1.31	-5.58	-0.26	1.02	139	0
alpha.lp[3,14]	2020	*Crossarchus alexandri*	-3.19	0.80	-4.67	-1.52	1.01	215	0
alpha.lp[4,14]	2021	*Crossarchus alexandri*	-4.03	0.98	-6.06	-2.00	1.00	1782	0
alpha.lp[1,15]	2018	*Civettictis civetta*	-2.91	0.63	-4.05	-1.57	1.01	317	0
alpha.lp[2,15]	2019	*Civettictis civetta*	-2.30	0.65	-3.48	-0.89	1.01	296	0
alpha.lp[3,15]	2020	*Civettictis civetta*	-2.19	0.50	-3.10	-1.15	1.00	1256	0
alpha.lp[4,15]	2021	*Civettictis civetta*	-1.52	0.45	-2.44	-0.68	1.00	849	0

alpha.lp[1,16]	2018	*Geneta* spp	-2.52	0.82	-3.86	-0.71	1.01	163	0
alpha.lp[2,16]	2019	*Geneta spp*	-1.09	0.49	-2.04	-0.11	1.00	3000	0
alpha.lp[3,16]	2020	*Geneta spp*	-2.51	0.50	-3.46	-1.52	1.00	1391	0
alpha.lp[4,16]	2021	*Geneta spp*	-2.70	0.54	-3.78	-1.62	1.00	3000	0
beta.lp[1,1]	Sampling effort	*Atherurus africanus*	0.69	0.14	0.47	1.01	1.00	3000	0
beta.lp[1,2]	Sampling effort	*Cricetomys emini*	0.66	0.12	0.46	0.91	1.00	3000	0
beta.lp[1,3]	Sampling effort	*Rhynchocyon cirnei*	0.68	0.14	0.45	1.00	1.00	3000	0
beta.lp[1,4]	Sampling effort	*Smutsia gigantea*	0.62	0.16	0.28	0.97	1.00	1382	0
beta.lp[1,5]	Sampling effort	*Cephalophus dorsalis*	0.62	0.12	0.38	0.86	1.00	3000	0
beta.lp[1,6]	Sampling effort	*Red diurnal duikers*	0.65	0.15	0.36	0.97	1.00	1090	0
beta.lp[1,7]	Sampling effort	*Philantomba monticola*	0.58	0.12	0.33	0.79	1.00	3000	0
beta.lp[1,8]	Sampling effort	*Tragelaphus spekii*	0.64	0.15	0.35	0.96	1.00	3000	0
beta.lp[1,9]	Sampling effort	*Potamochoerus porcus*	0.67	0.15	0.41	1.02	1.00	3000	0
beta.lp[1,10]	Sampling effort	*Hyemoschus aquaticus*	0.61	0.16	0.28	0.92	1.00	2306	0
beta.lp[1,11]	Sampling effort	*Papio anubis*	0.63	0.16	0.31	0.98	1.00	3000	0
beta.lp[1,12]	Sampling effort	*Pan troglodytes*	0.63	0.16	0.32	0.96	1.00	2722	0
beta.lp[1,13]	Sampling effort	*Atilax paludinosus*	0.60	0.16	0.25	0.90	1.00	3000	0
beta.lp[1,14]	Sampling effort	*Crossarchus alexandri*	0.60	0.16	0.23	0.91	1.00	3000	0
beta.lp[1,15]	Sampling effort	*Civettictis civetta*	0.63	0.14	0.35	0.92	1.00	3000	0
beta.lp[1,16]	Sampling effort	*Genetta* spp	0.58	0.14	0.27	0.84	1.00	3000	0

All parameter estimates (except omega and estimated community size NTotal) are in the logit scale, where 'alpha' corresponds to the estimated intercept while 'beta' represents the effect coefficient; for initial occupancy probability (psi1), persistence probability (phi), colonization probability (gamma) and detection probability (p).