

Conservation status of chimpanzees *Pan troglodytes verus* and other large mammals in Liberia: a nationwide survey

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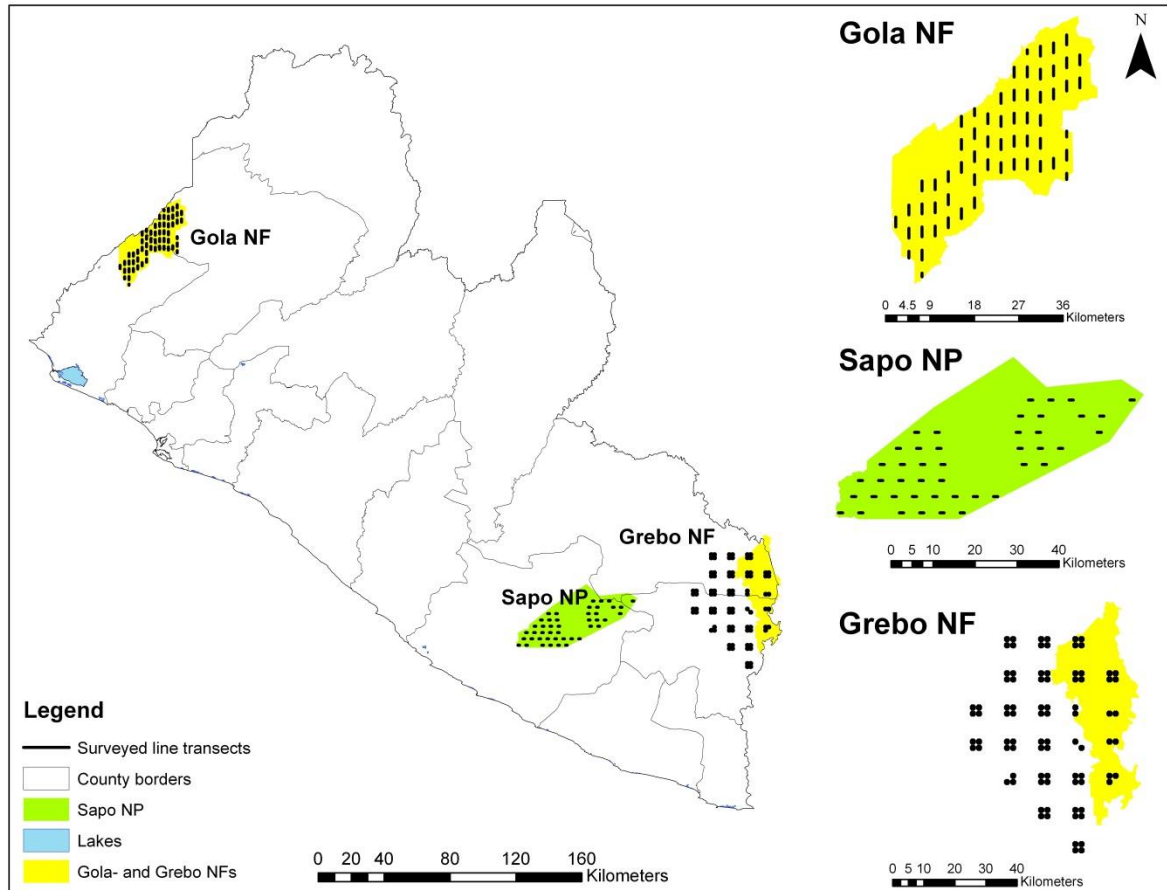


FIG. S1 Map of line-transect survey designs in Sapo National Park and Grebo and Gola National Forests.

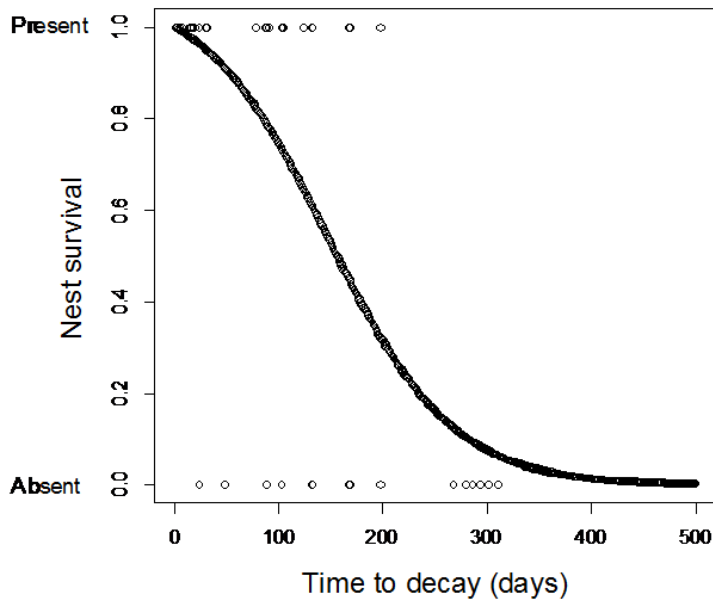


FIG. S2 Logistic regression curve of nest survival as a function of time fitted by the left-truncated model as described by Laing et al. (2003). Open circles represent individual revisited chimpanzee *Pan troglodytes* nests.

SUPPLEMENTARY MATERIAL 1 Distance analysis

We analysed the nest data collected during the nationwide survey separately from those collected in Sapo National Park and Gola and Grebo National Forests because transects on which we found nests during the nationwide survey spanned a variety of altitudes, forest types and climatic conditions that probably affected nest decay and detection probability. We thus used different nest decay rates and calculated detection functions separately for the data collected during the nationwide survey and those collected within existing and proposed conservation areas.

Nationwide

Perpendicular distances were truncated at 40 m, removing the outermost 4% of observations ($n = 4$). We set cut points for presenting histograms and conducting χ^2 goodness-of-fit tests at three equidistant intervals (Table S1). The results of the χ^2 test showed that the detection function fitted our data well (Table S1). Overall detection probability was comparable with results of other studies (Table S2; Brncic et al., 2010). The model with the best fit to the data was the half-normal function with the simple polynomial adjustment term (Table S2).

Conservation areas

We calculated detection probability based on the combined datasets for Sapo National Park and Gola and Grebo National Forests, which we post-stratified by study area (stratum). Perpendicular distances were truncated at 40 m, removing the outermost 1% of observations ($n = 3$). We set cut points for presenting histograms and conducting χ^2 goodness-of-fit tests at

three equidistant intervals (Table S3). The results of the χ^2 test showed that the detection function fitted our data well (Table S3). Overall detection probability was comparable with results of other studies (Table S4; Brncic et al., 2010). The model with the best fit to the data was the half-normal function with the simple polynomial adjustment term (Table S4).

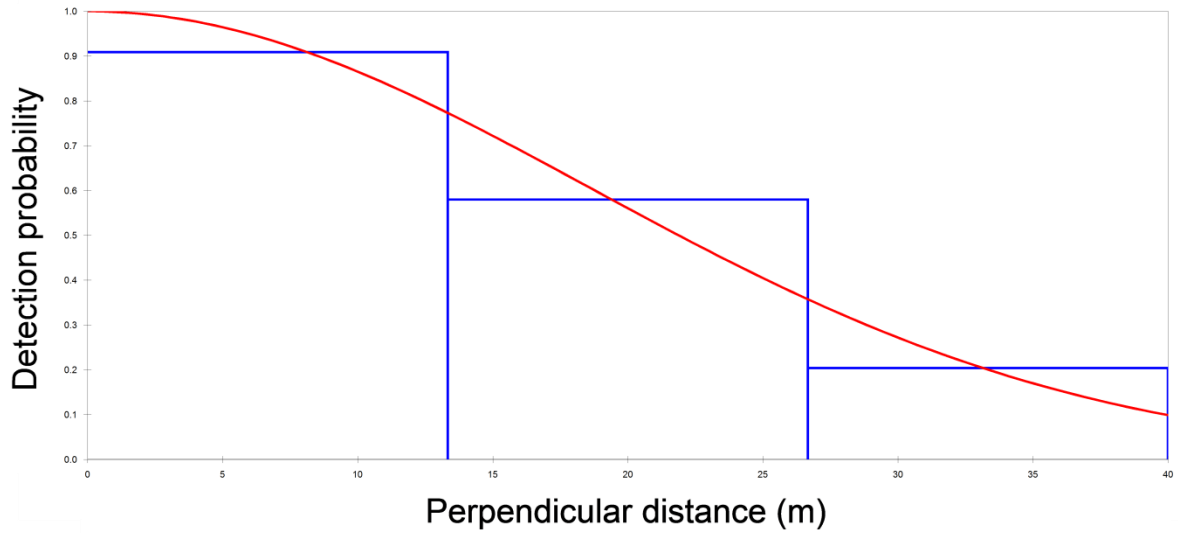


FIG. S3 Plot of detection probability as a function of perpendicular distance for data collected during the nationwide survey.

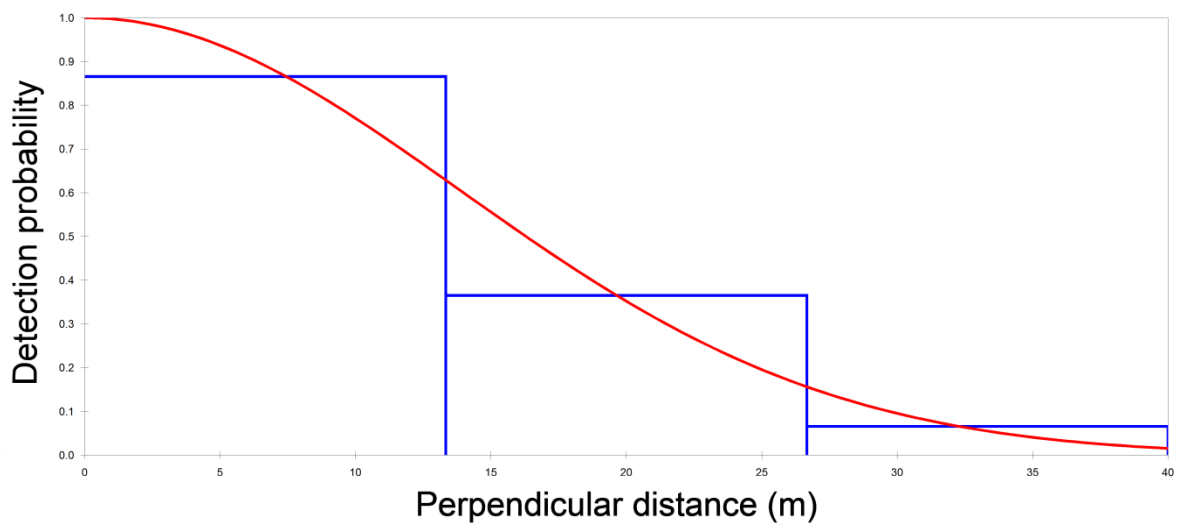


FIG. S4 Plot of detection probability as a function of perpendicular distance for data collected during surveys in Sapo National Park and Grebo and Gola National Forests.

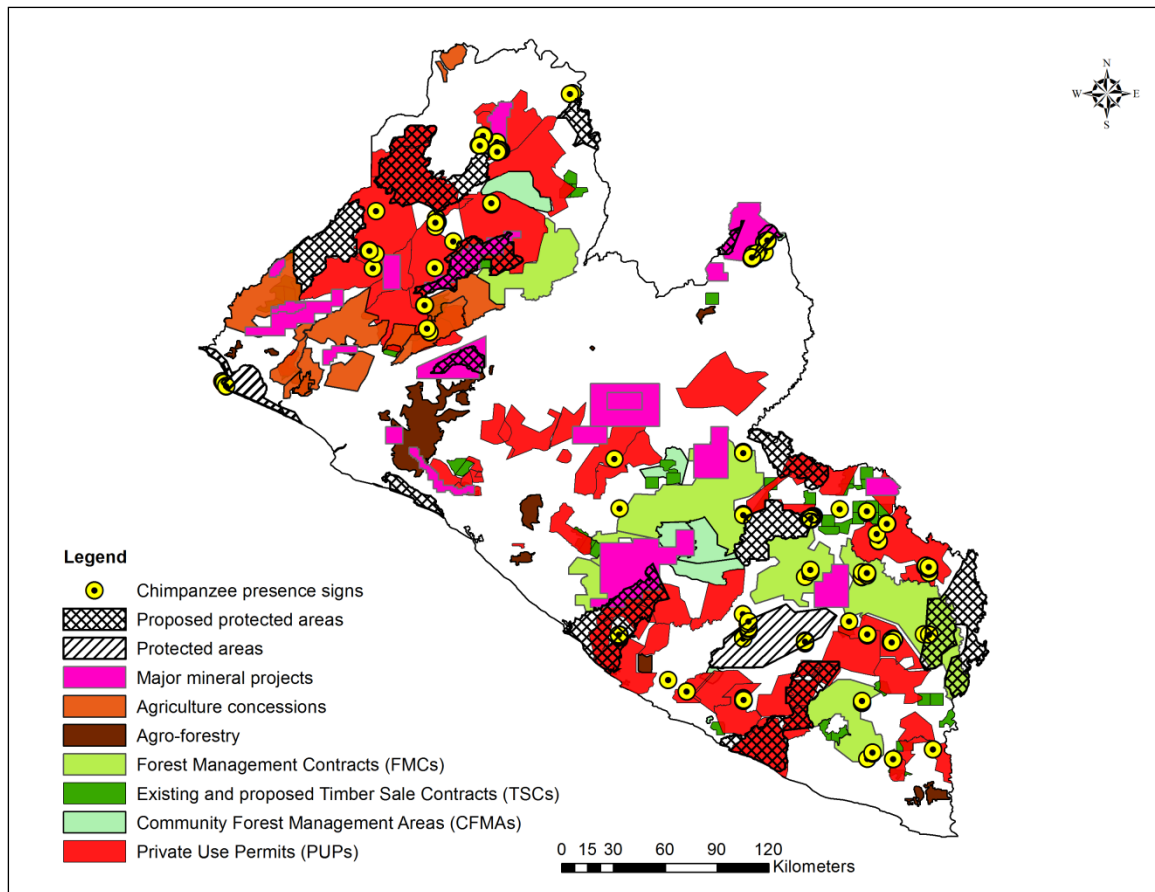


FIG. S5 Map showing locations of major mining projects, existing and proposed forestry concessions, including private-use permits (Global Witness et al., 2012), proposed and fully protected areas (Forestry Development Authority, unpubl. data), and signs of chimpanzee presence. There appears to be considerable overlap between proposed protected areas and mining and/or forestry concessions. The majority of areas in which we found signs of chimpanzee presence have been assigned to mining and forestry concessions. Note that 29 of the 63 private-use permits shown on this map have since been withdrawn by the Liberian government (Blair, 2013).

TABLE S1 Perpendicular distance interval, distance at which each distance interval starts, observed and expected number of nests, and χ^2 values for the data collected during the nationwide survey.

Distance interval	Cut points for distance intervals (m)	Observed no. of nests after truncation	Expected no. of nests after truncation	χ^2
1	0	58	58.75	0.010
2	13.3	37	35.88	0.035
3	26.7	13	13.37	0.010

Total χ^2 value = 0.0551; df = 1.00; probability of a greater χ^2 value, $P = 0.815$

TABLE S2 Summary of half-normal simple polynomial model results calculated in *Distance v. 6.0* for the data collected during the nationwide survey. We fitted three models using the half-normal simple polynomial key function and different numbers of distance intervals. The model with the best fit is indicated in bold. All models have a truncation distance of 40 m. The half-normal cosine key function yielded the same results as the half-normal polynomial function and therefore is not listed here.

Model	No. of distance intervals	No. of parameters	Effective strip width (m)	Probability of nest detection within effective strip width	Akaike information criterion
1	3	1	22.56	0.56	208.49
2	4	1	21.7	0.54	264.07
3	5	2	20.17	0.5	310.78

TABLE S3 Perpendicular distance interval, distance at which each distance interval starts, observed and expected number of nests within the distance interval, and χ^2 values for the combined data collected during surveys in Sapu National Park and Grebo and Gola National Forests.

Distance interval	Cut points for distance intervals (m)	Observed no. of nests after truncation	Expected no. of nests after truncation	χ^2
1	0	185	184.86	0.000
2	13.3	78	78.21	0.001
3	26.7	14	13.93	0.000

TABLE S4 Summary of model results for the combined data collected during surveys in Sapó National Park and Grebo and Gola National Forests. We fitted three models using the half-normal simple polynomial key function and different numbers of distance intervals. The model with the best fit is indicated in bold. All models have a truncation distance of 40 m. The half-normal cosine and half-normal key functions yielded the same results as the half-normal polynomial function and therefore are not listed here.

Model	No. of distance intervals	No. of parameters	Effective strip width (m)	Probability of nest detection within effective strip width	Akaike information criterion
Half-normal simple polynomial	3	1	17.28	0.43	432.63
Half-normal simple polynomial	4	2	20.22	0.51	613.38
Half-normal simple polynomial	5	1	18.42	0.46	731.8
Hazard rate cosine	3	2	19.43	0.49	434.81

TABLE S5 Large mammal species encountered on each line transect. The location of the first direct or indirect observation of each species was recorded and marked using a geographical positioning system. The transect ID is the identification code for each individual transect, based on the cell ID and block ID.

Cell ID	Block ID	Transect ID	Species	Common name	Geographical Cartesian coordinates (UTM zone 29N)
1	4	1_4	<i>Cephalophus niger</i>	Black duiker	647237 487437
2	5	2_5	<i>Cephalophus jentinki</i>	Jentink's duiker	575191 524980
2	5	2_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	575162 526968
2	5	2_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	575179 525998
2	5	2_5	<i>Potamochoerus porcus</i>	Red river hog	575197 527741
2	6	2_6	<i>Cephalophus dorsalis</i>	Bay duiker	575195 530816
2	6	2_6	<i>Hyemoschus aquaticus</i>	Water chevrotain	575197 528392
2	6	2_6	<i>Potamochoerus porcus</i>	Red river hog	575184 529037
3	5	3_5	<i>Atherurus africanus</i>	Porcupine	611175 525031
3	5	3_5	<i>Cephalophus dorsalis</i>	Bay duiker	611225 525527
3	5	3_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	611192 525209
3	5	3_5	<i>Cephalophus niger</i>	Black duiker	611215 525748
3	5	3_5	<i>Cercopithecus petaurista buettikoferi</i>	Lesser spot-nosed monkey	611200 526268
3	5	3_5	<i>Pan troglodytes verus</i>	West African chimpanzee	611211 526888
3	5	3_5	<i>Potamochoerus porcus</i>	Red river hog	611182 525077
3	5	3_5	<i>Tragelaphus euryceros</i>	Bongo	611182 527259
3	9	3_9	<i>Cephalophus dorsalis</i>	Bay duiker	614181 528619
3	9	3_9	<i>Cercocebus atys atys</i>	Sooty mangabey	614156 530080
3	9	3_9	<i>Loxodonta africana cyclotis</i>	Forest elephant	614177 528996
3	9	3_9	<i>Pan troglodytes verus</i>	West African chimpanzee	614139 530605
3	9	3_9	<i>Potamochoerus porcus</i>	Red river hog	614173 528826
5	5	5_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	503265 563582
5	5	5_5	<i>Cephalophus niger</i>	Black duiker	503258 561634
5	8	5_8	<i>Cephalophus dorsalis</i>	Bay duiker	506284 563752
5	8	5_8	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	506230 564080
5	8	5_8	<i>Pan troglodytes verus</i>	West African chimpanzee	506280 566115

6	1	6_1	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	536222	558932
6	5	6_5	<i>Cephalophus jentinki</i>	Jentink's duiker	539218	563257
6	5	6_5	<i>Pan troglodytes verus</i>	West African chimpanzee	539222	560719
8	1	8_1	<i>Cephalophus dorsalis</i>	Bay duiker	608162	558634
8	1	8_1	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	608121	559580
8	1	8_1	<i>Cephalophus niger</i>	Black duiker	608147	557937
8	1	8_1	<i>Cephalophus zebra</i>	Zebra duiker	608162	558634
8	1	8_1	<i>Hyemoschus aquaticus</i>	Water chevrotain	608127	559524
8	1	8_1	<i>Pan troglodytes verus</i>	West African chimpanzee	608083	560617
8	1	8_1	<i>Tragelaphus scriptus</i>	Bushbuck	608118	557784
8	5	8_5	<i>Cephalophus dorsalis</i>	Bay duiker	611124	563666
8	5	8_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	611127	563736
8	5	8_5	<i>Cephalophus niger</i>	Black duiker	611089	563089
8	5	8_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	611142	561868
8	5	8_5	<i>Cephalophus silvicultor</i>	Yellow-backed duiker	611124	562603
9	3	9_3	<i>Smutsia gigantea</i>	Giant pangolin	644064	564664
9	3	9_3	<i>Potamochoerus porcus</i>	Red river hog	644067	565073
9	5	9_5	<i>Cephalophus niger</i>	Black duiker	647069	563706
9	5	9_5	<i>Cricetomys gambianus</i>	Giant pouched rat	647074	563485
9	5	9_5	<i>Herpestes</i> sp.	Mongoose	647068	563613
9	5	9_5	<i>Potamochoerus porcus</i>	Red river hog	647066	563660
10	5	10_5	<i>Cephalophus dorsalis</i>	Bay duiker	467332	596913
10	5	10_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	467324	596715
10	5	10_5	<i>Cephalophus zebra</i>	Zebra duiker	467338	598455
10	5	10_5	<i>Pan troglodytes verus</i>	West African chimpanzee	467309	597743
10	8	10_8	<i>Cephalophus dorsalis</i>	Bay duiker	470297	596974
11	3	11_3	<i>Cephalophus dorsalis</i>	Bay duiker	500272	774991
11	5	11_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	503289	597152
11	5	11_5	<i>Potamochoerus porcus</i>	Red river hog	503272	597486
11	5	11_5	<i>Syncerus caffer nanus</i>	African forest buffalo	503305	596710
12	5	12_5	<i>Cephalophus dorsalis</i>	Bay duiker	539227	599100
12	5	12_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	539220	599109
12	5	12_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	539221	599197
12	5	12_5	<i>Cercopithecus petaurista buettikoferi</i>	Lesser spot-nosed monkey	539176	597378
12	5	12_5	<i>Pan troglodytes verus</i>	West African chimpanzee	539173	598049
12	9	12_9	<i>Loxodonta africana cyclotis</i>	Forest elephant	542199	601346

12	9	12_9	<i>Pan troglodytes verus</i>	West African chimpanzee	542188	601126
12	9	12_9	<i>Procolobus badius</i>	Western red colobus	542206	602306
13	4	13_4	<i>Cephalophus dorsalis</i>	Bay duiker	575105	594625
13	4	13_4	<i>Pan troglodytes verus</i>	West African chimpanzee	575075	595647
13	4	13_4	<i>Potamochoerus porcus</i>	Red river hog	575091	596180
13	5	13_5	<i>Cephalophus dorsalis</i>	Bay duiker	575156	597468
13	5	13_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	575167	597557
13	5	13_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	575168	597264
13	5	13_5	<i>Potamochoerus porcus</i>	Red river hog	575130	596748
14	5	14_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	611058	596779
14	5	14_5	<i>Pan troglodytes verus</i>	West African chimpanzee	611024	598996
14	8	14_8	<i>Potamochoerus porcus</i>	Red river hog	614071	596760
15	2	15_2	<i>Pan troglodytes verus</i>	West African chimpanzee	644006	599389
15	2	15_2	<i>Procolobus badius</i>	Western red colobus	644051	599717
15	5	15_5	<i>Cephalophus dorsalis</i>	Bay duiker	647024	596987
15	5	15_5	<i>Cephalophus jentinki</i>	Jentink's duiker	647034	597411
15	5	15_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	647024	596987
15	5	15_5	<i>Pan troglodytes verus</i>	West African chimpanzee	467004	599115
15	5	15_5	<i>Potamochoerus porcus</i>	Red river hog	647025	597421
15	5	15_5	<i>Tragelaphus euryceros</i>	Bongo	647000	598006
18	3	18_3	<i>Cephalophus dorsalis</i>	Bay duiker	500277	739422
18	3	18_3	<i>Cephalophus zebra</i>	Zebra duiker	500273	739841
20	5	20_5	<i>Cephalophus dorsalis</i>	Bay duiker	575079	632938
20	5	20_5	<i>Cephalophus niger</i>	Black duiker	575126	634731
20	5	20_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	575113	634372
20	5	20_5	<i>Cercopithecus petaurista buettikoferi</i>	Lesser spot-nosed monkey	575092	633539
20	5	20_5	<i>Pan troglodytes verus</i>	West African chimpanzee	575082	632894
20	5	20_5	<i>Syncerus caffer nanus</i>	African forest buffalo	575106	634966
20	5	20_5	<i>Tragelaphus euryceros</i>	Bongo	575095	632628
20	9	20_9	<i>Cephalophus dorsalis</i>	Bay duiker	578073	637460
20	9	20_9	<i>Cephalophus niger</i>	Black duiker	578057	636109
20	9	20_9	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	578055	637694
20	9	20_9	<i>Neotragus pygmaeus</i>	Royal antelope	578089	638199
20	9	20_9	<i>Pan troglodytes verus</i>	West African chimpanzee	578032	636963
21	2	21_2	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	607991	632872
21	2	21_2	<i>Cercopithecus campbelli</i>	Campbell's monkey	608001	635131

21	2	21_2	<i>Pan troglodytes verus</i>	West African chimpanzee	607960	632929
21	2	21_2	<i>Potamochoerus porcus</i>	Red river hog	607964	633264
21	5	21_5	<i>Cephalophus dorsalis</i>	Bay duiker	610975	632597
21	5	21_5	<i>Cephalophus niger</i>	Black duiker	610986	632524
21	5	21_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	610961	633601
21	5	21_5	<i>Colobus polykomos</i>	Western black-and-white colobus	610971	634141
21	5	21_5	<i>Pan troglodytes verus</i>	West African chimpanzee	610963	634859
21	5	21_5	<i>Potamochoerus porcus</i>	Red river hog	610989	632496
22	5	22_5	<i>Cephalophus dorsalis</i>	Bay duiker	646962	634110
22	5	22_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	646963	633821
22	5	22_5	<i>Cephalophus niger</i>	Black duiker	646925	635457
22	5	22_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	646927	635009
22	5	22_5	<i>Pan troglodytes verus</i>	West African chimpanzee	646918	635164
22	5	22_5	<i>Potamochoerus porcus</i>	Red river hog	646912	634625
22	5	22_5	<i>Syncerus caffer nanus</i>	African forest buffalo	646946	635094
22	5	22_5	<i>Tragelaphus euryceros</i>	Bongo	646906	634735
22	6	22_6	<i>Cephalophus dorsalis</i>	Bay duiker	646867	637646
22	6	22_6	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	646887	637355
22	6	22_6	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	646925	635619
22	6	22_6	<i>Cercocebus atys atys</i>	Sooty mangabey	646919	635616
22	6	22_6	<i>Pan troglodytes verus</i>	West African chimpanzee	646894	637463
22	6	22_6	<i>Procolobus badius</i>	Western red colobus	646868	638278
25	5	25_5	<i>Cephalophus dorsalis</i>	Bay duiker	467381	671091
25	5	25_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	467404	669264
25	6	25_6	<i>Cercocebus atys atys</i>	Sooty mangabey	467363	673670
25	6	25_6	<i>Pan troglodytes verus</i>	West African chimpanzee	467394	672648
26	4	26_4	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	503235	667204
26	4	26_4	<i>Cephalophus niger</i>	Black duiker	503234	666075
26	4	26_4	<i>Cercopithecus campbelli</i>	Campbell's monkey	503264	665780
26	4	26_4	<i>Herpestes sp.</i>	Mongoose	503262	665585
26	4	26_4	<i>Loxodonta africana cyclotis</i>	Forest elephant	503261	668236
26	4	26_4	<i>Syncerus caffer nanus</i>		503259	668205
26	4	26_4	<i>Tragelaphus euryceros</i>	Euryceros	503261	668236
26	5	26_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	503285	673010
26	5	26_5	<i>Hylochoerus meinertzhageni</i>	Giant forest hog	503288	673991

27	2	27_2	<i>Cephalophus dorsalis</i>	Bay duiker	536149	669151
27	2	27_2	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	536158	670947
27	2	27_2	<i>Choeropsis liberiensis</i>	Pygmy hippopotamus	536137	669346
27	2	27_2	<i>Potamochoerus porcus</i>	Red river hog	536167	670821
27	5	27_5	<i>Cephalophus dorsalis</i>	Bay duiker	539153	671135
27	5	27_5	<i>Cephalophus jentinki</i>	Jentink's duiker	539159	669013
27	5	27_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	539150	671088
27	5	27_5	<i>Cephalophus niger</i>	Black duiker	539136	670549
27	5	27_5	<i>Pan troglodytes verus</i>	West African chimpanzee	539160	669287
28	5	28_5	<i>Atherurus africanus</i>		575079	669740
28	5	28_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	575077	669537
28	5	28_5	<i>Cephalophus niger</i>	Black duiker	575100	670033
28	5	28_5	<i>Cephalophus silvicultor</i>	Yellow-backed duiker	575069	669105
28	5	28_5	<i>Cercopithecus petaurista buettikoferi</i>	Lesser spot-nosed monkey	575021	671301
28	5	28_5	<i>Choeropsis liberiensis</i>	Pygmy hippopotamus	575076	669126
28	5	28_5	<i>Potamochoerus porcus</i>	Red river hog	575061	669322
28	5	28_5	<i>Smutsia gigantea</i>	Giant pangolin	575070	669570
28	5	28_5	<i>Tragelaphus scriptus</i>	Bushbuck	575032	671193
29	1	29_1	<i>Cephalophus dorsalis</i>	Bay duiker	607938	665880
29	1	29_1	<i>Cercopithecus campbelli</i>	Campbell's monkey	607942	668292
29	5	29_5	<i>Cephalophus niger</i>	Black duiker	610896	668809
29	5	29_5	<i>Pan troglodytes verus</i>	West African chimpanzee	610874	670238
29	5	29_5	<i>Potamochoerus porcus</i>	Red river hog	610882	670472
30	5	30_5	<i>Tragelaphus scriptus</i>	Bushbuck	323903	704361
31	3	31_3	<i>Tragelaphus scriptus</i>	Bushbuck	392662	707785
32	5	32_5	<i>Cephalophus niger</i>	Black duiker	431530	704912
32	5	32_5	<i>Thryonomys swinderianus</i>	Greater cane rat	431530	704793
32	5	32_5	<i>Tragelaphus scriptus</i>	Bushbuck	431515	704306
33	1	33_1	<i>Pan troglodytes verus</i>	West African chimpanzee	464376	701432
34	5	34_5	<i>Tragelaphus scriptus</i>	Bushbuck	503263	709200
35	5	35_5	<i>Pan troglodytes verus</i>	West African chimpanzee	539141	705360
35	9	35_9	<i>Cephalophus niger</i>	Black duiker	542098	708974
37	5	37_5	<i>Tragelaphus scriptus</i>	Bushbuck	288169	742827
40	5	40_5	<i>Cephalophus dorsalis</i>	Bay duiker	395714	740487
40	5	40_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	395690	741243
40	5	40_5	<i>Cephalophus niger</i>	Black duiker	395713	740398

40	5	40_5	<i>Tragelaphus scriptus</i>	Bushbuck	395689	741247
40	7	40_7	<i>Cephalophus dorsalis</i>	Bay duiker	398701	737080
40	7	40_7	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	398684	739887
41	4	41_4	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	431583	739377
41	5	41_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	431538	740156
41	5	41_5	<i>Tragelaphus scriptus</i>	Bushbuck	431557	740012
43	5	43_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	503268	740663
43	5	43_5	<i>Cephalophus niger</i>	Black duiker	503268	740658
44	1	44_1	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	536122	739564
44	1	44_1	<i>Cephalophus niger</i>	Black duiker	536125	739561
44	1	44_1	<i>Hyemoschus aquaticus</i>	Water chevrotain	536120	739331
44	1	44_1	<i>Tragelaphus scriptus</i>	Bushbuck	536120	737090
44	5	44_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	539151	740783
44	5	44_5	<i>Tragelaphus scriptus</i>	Bushbuck	539121	740902
45	5	45_5	<i>Cephalophus niger</i>	Black duiker	252488	777887
45	5	45_5	<i>Tragelaphus scriptus</i>	Bushbuck	252460	778751
45	8	45_8	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	255453	778368
46	4	46_4	<i>Cephalophus jentinki</i>	Jentink's duiker	288325	775331
46	4	46_4	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	288311	775255
46	5	46_5	<i>Tragelaphus scriptus</i>	Bushbuck	288307	779110
47	3	47_3	<i>Cercopithecus campbelli</i>	Campbell's monkey	321161	779173
47	3	47_3	<i>Loxodonta africana cyclotis</i>	Forest elephant	321158	780971
47	3	47_3	<i>Potamochoerus porcus</i>	Red river hog	321134	780198
47	5	47_5	<i>Cephalophus jentinki</i>	Jentink's duiker	324086	779032
47	5	47_5	<i>Cephalophus niger</i>	Black duiker	324116	777652
47	5	47_5	<i>Hyemoschus aquaticus</i>	Water chevrotain	324088	779041
48	1	48_1	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	356971	775848
48	1	48_1	<i>Cephalophus niger</i>	Black duiker	356984	775521
48	1	48_1	<i>Pan troglodytes verus</i>	West African chimpanzee	356978	775101
48	5	48_5	<i>Cephalophus niger</i>	Black duiker	359958	777542
50	4	50_4	<i>Cephalophus dorsalis</i>	Bay duiker	431591	774685
50	4	50_4	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	431589	774683
50	4	50_4	<i>Tragelaphus scriptus</i>	Bushbuck	431598	775275
50	5	50_5	<i>Cephalophus niger</i>	Black duiker	431595	776601
50	5	50_5	<i>Tragelaphus scriptus</i>	Bushbuck	431595	776602
52	2	52_2	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	500276	598636

52	2	52_2	<i>Potamochoerus porcus</i>	Red river hog	500261	596661
52	5	52_5	<i>Tragelaphus scriptus</i>	Bushbuck	503256	775802
53	5	53_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	539098	777816
53	5	53_5	<i>Cephalophus niger</i>	Black duiker	539102	777749
53	5	53_5	<i>Tragelaphus scriptus</i>	Bushbuck	539089	777861
53	6	53_6	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	539077	780501
54	5	54_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	288416	812411
54	5	54_5	<i>Loxodonta africana cyclotis</i>	Forest elephant	288462	813478
54	6	54_6	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	288458	816451
54	6	54_6	<i>Loxodonta africana cyclotis</i>	Forest elephant	288435	816127
55	2	55_2	<i>Cephalophus dorsalis</i>	Bay duiker	321298	813859
55	2	55_2	<i>Cephalophus niger</i>	Black duiker	321309	814378
55	5	55_5	<i>Pan troglodytes verus</i>	West African chimpanzee	324254	812388
56	3	56_3	<i>Cephalophus dorsalis</i>	Bay duiker	357066	816230
56	3	56_3	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	357055	815747
56	3	56_3	<i>Potamochoerus porcus</i>	Red river hog	357076	816327
56	3	56_3	<i>Syncerus caffer nanus</i>	African forest buffalo	357090	814878
56	5	56_5	<i>Cephalophus dorsalis</i>	Bay duiker	360037	812707
56	5	56_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	360020	812241
56	5	56_5	<i>Pan troglodytes verus</i>	West African chimpanzee	360018	812440
56	5	56_5	<i>Tragelaphus euryceros</i>	Bongo	360037	812707
58	5	58_5	<i>Cephalophus dorsalis</i>	Bay duiker	431676	814583
58	5	58_5	<i>Cephalophus jentinki</i>	Jentink's duiker	431686	811666
58	5	58_5	<i>Potamochoerus porcus</i>	Red river hog	431699	814063
58	9	58_9	<i>Cephalophus dorsalis</i>	Bay duiker	434639	815771
58	9	58_9	<i>Cephalophus jentinki</i>	Jentink's duiker	434642	815589
58	9	58_9	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	434644	815756
59	5	59_5	<i>Cephalophus dorsalis</i>	Bay duiker	539115	813793
59	5	59_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	539115	813793
60	4	60_4	<i>Cephalophus dorsalis</i>	Bay duiker	324374	846111
60	5	60_5	<i>Cephalophus dorsalis</i>	Bay duiker	324357	847962
60	5	60_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	324363	849297
60	5	60_5	<i>Cephalophus niger</i>	Black duiker	324352	848745
60	5	60_5	<i>Cercocebus atys atys</i>	Sooty mangabey	324345	849415
60	5	60_5	<i>Cercopithecus campbelli</i>	Campbell's monkey	324345	849415
60	5	60_5	<i>Hyemoschus aquaticus</i>	Water chevrotain	324372	849069

62	2	62_2	<i>Atherurus africanus</i>	Porcupine	392979	848431
62	2	62_2	<i>Cephalophus dorsalis</i>	Bay duiker	392967	849560
62	2	62_2	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	392970	848187
62	2	62_2	<i>Cephalophus niger</i>	Black duiker	392978	848762
62	2	62_2	<i>Cercocebus atys atys</i>	Sooty mangabey	392980	848342
62	2	62_2	<i>Cercopithecus campbelli</i>	Campbell's monkey	392984	848464
62	2	62_2	<i>Pan troglodytes verus</i>	West African chimpanzee	392944	850189
62	2	62_2	<i>Potamochoerus porcus</i>	Red river hog	392975	848246
62	5	62_5	<i>Cephalophus ogilbyi</i>	Ogilby's duiker	395963	850379
63	5	63_5	<i>Cephalophus dorsalis</i>	Bay duiker	431704	849719
63	5	63_5	<i>Cephalophus jentinki</i>	Jentink's duiker	431724	848675
63	5	63_5	<i>Potamochoerus porcus</i>	Red river hog	431708	850124
63	8	63_8	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	434700	848603
63	8	63_8	<i>Cephalophus niger</i>	Black duiker	434711	848091
64	5	64_5	<i>Cephalophus niger</i>	Black duiker	360267	884930
64	5	64_5	<i>Potamochoerus porcus</i>	Red river hog	360263	885332
64	5	64_5	<i>Tragelaphus scriptus</i>	Bushbuck	360285	883796
64	7	64_7	<i>Cephalophus dorsalis</i>	Bay duiker	363237	882060
64	7	64_7	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	363247	882500
64	7	64_7	<i>Cercopithecus campbelli</i>	Campbell's monkey	363252	881905
64	7	64_7	<i>Cercopithecus petaurista buettikoferi</i>	Lesser spot-nosed monkey	363232	882648
64	7	64_7	<i>Loxodonta africana cyclotis</i>	Forest elephant	363250	882456
64	7	64_7	<i>Potamochoerus porcus</i>	Red river hog	363241	883497
65	5	65_5	<i>Cephalophus dorsalis</i>	Bay duiker	396024	884181
65	5	65_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	396022	884124
65	5	65_5	<i>Cercocebus atys atys</i>	Sooty mangabey	396041	885524
65	5	65_5	<i>Pan troglodytes verus</i>	West African chimpanzee	396086	885809
65	5	65_5	<i>Potamochoerus porcus</i>	Red river hog	396024	884100
67	1	67_1	<i>Cephalophus dorsalis</i>	Bay duiker	393129	917475
67	1	67_1	<i>Tragelaphus scriptus</i>	Bushbuck	393143	918985
67	5	67_5	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	396113	920087
67	5	67_5	<i>Potamochoerus porcus</i>	Red river hog	396122	920931
68	5	68_5	<i>Syncerus caffer nanus</i>	African forest buffalo	431832	920388
68	5	68_5	<i>Tragelaphus scriptus</i>	Bushbuck	431819	919482
68	9	68_9	<i>Cephalophus monticola maxwelli</i>	Maxwell's duiker	434802	924789
68	9	68_9	<i>Cephalophus niger</i>	Black duiker	434792	925004

